

ANALYSIS OF THE GUIDE TO THE PROPOSED BASIN PLAN

South Australia's Expectations

South Australia has a number of expectations of the Basin Plan.

It is clear from the *Water Act 2007* (Cth) (the Act) that the Basin Plan must re-balance social, environmental and economic requirements. The River Murray is essential to the State's economy and the Basin Plan must enable productive, profitable and sustainable primary industries to continue and communities to thrive.

The Government of South Australia is seeking the following outcomes from the Basin Plan:

- An integrated whole of Basin approach, building on the 'one river' approach supported by the Commonwealth and Basin States through the Living Murray Initiative.
- Sufficient and secure environmental flows to restore and maintain ecological health, function and processes across the Murray-Darling Basin, and in particular to the Coorong, Lower Lakes and Murray Mouth. An end of system flow target is essential for the long term health of the Basin.
- A defined volume of water for South Australia's critical human water needs (CHWN) that meets the State's minimum requirements, and an effective and flexible reserves policy to provide for delivery of CHWN during drought.
- A fair, equitable and consistent approach to sustainable diversion limits that addresses over-allocation and recognises responsible behaviour and management practices. Recognition of past efforts in capping water extractions early, and infrastructure upgrades to improve irrigation efficiency in South Australia, so that South Australian communities are not disproportionately affected.
- Development of Sustainable Diversion Limits (SDL) using a framework that aims to maximise net social benefits.
- Provision for a diverse and healthy environment that supports productive, sustainable regional industries and communities, including consideration of the impacts of the transition to new arrangements.
- An efficient and open water market that maximises the opportunity for trading within and between Basin states while recognising and protecting the needs of the environment and third parties. To better achieve a mature market, South Australia is cognisant of the need for more equitable access to storage rights across the Basin.
- Identification of the risks to the condition or continued availability of the Basin's water resources, including those arising from climate change, interception activities (e.g. farm dams and plantation forestry), changes to land use and knowledge gaps and limitations, and strategies to address these risks.
- A Water Quality and Salinity Management plan that identifies the key causes of water quality degradation in the Murray-Darling Basin and includes water quality and salinity management objectives, targets and policies to protect drinking water, agriculture, recreation and environmental values in South Australia.
- An Environmental Watering Plan that facilitates a flexible and collaborative approach between all jurisdictions and delivers sufficient water at the right times to achieve the requirements of the Basin's key ecological assets and functions, including at the Coorong, Lower Lakes and Murray Mouth.

An overview of these outcomes follows. This includes an outline of the extent to which the outcome is addressed in the *Guide to the proposed Basin Plan* (the Guide), and highlights any specific issues that South Australia would like addressed before the release of the proposed Basin Plan.

Some key general points

- South Australia wants to see the imperative for change significantly strengthened. Inclusion of a 'do nothing' baseline scenario must be considered to ensure the resultant impacts and benefits of any SDL reductions are clearly understood. This issue is discussed further in the SDL section of this attachment.
- Sufficient technical information must be provided to enable informed assessment about how the various recovered water volumes will meet Environmental Water Requirements (EWR) at Hydrological Indicator Sites, as well as information on how these translate to meeting the hydrological requirements of Key Ecosystem Functions (KEF) and Key Ecological Assets (KEA). Provision by the Authority of the models, assumptions and data used in the scenarios will assist South Australia in understanding and assessing the specific implications of the Guide for South Australia and across the Basin.
- Improvements in referencing and language consistency will clarify the outcomes of the Guide.
- Transparency of the logic behind key decisions will assist in understanding the methodology.
- Clarification is required regarding the roles and responsibilities of each jurisdiction involved in water resource management and operations, including the interaction between the Commonwealth Environmental Water Holder (CEWH), State Governments and the Authority.
- Clarification of responsibilities in funding any planning and implementation costs is also required.

1. Integrated approach

South Australia strongly supports an integrated whole of Basin approach, building on the 'one river' approach supported by the Commonwealth and Basin States through the Living Murray Initiative.

The Guide uses language that supports the concept of a 'one river', no borders approach to addressing the serious environmental decline in many parts of the Basin. However, this concept does not seem to have been consistently applied and should be significantly strengthened. It would also be appropriate to highlight the very significant and successful programs that have been undertaken to date through positive, collaborative partnerships, such as the Living Murray Initiative.

2. Securing Environmental Flows

South Australia strongly supports the provision of sufficient and secure environmental flows to restore and maintain ecological health, function and processes across the Murray-Darling Basin including the Coorong, Lower Lakes and Murray Mouth.

It is encouraging that the Guide recognises the environment as a legitimate user of water. The provision of greater security to environmental water must be a major outcome of the Basin Plan and the definition of EWR is a positive step toward achieving the ecological objectives at key environmental assets.

The Guide states that the analysis of the amount of water needed for the Basin's environment indicates a range of 3,000 – 7,600 gegalitres per year (GL/yr) (long-term average). The Authority indicates that a proposal to return less than 3,000 GL/yr would be unlikely to achieve the environmental outcomes needed to restore Basin health, particularly for the Coorong, Lower Lakes and Murray Mouth.

It is very concerning that, by the Authority's own assessment in the Guide, a return of 4,000 GL/yr would only restore the Murray catchment to a less than moderate health rating. The Government of South Australia does not believe that the Authority would be

fulfilling its obligations to restore the Basin to an acceptable level of health if it were to accept an outcome that only returns parts of the system to a poor to moderate condition.

Greater transparency, clarification and additional information are needed with respect to the Authority's decision that a scenario returning more than 4,000 GL/yr would have unacceptable socio-economic impacts. In particular:

- What is the socio-economic threshold at which reductions "would not represent an optimisation of the economic, social and environmental outcomes"? How was this determined?
- What assessment has been undertaken to conclude that this threshold would be the same for all parts of the Basin and all communities?
- Is there a similar environmental threshold at which reductions "would not represent an optimisation of the economic, social and environmental outcomes"? How was this determined?
- What process or benchmarks were used to determine this as being unacceptable economically, socially and environmentally?
- What key studies and findings underpin this rationale?

