

# Murray-Darling Basin Ministerial Council

## Notice of disagreement by the South Australian Murray-Darling Basin Ministerial Council Member under section 43A of the Water Act 2007

### 1. ADOPTION OF THE SOUTH AUSTRALIAN GOVERNMENT'S RECOMMENDATIONS

#### *Nature of the disagreement*

The Murray-Darling Basin Authority (MDBA) has yet to fully address the 71 recommendations provided by the South Australian Government in its submission to the MDBA on the draft Basin Plan.

#### *Issue and rationale*

There has been little change from the draft Basin Plan (28 November 2011 version) on most of the matters outlined in the South Australian submission (available at <http://www.waterforgood.sa.gov.au>). The South Australian Government remains highly concerned that most of the recommendations and critical issues raised in our submission of 16 April 2012 have yet to be addressed in the revised draft Basin Plan, as issued to the Murray-Darling Basin Ministerial Council on 28 May 2012. A list of the recommendations made by the South Australian Government in its submission are provided at Attachment 1.

Rather than repeating significant sections of the South Australian Government submission on the draft Basin Plan in this notice, South Australia requires the issues raised and the recommendations to be addressed in the next version of the Basin Plan.

#### *Proposed resolution*

The Murray-Darling Basin Authority must consider and address the remaining South Australian Government recommendations as submitted to the Murray-Darling Basin Authority on 16 April 2012 and provide a written response to South Australia on how each has been addressed in the next version of the Basin Plan.

## **2. A WATER RECOVERY VOLUME THAT MEETS KEY ENVIRONMENTAL OUTCOMES**

### **2.1 The Basin Plan sustainable diversion limits which deliver a proposed water recovery target of 2750 GL fail to meet key environmental outcomes.**

#### ***Nature of the disagreement***

The MDBA has failed to adequately consider the best available science. As a result the proposed environmental water recovery target of 2750 GL fails to achieve an environmentally sustainable level of take and meet the requirements of the *Water Act 2007* (Cwlth) (the Water Act). Further modelling is necessary to properly define the required environmental water recovery target and any associated actions needed to achieve the requirements of the Water Act.

Further, the MDBA has inappropriately taken into account social and economic interests and physical and operational constraints in determining the environmentally sustainable level of take (ESLT). This is not consistent with the Water Act and obscures the scientific process required to derive a robust and defensible sustainable diversion limit (SDL).

#### ***Issue and rationale***

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 subsequently develop and implement provisions to optimise social, economic and environmental outcomes.

Scientific analysis demonstrates that the proposed 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.

Not only does scientific analysis demonstrate that 2750 GL fails to meet key environmental water requirements for South Australian assets, but also 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).

The issues have been clearly documented in the South Australian Government submission on the draft Basin Plan (available at <http://www.waterforgood.sa.gov.au>) and in a range of scientific reports, including reports commissioned by the South Australian Government (available at <http://www.waterforgood.sa.gov.au>) and reports prepared by the CSIRO and MDBA (available at <http://www.mdba.gov.au>).

The MDBA has also 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, 2011; MDBA, 2012). Young et al, (2011) (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.

Constraints alone are not a valid reason for failing to recover the volume of water that is required to achieve a healthy sustainable Basin or for reducing the proposed water recovery volume when not all the environmental water requirements are being met. System constraints

limiting the delivery of environmental water must be identified and addressed as a matter of the highest priority in order to achieve the requirements of the Water Act.

In addition, 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 Murray-Darling Ministerial Council has recently requested that the MDBA undertake modelling of a 3200 GL SDL reduction with key constraints removed. This modelling must be used by the MDBA to revise its water recovery volume in the final Basin plan.

The South Australian Government recognises that the River Murray is a regulated river managed for multiple uses. While, based on MDBA advice, there may be limited opportunity to increase flow events above 80,000 ML/day in the Lower Murray floodplain through active river management and operations, there should not be a decrease in the frequency of these higher flood events compared with the current baseline. The future management of environmental water under the Basin Plan must consider the delivery of all flow events (low to high), managed and natural. 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.

### ***Proposed resolution***

The proposed Basin water recovery volume of 2750 GL resulted from a process of determining the ESLT that took into account social and economic interests and physical and operational constraints. This is inconsistent with the Water Act. The process of determining the ESLT should be undertaken again, using only the scientific data and modelling to:

- determine which ecosystem functions, and which environmental assets and environmental outcomes in the Murray-Darling system water resources, are key to implementing the obligations of the relevant international agreements; in particular, the prevention of long term decline in biological diversity required by the Convention on Biological Diversity and the protection of wetlands required by the RAMSAR Convention; and
- determine the maximum level of take, above which those assets, outcomes and ecosystem services would be compromised.