While the evidence for the decisions may be in the accompanying documents, it is currently difficult to identify the specific document(s) that informed a particular decision or rationale due to poor referencing and the summary level of information in the Guide. South Australia requests that specific references be provided to improve understanding of the rationale for only examining scenarios in the range 3,000 – 4,000 GL/yr.

In the analysis of the direct economic implications for irrigated agriculture of the upper 4,000 GL/yr limit, the Authority has assumed there is no change in agricultural practices and does not take into account improvements in water efficiency and innovation. By the Authority's own assessment, the reduction in gross value may therefore be overstated. This is an important factor that requires further consideration given that the upper limit being considered (4,000 GL/yr) has been based on this analysis. Further socio-economic analyses must adequately incorporate these factors.

South Australia also requests that sufficient technical information be provided to assess how the various recovered water volumes could meet the EWR at hydrological indicator sites, as well as information on how these translate to meeting the hydrological requirements of the KEF and the KEA.

There is a lack of transparency between EWRs and the Environmental Watering Provisions that would occur under the various recovery scenarios described within the Guide.

In order for South Australia to effectively respond to the Authority on implications of the Guide, access to the underlying modelling information and assumptions must be provided. This information would allow South Australia to address the following concerns regarding the proposed recovery volumes:

- How have the trade-offs between environmental, economic and social outcomes been made and what are they?
- Whether the proposed Sustainable Diversion Limit scenarios presented will provide for the EWR of the indicator sites in the Lower Murray, given that a rating of 'poor' implies that the key ecosystem functions are compromised.
- Identifying how EWR have been set for indicator sites and how that information has been converted to the total EWR across the Basin.
- Whether extreme low flows, maintenance of salt export, and maintenance of water levels above 0.0m AHD in extreme years can be achieved for Lakes Alexandrina and

- Albert to prevent acidification, or the need to implement emergency management actions.
- The EWR set by the Authority for the Riverland-Chowilla Floodplain were assessed by South Australia and identified as inadequate, in particular because:
 - the targets are too narrow and only the maintenance of vegetation is considered, and not improvement or recruitment which are essential;
 - only a small number of vegetation species were selected in the development of the targets;
 - the range of different flow heights and durations is too narrow; and
 - lack of clarity as to how the proposed management of environmental water caters for these volumes.
 - South Australia has provided the Authority with advice on preferred EWRs for the South Australian indicator sites, however, the advice has not been adopted and associated changes to the EWRs set for the Riverland - Chowilla Floodplain site have not been made.

The specific implications of the Guide are difficult to assess without the models, assumptions and data used in the three Sustainable Diversion Limits (SDL) scenarios. However, based on the data and information that is presented in the Guide, there is concern that these volumes may not maintain the key environmental assets and functions within South Australia as:

- volumes of 3,000 GL/yr and 3,500 GL/yr are unlikely to meet requirements of both key ecological assets in South Australia, Riverland - Chowilla Floodplain and Coorong, Lower Lakes and Murray Mouth sites;
- waterbird abundance is not improved until volumes approaching 4,000 GL/yr, and with a volume of 3,000 GL/yr it is likely a continued decline in abundances will occur; and
- the SA Murray will be maintained as 'poor' under the 3,000 GL/yr and 3,500 GL/yr scenarios and the Guide states that a rating of 'poor' implies that the key ecosystem functions are compromised.

It is unclear why a differentiation has been made between end of system flows (flows out of mouth) and environmental water given that flow out of the mouth is still water that serves an environmental function. The flow of water out of the Basin is critical to underpinning the productive base due to the export of salt and other pollutants from the Basin, while also providing ecological connectivity and supporting other key ecosystem functions.

The Government of South Australia believes that the development of end of Basin flow and salinity targets is critical to ensuring ecological and water quality objectives are achieved at all key ecological assets.

South Australia wants to see an end-of-system flow target in the proposed Basin Plan that ensures an open Murray Mouth, without the need to continue spending millions of dollars on a dredging program. An open Murray Mouth is essential to the health of the Basin system as a whole.

The Government of South Australia has undertaken rigorous scientific analysis that has informed and confirmed our absolute commitment to a freshwater future for the Lower Lakes. The Basin Plan must secure sufficient environmental flows to restore and maintain ecological health, function and processes across the Murray-Darling Basin, including for the Coorong, Lower Lakes and Murray Mouth Ramsar site. This will require an integrated whole of Basin approach.

Climate change

It is not clear in the Guide what the impacts of climate change mean in terms of SDL security and environmental water security for the three scenarios outlined. The statement is made that 3,000 GL/yr represents the minimum the Authority considers is required to achieve the environmental objectives of the Act (although the Murray still has a 'poor' rating). It then goes on to say (page 75) "This level of reduction has a high dependence on a long-term return to wetter climatic conditions across the Basin." This statement needs to be clarified and South Australia is keen to work with the Authority to understand the implications for the key ecological assets across the Basin, particularly in South Australia.

It would be useful if the Authority could provide information as to how water could be allocated under different climate scenarios and what the resulting ecological and economic impacts would be. It is unclear whether the scenarios being considered (3,000 – 4,000 GL/yr) will be sufficient in very dry years to maintain ecological health.

While it is encouraging that the Guide acknowledges the potential risks of climate change, it is of concern that the three percent of water assigned for climate change may not be sufficient to account for the loss of in-stream flow.

Watering plans

There is a lack of clarity within the Guide in regards to:

- How environmental water requirements and sustainable diversion limits are going to be used to develop the environmental watering plans; and
- Delineation of roles and responsibilities of the Authority and the CEWH.

Clarification is required as to the role of, and interaction between, each jurisdiction involved in management and operations of environmental water, including the CEWH, State Governments and the Authority.

The Guide does not guarantee that key environmental assets will always receive a share of the water that is provided to the environment, as it will be dependent on annual watering priorities as determined by the CEWH, although the establishment of an Environmental Watering Advisory Group is strongly supported. Key questions include:

- How will decisions be made about annual watering priorities?
- How will potential salinity and water quality impacts be managed?
- Will decisions be collaborative and transparent, within a 'whole of basin' framework?

3. Critical Human Water Needs

South Australia supports a defined volume for critical human water needs that meets the State's minimum requirements, as well as an effective and flexible reserves policy to provide for delivery of critical human water needs during drought.

South Australia supports recognition of the importance of CHWN and associated conveyance water provisions in the Guide. The Government strongly supports the 204 GL volume identified in the Guide as the volume that the State needs to be able to accumulate for use in drought conditions. It is recognised that it is the Government's responsibility to ensure the water is available to meet CHWN during drought. This volume is expected to meet the State's minimum requirements. In addition, an effective and flexible reserves policy is required to provide for delivery of that water during drought.

South Australia recognises that the conveyance reserve volume identified in the *Guide to the proposed Basin Plan - Volume 2* is currently under review through the development of *Schedule H for Water Sharing During Tiers 2 and 3* for inclusion in the *Murray-Darling*

Basin Agreement. Any determination in relation to the conveyance reserve volume and the reserves policy generally through this review should be used in the Basin Plan.

The Government of South Australia agrees that the Adelaide Desalination Plant should not be taken into account in determining South Australia's critical human water needs. South Australia has undertaken a comprehensive study of the State's water supply and demand until 2050. The full CHWN volume is required, both now and in the future, to ensure that South Australia's water demand requirements are reasonably met in times of low water availability.

The Adelaide Desalination Plant has been built as a climate-independent source of water, additional to the Mt Lofty Ranges and River Murray sources, for the provision of potable water supplies for Greater Adelaide. The Adelaide Desalination Plant will provide Adelaide with additional water security. It is projected that there would be a significant shortfall in water supplies for Greater Adelaide well before 2050 if the Adelaide Desalination Plant was not used for this purpose.

Importantly, the Adelaide Desalination Plant ensures that Adelaide can manage future growth and climate variation without increasing take from the River Murray. This will result in a reduced reliance on the River Murray for Adelaide's water supply, particularly in times of drought.

4. Sustainable Diversion Limits

South Australia supports a fair and equitable approach to new sustainable diversion limits that addresses over-allocation and recognises responsible behaviour and management practices.

South Australia supports the Authority in setting SDLs based on a methodology that is transparent, scientifically based and consistent across all catchments. South Australia supports addressing levels of over-allocation in the Basin and is prepared to bear its fair share of reductions.

South Australia recognises that the Authority has set Current Diversion Limits (CDL) as a common 'starting point' for determining SDLs. However, there must be a clearer understanding and articulation of the relationship between the proposed CDL, the current States' Caps and the proposed future arrangements.

The Government of South Australia does not agree with the Authority's interpretation of South Australia's CDL for either the River Murray or the Eastern Mt Lofty Ranges (EMLR). In addition, we have significant concerns regarding the assessment of the proposed SDL for the Angas Bremer region. Concerns and further explanation regarding these concerns are outlined below.

South Australian Murray

There must be greater clarity with respect to the determination of 665 GL as the CDL for surface water diversions for the River Murray in South Australia and greater clarity as to whether a consistent methodology was applied across all catchments. South Australia requests that the Authority provides documentation outlining the methodology applied in setting CDLs.

The Authority needs to better articulate the methodologies used to identify both the current diversion limits and the SDL, including the full extent to which water already recovered for the environment has been included in the reductions required. In addition, clarity is required as to whether conveyance water (or system loss) is included in the proposed SDL.

The Authority must take into account the conservative approach taken by South Australian water holders in using their water entitlements. The method used by the Authority to calculate CDL has not taken account of this. At this stage, the Government of South Australia does not support the method used. It is our view that setting the CDL using modelled long-term average use significantly disadvantages our entitlement holders. Between now and the release of the proposed Basin Plan we expect to work with the Authority to clarify the approach and come to a mutually agreed position.

Early actions taken by respective South Australian governments to cap water extractions from the River Murray must also be taken into account when determining SDLs. South Australia has operated under a cap since 1969. This has been reduced twice further by the South Australian government, once in 1979 and again in 1991. During negotiations to establish the first Basin Cap on diversions in the 1990's, South Australia's All Other Purposes Cap was set at 90% of entitlements for pumped irrigation. Meanwhile, according to the Guide, diversions in the rest of the Basin increased from 7,500 GL during the 1970s to a maximum in 1999 of 12,500 GL – or a further 5,000 GL.

All South Australian irrigation water delivery infrastructure has been upgraded over the past 30 years, mostly to fully piped pressurised systems, with a significant proportion of the water savings being returned to the environment. On-farm, South Australian irrigators have invested heavily in irrigation efficiency to maximise their water availability in the capped environment.

There are few, if any, additional major opportunities to cost-effectively increase the water use efficiency of infrastructure in South Australia. The impacts of this must be recognised in setting the final SDLs to avoid a disproportionate impact on South Australia's irrigated production and associated flow-through impacts to dependent regional communities. This is also a matter that we consider would benefit from a collaborative approach between the Authority and South Australia to develop a methodology that can be applied Basin-wide.

The majority of water recovered in South Australia will need to be acquired through water purchase. A clearer and more transparent water purchase process is needed to maximise water recovery in a way that is fair and equitable. The Commonwealth Government is currently the dominant participant in a market that has been severely impacted by years of unprecedented drought resulting in huge variations to market price. Trade barriers have also contributed to market distortion.

The Government of South Australia welcomes the Commonwealth's commitment to 'bridging the gap' for the achievement of both surface water and groundwater SDLs. To achieve this commitment, the Commonwealth must undertake a review and enhancement of the qualification criteria in the Water for the Future programs to increase opportunities for uptake for South Australian industries and communities. Similarly, the final Basin Plan will need to be flexible enough to ensure the benefits of the water recovery program are optimised across the Basin.

In the spirit of a no borders approach, the Government of South Australia considers that water recovered for the environment from investment across the Basin through Water for the Future programs must be shared across the Basin. To not do this would unfairly disadvantage irrigators, such as those in South Australia, who have already invested heavily in efficient irrigation infrastructure.

The Government of South Australia would welcome the opportunity to work with the Commonwealth Government to develop a fairer and more equitable, targeted water purchase program, and to provide input to revising Water for the Future programs criteria.

In addition to enhanced Water for the Future programs, there must be greater support for regional communities, through other Commonwealth programs, to promote new water efficient industries in South Australia and assist with adaptation to a future with less water.

The Authority appears to be proposing an alternate strategy to reducing watercourse diversions by reducing water interception by farm dams and forestry plantations within states. This strategy indicates that a greater proportionate reduction is required in South Australia as there are minimal interception activities.

There are a number of areas where South Australia requires clarification relating to how the Basin Plan proposals might impact on current water sharing rules including:

- Whether the use of recovered water by upstream jurisdictions will result in any reduction in either the dilution and loss or non-dilution components of entitlement flow.
- Provision of additional dilution flows – will any water recovered for the environment via SDL reductions be included in the calculation of the 2,000 GL requirement in Hume and Dartmouth Dams and also the 1,300 GL to 1,650 GL requirement in Menindee Lakes? If this water were excluded from the calculations the triggers would be changed inappropriately.
- Implications of the SDL on the minimum reserve and special accounting – clarification is required from the Authority as to whether water recovered via reductions in current diversion limits still remain under the normal water accounting procedures. If the water falls outside of the minimum reserve calculations of 1,250 GL for each of the upper States, then South Australia may remain in a period of special accounting more frequently. This is not desirable for South Australia as the upstream tributaries would remain 'locked up' as a State asset and not become part of the shared resources.
- Unregulated flow management procedure - will water that is accumulated under SDL fall under the current unregulated flow management procedure? Would the release of environmental water from storage trigger rules for supplementary access licences in NSW? This is an issue that will need to be addressed by both the Authority and NSW through its new Water Sharing Plan.

Eastern Mt Lofty Ranges

The methodologies used to identify both the current diversion limits and the proposed SDL for the surface water resources in the EMLR region need greater clarity and further discussion. In August 2010 South Australia provided the Authority with estimated SDL numbers based on the best available information at that point in time, noting that further verification of that data was required as the development of the water allocation plan for the EMLR progresses.

The Authority's interpretation of the numbers provided appears to be at odds with our current understanding of the situation in the EMLR.

The limitations and the assumptions regarding the proposed SDL for the EMLR of 10.7 GL provided to the Authority need to be considered. While it is applicable to all extractions (farm dams, watercourse diversions and extractions and forestry), the 10.7 GL number is applicable only if the entire take is just from farm dams (not from watercourse). It needs to be noted that the numbers provided were a work in progress, provided at a time when there was very little information, with the purpose of informing development of the draft EMLR water allocation plan.

The final SDL for the EMLR is expected to be higher than 10.7 GL, to account for additional allocation to all watercourse diverters/extractors to compensate for the evaporation loss component inherent to farm dams. Clarification is sought as to whether

interception has been defined in the same way in the EMLR as it has for other regions. For the Marne Saunders region, clarification is required as to how the Authority has determined a current diversion limit of 1.8 GL, compared with the value of 1.96 GL provided by South Australia.

The work to revise the numbers previously provided to the Authority is currently being undertaken as part of the input to the water allocation plan for the EMLR. The limits will be finalised when the South Australian Minister adopts the water allocation plan.

Given that it is now anticipated that there is unlikely to be a final Basin Plan before the end of 2011 or early 2012, it should be noted that the EMLR water allocation plan is expected to be adopted in June 2011. As such, it would seem appropriate that this be treated as an interim plan for the purpose of the Basin Plan. The Guide states that 'current diversions are limited by existing transitional and interim water resources plans where these are in place. These are existing plans, prepared by Basin states, and recognised under the Act. Where transitional or interim water resource plans are not in place, or plans do not apply to certain types of take, the current diversion limit reflects the current level of take'. If the EMLR water allocation plan is not treated as an interim plan, South Australia believes it is more appropriate to provide an estimate of current take. If the EMLR water allocation plan is treated as an interim plan, South Australia will be able to provide an updated SDL that appropriately accounts for watercourse diversions and interception.

South Australia would like to clarify the data and definition of inflows and outflows contained in the Guide for the EMLR catchment. South Australia believes we have more up-to-date figures on inflows and outflows than the Authority.

South Australia also seeks clarification on the source of the groundwater current diversion limit for the EMLR, and on the intended treatment of unassigned water from this resource in the Basin Plan. South Australia has used best available science to set groundwater extraction limits that provide for environmental needs as part of developing the local water allocation plan. These limits are higher than the CDL and proposed SDL in the Guide to the proposed Basin Plan. Clarity around the following areas is required:

- Will the SDL in the Basin Plan reflect unassigned water?
- If so, what values will be used for the EMLR groundwater SDLs?
- And if not, what process is envisaged to allow the states to incorporate unassigned water into the SDLs?

Angas Bremer

For Angas Bremer, South Australia is requesting that the Authority consider 6.5 GL as the SDL based on the fact that new science shows that the "productive base" (with respect to salinity) of the aquifer is maintained through local management practices, and as the aquifer is confined there is no link to the surface water resources of the Basin.

South Australia believes that the small pockets of good quality water (<1,500 mg/L) are finite. As such, clarity around the following areas is required:

- What methodology was used to derive the proposed SDL of 4 GL?
- Why is up to 2.5 GL required for the environment when the target aquifer is clearly disconnected from the surface?
- Does the proposed SDL relate to the whole SDL unit or only the areas of good quality water?
- In determining the proposed SDL, has the long-term practice of managed aquifer storage and recovery been taken into account?

South Australia believes that with the recent development of a solute transport model for the area, together with the introduction of a River Murray pipeline through the area, South Australia has an improved understanding and ability to manage the system for the long term. The basis for recommending a reduction in the current allocation limit of 6.5 GL to an SDL of 4 GL appears to be unclear when new science suggests that both water level and water quality are stable under the existing management regime.

Under the Act, the Angas Bremer water allocation plan is considered a transitional plan, ceasing to have effect for the purposes of the Act on 2 January 2013. As the Angas Bremer prescribed area is being included within the proposed interim EMLR water allocation plan, it might be more practical for both the Angas Bremer and EMLR to be required to be Basin Plan compliant at the same time.

Socio-economic analysis

South Australia supports socio-economic analysis that is appropriate, robust and determines SDLs based on an assessment of net social benefits (environmental, social and economic).

Robust and transparent socio-economic analysis should underpin the proposed SDL and instil confidence in the numbers, the impacts and the inherent trade-offs in optimising socio-economic and environmental outcomes.

South Australia recognises that the Authority has considered some social and economic impacts of a reduction in current diversion limits proposed in the Guide. However, considerably more detail is needed from the Authority to be able to respond to the impacts of the proposed SDLs. South Australia believes there are a number of significant shortcomings in the socio-economic analysis presented in the Guide and believes the Authority could improve the socio-economic modelling used in the Guide by:

- determining SDLs based on an assessment of net social benefits (environmental, social and economic);
- optimising socio-economic and environmental outcomes;
- articulating all trade-offs; and
- including a 'do-nothing' baseline.

The imperative for change, beyond meeting the objectives of the Act, is not stated strongly enough in the Guide. The inclusion of a 'do nothing' baseline should be considered to understand the resultant impacts and benefits of any reductions in water diversions. The inclusion of a 'do nothing' scenario could indicate the impacts of ongoing decline and would provide a benefit–cost baseline. Without this baseline, the socio-economic assessment of SDLs in the Guide presents an unbalanced view, as it does not address benefits of improving the environmental health of the Basin.

The Guide only considers SDLs that return between an additional 3,000 GL/yr to 4,000 GL/yr to the environment, as the Authority considers the social and economic impacts above 4,000 GL/yr to be unacceptable and would prevent the Authority from complying with the Act. There is no specific analysis in the Guide about the relative impacts of meeting the 3,000 GL/yr target compared with the 4,000 GL/yr target or the 7,600 GL/yr target.

South Australia requests clear documentation from the Authority clarifying the decision-making criteria used to limit the proposed SDL scenarios. In addition, South Australia requests access to the reports by the Centre of Policy Studies (Monash University) and the Risk and Sustainable Management Group from the University of Queensland so that they can be compared with the ABARE-BRS report. Access to the benefit-cost analysis that was undertaken by CIE for Scenarios 1 and 2 is also requested.

The Guide indicates that there is relatively less impact from the implementation of the proposed SDLs in the South Australian Murray compared with other regions. It is stated that this is because of the predominance of perennial horticulture and the assumption that water is a relatively low input cost for these businesses. This coarse level assessment may produce an inaccurate outcome for the South Australian Murray, as it does not take into account the different nature and extent of irrigated agriculture in the Mid-Murray and Lower Lakes. South Australia requests that the Authority disaggregates the South Australian Murray region into its three subregions (Riverland, Mid-Murray and Lower Lakes), when undertaking further socio-economic modelling.

The socio-economic modelling used in the Guide identifies that the impact on horticulture is less than five percent. This statement is questioned as it is based on water trade in smoothly operating markets and experiences over the last decade. It is quite possible that with increasing debt and less capital remaining in irrigation businesses, the impacts will be much greater. South Australia requests that the Authority consider this issue when undertaking further socio-economic modelling.

It would also be of interest for the economic analyses (including the water trade modelling) to consider the impact of variability of flow conditions. These also have the potential to influence the relative returns to horticulture and annual irrigated activities, water trade and to the estimates of changes to the gross value of irrigated agricultural production.

Future socio-economic analyses must also consider the impacts of low river levels.

Between 2008 and 2010, while many physical components of the River Murray system in South Australia have exhibited the impacts of low rainfall, low inflows, and unsustainable extraction, the lower River Murray channel and its infrastructure, agronomy and environment from Lock 1 to Lake Alexandrina has been hit the hardest. Unprecedented low water levels have caused a significant departure from the typically stable conditions in the pool from Blanchetown to the Barrages.

At the time of writing the restored River level makes the legacy of low flows even more unmistakable.

Public and private infrastructure has been significantly impacted and the costs of management and repair of these impacts, as well as the social effects, need to be considered. Bridges, ferries, levees, housing, pastures and river user safety have all been affected. In addition, tourism and recreation and associated businesses have also been adversely affected.

The cost of the impacts on the lower River Murray channel and its surroundings will only truly be measured in years to come.

While South Australia has acted promptly and decisively to declare riverbank collapse as a state hazard, it is imperative that this issue and the other water level related legacies only touched on in this summary are considered and fully represented in the economic analyses.

Compliance

South Australia supports a robust and rigorous SDL compliance and audit method to ensure water use within the Basin can be accurately measured and monitored against the SDLs. Accurate water use data will underpin the management of water resources

within the Murray-Darling Basin. South Australia encourages the Authority to put in place measures to provide confidence in the data provided by Basin States.

South Australia agrees that the shortcomings of the current Cap system are that the Cap is not aligned with environmental objectives and there is no mechanism for the payback of overuse. The compliance framework as presented in the Guide addresses both of these issues. However, further discussions between jurisdictions in regards to the development of both the proposed framework and methodology to assess compliance are needed. This will ensure that the implications of the proposed framework and methodology for compliance are understood by all jurisdictions.

The Guide describes methods that could be used to maintain compliance with the SDL through education and enforcement. South Australia has well developed compliance systems already in place and welcomes further discussion with the Authority on how a collaborative approach can be developed to optimise limited resources and to ensure effective implementation. By building on current compliance and enforcement processes and establishing clear guidelines describing the expected roles of the Commonwealth, the Authority and the Basin States will also prevent duplication of effort.

Any additional resources required to deliver compliance will need to be delivered at no additional cost to South Australia.

Risk assignment

South Australia recognises that the Authority has included risk allocation provisions in the Guide as required by the Act. The Guide states that these provisions apply to both surface and ground water. In addition to the provisions in the Guide, South Australia welcomes the statement from the Commonwealth that they will bridge any remaining gap between water already returned to the environment and the recovery of the remainder under the Basin Plan by continuing to buy back surface water entitlements. South Australia understands that the Commonwealth will extend the program to cover groundwater.

South Australia intends to request that the Commonwealth Government fully articulate their policy in relation to 'bridging the gap' and the risk allocation provisions in the Guide but also welcomes comments from the Authority on the matter.

In particular, the Government of South Australia will be seeking for the Commonwealth to:

- articulate fully the intended structure and timing of their water recovery efforts;
- consider how the implementation of their water recovery efforts will affect jurisdictions implementation of SDLs and clarify how the Commonwealth will manage risks during transitional periods and once interim plans cease;
- consider that they are currently taking different policy approaches to risk allocation for surface and ground water;
- confirm that their implementation of the 'bridging the gap' policy for surface water means that the risks associated with the three percent reduction attributed to climate change will be managed by the Commonwealth, rather than borne by entitlement holders; and
- clarify whether the 'gap' that is to be acquired is on a jurisdiction or water resource basis.

The implementation of the Commonwealth's 'bridging the gap' policy will be a significant issue for jurisdictions, as it affects the implementation of SDLs. South Australia is concerned that, should the Commonwealth continue with its 'bridging the gap' policy at the historical rate of acquisition, and using the same criteria, there will be a significant 'gap' when it comes time for South Australia to adopt interim water allocation plans. This

may leave residual adjustments up to jurisdictions to manage, potentially uncompensated, until the Commonwealth has acquired the full amount required. This is not a tenable situation.

South Australia would also like the Authority to consider how risk allocation provisions apply to interception activities, should jurisdictions choose to manage these matters to achieve reductions.

South Australia welcomes the opportunity to use the temporary diversion provisions outlined in the Guide to further reduce the impact of SDLs. However, South Australia does not necessarily believe that the residual adjustment component (if applicable) needs to be reduced to zero in five equal steps. The Authority should consider whether it is appropriate for jurisdictions to make their own determinations what size the 'steps' are, as long as the residual amount is reduced to zero at the end of the transitional period. Taking such an approach may help jurisdictions better link to planned water recovery efforts by the Commonwealth and minimise impacts on entitlement holders.

5. Water Trade

South Australia strongly supports an efficient and open water market that maximises the opportunity for trading within and between Basin States while recognising and protecting the needs of the environment and third parties. To better achieve a mature market, South Australia is cognisant of the need for more equitable access to storage rights across the Basin.

South Australia welcomes the adoption of the Australian Competition and Consumer Commission (ACCC) advice in Volume 2 of the *Guide to the proposed Basin Plan*. A key tool in supporting the adjustment by water holders and their communities to the SDLs is through the water market, and it is important that the water trade rules improve the operation of the water market and enable market participants to trade more freely. Overall, South Australia supports the proposed water trading rules and believes that the adoption of the ACCC rules advice is to the benefit of the water market.

South Australia is particularly supportive of the immediate removal of administrative barriers to trade and in particular, the removal of any volumetric limits on trade out of irrigation districts. In addition, South Australia encourages the Commonwealth Minister and the Authority to ensure that any transitional water resource plans developed prior to the Basin Plan taking effect are consistent with this rule. For example, the four percent rule is a significant constraint on water trade that must be addressed immediately to facilitate the adjustment to a future of less consumptive water.

South Australia will strongly support the inclusion of provisions in the water trading rules or the water resource plan requirements that require equity in the treatment of water rights regardless of purpose, including for the CEWH. It is also recognised that there is a variety of entities now involved in market development and the collection and publication of market information. It is important that their roles and responsibilities are clearly defined and that consistency and simplicity of reporting is ensured to minimise duplication in collection processes.

South Australia notes that the CEWH will potentially control 30–40 percent of water rights (including both entitlements and allocations) throughout the Basin. This being the case, rules should be established for water market dealings by the CEWH to ensure that there is transparency and accountability. There is no reference to specific rules for the CEWH in the Guide, but nor was there any advice provided by the ACCC on this issue. It is recommended that specific advice be requested from the ACCC on this matter for incorporation in the Basin Plan water trade rules.

Further discussions with the Authority as to the implications of implementation of the ACCC advice will need to be undertaken to determine ongoing resource requirements. In addition, it is currently unclear how the Authority will take the ACCC recommendations into account and clarity on this is also sought by South Australia.

6. Catchment Risks

South Australia is seeking the identification of the risks to the condition or continued availability of the Basin's water resources, including those arising from climate change, interception activities (e.g. farm dams and plantation forestry), changes to land use and knowledge gaps and limitations, and outlines strategies to address these risks.

The Authority's proposed approach to the management of risks in the Murray-Darling Basin is outlined in the *Guide to the proposed Basin Plan - Volume 2, Appendix E*. South Australia is generally supportive of the approach proposed, in particular approaches to managing risks arising from climate change and interception. However, further discussions are required to ensure risk management strategies are appropriate given state resources and capacity, scale of implementation, and relevance of different risks in different areas. South Australia welcomes the opportunity to work with the Authority and other jurisdictions to further develop and refine this approach.

The *Guide to the proposed Basin Plan - Volume 2* appears to heavily favour a Bayesian network approach to the management of risks. South Australia seeks to clarify whether other approaches to risk management will be considered for accreditation by the Authority, as it is not yet clear whether the use of Bayesian networks at the water resource plan scale would be achievable or appropriate for South Australia.

The risk assessment approach in the Guide outlines only the residual risks after the Basin Plan has been put in place. It gives little information about how the Authority assessed and prioritised the risks that led them to the proposals in the Guide. It would be beneficial for this information to be provided to the jurisdictions to facilitate understanding as to how decisions were made by the Authority in assessing and managing these risks.

7. Water Quality and Salinity Management

South Australia requires the Water Quality and Salinity Management plan to identify the key causes of water quality degradation in the Murray-Darling Basin and include water quality and salinity management objectives, targets and policies to protect drinking water, agriculture, recreation and environmental values in South Australia.

South Australia welcomes the Authority's proposed approach to water quality and salinity outlined in the *Guide to the proposed Basin Plan - Volumes 1 and 2* as it appears to build on the existing successful Basin Salinity Management Strategy, as well as incorporating water quality and management objectives and targets. South Australia values the rigour of the existing Schedule B arrangements that include robust processes of annual reporting and auditing.

The intent within the Guide to substantially increase environmental flows is welcomed by South Australia, with the increases potentially providing significant benefits to water quality and salinity management objectives, as well as benefits to environmental assets and communities in South Australia. These benefits are subject to the management of additional flows to ensure that salt mobilised within the Basin is exported to sea through an open Murray Mouth.

To ensure this occurs, South Australia welcomes the inclusion of a Basin salt export target of two million tonnes per year (on average in a 10 year period) that will facilitate the movement of salt out of the Murray-Darling Basin. In addition, South Australia is pleased

to see that operational salinity targets have been set for most of the key locations identified, including Murray Bridge, and that these targets are consistent with the National Water Quality Management Strategy. However, South Australia considers it would also be desirable to have salinity targets for the Lower Lakes.

Of the three proposed SDL scenarios, the higher flow options deliver greater certainty for movement of salt, nutrients and sediment through and out of the system via the Murray Mouth. Ensuring greater flow will also reduce the likelihood of algal blooms. South Australia is pleased to see that a CHWN management response trigger point of 840 mg/L for salinity has been set, which is consistent with advice provided by SA Water, as well as considering water quality characteristics for key environmental assets based on the limits of acceptable change. However, we note that these water quality triggers do not require any action prior to the trigger value occurring, rather than requiring management arrangements to be set up when it is forecast that these triggers will be met; this should be remedied.

The Guide suggests the Water Quality and Salinity Management Plan will be heavily reliant on water resource plans to deliver local outcomes, resulting in a broader scope for water resource plans. Further discussions with the Authority as to the implications for implementation of water resource plans will need to be undertaken to determine ongoing resource requirements.

Compliance, monitoring and reporting are also issues that require further exploration by South Australia in reference to Volume 2 of the Guide. South Australia supports a flexible approach to the management of water quality and salinity parameters, however, to ensure that repeated or prolonged exceedence of targets are not experienced there needs to be measures or incentives put in place to ensure compliance. This is a particular issue for South Australia due to its location at the lower reaches of the system as the impacts of non-compliance upstream are realised in the Lower Murray.

Additional issues that South Australia would like to see addressed include:

- setting of agreed water quality targets for water dependent ecosystems at a regional scale that align with the national water quality guidelines, and use of local information and approaches to setting locally relevant trigger values and associated assessment programs, as opposed to the fixed target values provided in Volume 2;
- further water quality parameters for management at a Basin scale including alkalinity and dissolved organic carbon targets;
- clarification of the timeframes that the water quality and salinity targets can be exceeded;
- access to the science and modelling behind the targets to assess their achievability under all the SDL scenarios proposed, particularly for South Australia, in the context of climate change and the proposed environmental watering plan;
- identification of the management responses that will be initiated when CHWN triggers are exceeded; and
- the identification of the cost of proposed management responses including additional treatment, accessing alternative supplies and additional flows.

8. Environmental Watering Plan

South Australia requires an Environmental Watering Plan that facilitates a flexible and collaborative approach between all jurisdictions.

South Australia supports the development of an Environmental Watering Plan that builds on an adaptive management foundation. The proposed environmental management framework, as outlined in Volume 2 of the Guide, is robust and builds on experience gained through implementation of the Living Murray Initiative.

The establishment of a cross-jurisdictional Environmental Watering Advisory Committee is strongly supported to ensure collaborative and transparent decision-making. While the Guide (Volume 2) refers to Environmental Watering Schedules, it is unclear as to the level of detail that will be required and the 'accreditation' criteria. Links between the Living Murray and Basin Plan are unclear, including governance arrangements and further discussion is required on this issue.

Given the significant investment in environmental infrastructure and water recovery under the Living Murray, consideration should be given to including the Living Murray as a schedule to the Murray-Darling Basin Agreement.

While roles and responsibilities are articulated to some degree, South Australia looks forward to more detailed discussions in relation to this issue, particularly the role and responsibility of the CEWH. In particular, South Australia will be seeking confirmation through the Basin Environmental Watering Plan that decisions regarding watering priorities will be made on a multi-lateral (as opposed to bi-lateral) basis.

9. Implementation (Water Resource Plans, Monitoring and Evaluation, Cultural Flows)

South Australia is concerned about the potential resource implications related to implementation of the proposed Basin Plan. More work is required to establish clear guidelines describing the expected roles of the Authority, the CEWH and the Basin States. Recognition of the limited resources available within the South Australia must also be taken into account. Any additional resources required to implement the Basin Plan would need to be provided at no additional cost to the State.

Water resource plan accreditation requirements

Basin States will play a major role in implementing the Basin Plan and accordingly the Guide has identified a broad scope for water resource plans. While South Australia is generally supportive of proposals for content, which focus on the relevant issues and set a high standard for water planning and management, the requirements for accreditation need to be reviewed in greater detail to ensure that South Australia has the resources and capacity to deliver suitable water resource plans within the required timeframes. Such reviews will need to be held in light of Part 5 of the Agreement on Murray-Darling Basin Reform of 3 July 2008.

The Guide assumes or requires that certain information and modelling is available for all resources. In some cases, this information may not be available and this would have an impact on South Australia's capacity to develop water resource plans for accreditation. Such limitations need to be taken into account when further developing criteria for accreditation.

South Australia notes that some of the draft tests for accreditation are overly prescriptive and focus too much on the management of regulated rivers, and thereby limit South Australia's ability to develop effective and appropriate state, regional or resource based policy responses. In addition, it appears that South Australia would be required to fulfil all the accreditation requirements for unprescribed water resources within the South Australian Murray-Darling Basin. These water resources are not currently managed through water allocation planning, and to meet the requirements for accreditation would create additional resourcing burdens for little resource management benefit.

South Australia is unclear how water resource plans that need to make a residual SDL cut, following any water recovery, will trigger the payment of compensation, and the timing of such payments in light of transitional implementation of SDLs. South Australia

notes the distinct difference in policy regarding buybacks for ground and surface water, and is concerned that this may result in inequitable outcomes.

South Australia welcomes the opportunity to work with the Authority and other jurisdictions to further develop and refine the tests for accreditation of water resource plans, both in terms of their content and phrasing. South Australia reserves full judgement on the tests for accreditation until we have had a chance to comprehensively review the accreditation requirements.

Water resource plan boundaries

South Australia notes that the water resource plan areas and the SDL areas generally appear to align with South Australia's existing plans, which will facilitate implementation through the existing water planning boundaries in South Australia. However, South Australia requests that detailed mapping and GIS data be made available to allow confirmation of boundaries.

The planning boundaries appear to include some small areas of South Australia's Western Mt Lofty Ranges Prescribed Area. South Australia will continue to seek exclusion of these areas from Authority planning requirements. South Australia is developing a single water resource plan to manage surface and ground water resources conjunctively in the EMLR water resource plan area. While the Guide makes reference to the importance of integrated management of surface and ground water, South Australia requires clarification as to whether a single plan can be accredited for ground and surface water.

Cultural flows

South Australia notes that one of the strategic objectives for the *Basin Plan* is to "maintain and improve the ecological health of the Basin and, in doing so, optimise the social, cultural and economic well-being of Basin communities." In addition, the Act states that the Basin Plan will have regard to "*social, cultural, indigenous and other public benefit issues*".

However, the Guide indicates that the concept of cultural flows is relatively new to natural resource managers and as such is not specifically addressed in the Act. The Authority proposes ongoing dialogue with Aboriginal communities to identify opportunities for implementing the Basin Plan in a way that contributes towards the cultural objectives of Aboriginal people. The Guide also proposes progressive implementation of cultural flows as part of the five yearly review of the Basin Plan, as the concept becomes better understood. This proposal is strongly supported and would ensure that the dialogue with Aboriginal communities continues to evolve.

While Aboriginal people have an interest in all aspects of the management of the Murray-Darling Basin, to achieve the stated strategic objectives of the Authority with respect to cultural water and to fulfil this commitment to on-going dialogue, greater attention should be paid to cultural water and cultural flows than currently appears in the Guide. South Australia recommends a specific section within the proposed Basin Plan relating to cultural water and cultural flows, which reflects the intent of paragraphs 52-54 of the National Water Initiative.

This section should outline the opportunities in relation to the involvement of Aboriginal people in the implementation and operation of the Basin Plan and highlight how the Basin Plan will facilitate the achievement of cultural and economic objectives of Basin communities.

There has been significant investment in the Indigenous Partnership Program of the Living Murray program over a number of years and it is suggested that much could be learned from this program that would contribute to an enlightened discussion to the approaches relating to cultural water, flows and economies. A review of the program, in consultation with Aboriginal people, would assist the development of effective mechanisms for the next steps in the Basin Plan development and implementation.

Monitoring and evaluation

The Guide recognises the need for continuously adapting and improving the management of the resources of the Murray-Darling Basin. This is promoted through the adoption of an adaptive management approach that is supported by the Commonwealth Government's *Monitoring, Evaluation, Reporting and Improvement Framework*. In addition there needs to be recognition of key performance targets, and a strong and clear approach to compliance.

The key challenges including the time required to detect change in the natural resources, coordination of partners, and the relationships within and between activities and outcomes, appear to have been recognised. The Government of South Australia supports the adoption of this adaptive management approach, as it will promote the effective implementation of the Basin Plan.

South Australia is seeking clarification on how social impacts of the plan will be monitored and evaluated, including whether a baseline will be defined for the present situation, should management actions in the basin continue unchanged (i.e. the 'do nothing' scenario).

In addition, further information is sought as to how the evidence collected through the proposed monitoring and evaluation program will measure specific outcomes and achieve consistent reporting on targets. The linkage between the monitoring performance of the Basin Plan and water resources plans requires more definition, as well as identification of monitoring and reporting arrangements, and the resulting implications for resources within the jurisdictions.