The South Australian Government's submission on the draft Basin Plan made a number of recommendations (recommendations 3 to 20) on this matter which, if adopted, would resolve significant issues with the draft Basin Plan SDLs. These include that:

- the MDBA must undertake, as a priority, further modelling (including 3200GL, 3500 GL and 4000 GL) where system constraints are relaxed or removed to determine a water recovery volume that meets key environmental outcomes including conserving biodiversity and declared Ramsar wetlands, protecting and restoring key ecosystems, and meeting key salinity and water level outcomes;
- the Basin Plan must be amended to include sustainable diversion limits that reflect an environmental water recovery volume and an ESLT that meets key environmental outcomes. Based on available information and scientific analysis to date, a volume greater than 2750 GL would be needed. The South Australian Government therefore

requires the MDBA to adopt an environmental water recovery target greater than 2750 GL that meets key environmental outcomes; and

- as outlined in the Government's submission, key environmental outcomes for key environmental assets and functions located in South Australia which must be met by any proposed environmental water recovery volume include:
  - exporting salt loads of 2 million tonnes per year over a rolling 3 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 any time;
  - maintaining average daily Coorong south lagoon salinity levels below lethal thresholds for key species (less than 100g/L);
  - avoiding 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;
  - maintaining a mosaic of healthy floodplain habitats;
  - securing 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;
  - securing 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
  - maintaining the current frequency of unregulated flow events.

The Murray-Darling Ministerial Council has recently requested that the MDBA undertake modelling of a 3200 GL SDL reduction with key constraints removed. This modelling must be undertaken promptly and used by the MDBA to revise its water recovery volume in the final basin plan.

## **2.2 Addressing physical, operational and policy constraints**

### ***Nature of the disagreement***

The revised draft Basin Plan fails to address the key issue of constraints that affect achievement of key environmental outcomes.

### ***Issue and rationale***

System constraints limit the effective delivery of environmental water by preventing the delivery of the volumes necessary to achieve the required water levels, at times, frequencies and/or durations needed to support the environment and meet the objectives of the Water Act. System constraints include physical, operational and policy constraints, a number of which have been documented and described (MDBA, 2011b; MDBA, 2011; Heneker and Higham, 2012).

The South Australian Government submission contains an extensive discussion and list of recommendations regarding the rationale and importance of addressing system constraints. This need to address constraints is also supported by the MDBA's own work.

### ***Proposed resolution***

The Basin Plan must require the preparation of a Constraints Management Strategy to identify, assess and address system constraints (details of the proposed Constraints Management Strategy are outlined under section 4 below). Such a strategy may complement, but is not contingent on any agreement by jurisdictions on a sustainable diversion limit adjustment mechanism.

An initial Constraints Management Strategy should be prepared within 12 months of the Basin Plan being made and would:

- identify and describe the physical, operational and management constraints that are affecting, or have the potential to affect, environmental water delivery;
- evaluate options, opportunities and risks associated with relaxing or removing key constraints and improving the effective and efficient delivery of environmental water; and
- assess the impacts on environmental water delivery and third parties as well as downstream impacts and assess options to address the impacts.

The Constraints Management Strategy and any updates must be prepared by the MDBA in consultation with the Basin governments and the MDBA must report to the Murray-Darling Basin Ministerial Council annually on progress with the strategy.

The Basin Plan Constraints Management Strategy should be supported by a program of works and investment, including Commonwealth investment, as outlined in the South Australian Government's submission on the draft Basin Plan. The Commonwealth Government must invest in addressing key system constraints, including purchasing flood easements, as an important step to improve environmental water delivery.

## **2.3 Securing the health of the Coorong, Lower Lakes and Murray Mouth**

### ***Nature of the disagreement***

The South Australian Government's scientific analysis highlights that how and when environmental water is delivered will have a significant impact on achieving environmental outcomes. Based on this analysis the Coorong, Lower Lakes and Murray Mouth Ramsar site is not adequately protected during dry periods under the proposed 2750 GL water recovery scenario.

### ***Issue and rationale***

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 and provided to the site as demonstrated by assessment of the MDBA's 3200 GL sensitivity analysis.

The timing of flows being delivered to the Coorong further alters the effects of the proposed recovery volume on the environmental outcomes realised (Webster et al, 2009, Lester et al 2011) with minor changes in the delivery timing and average volume also affecting peak

salinities (Higham, 2012). The Basin Plan's environmental watering plan must provide for the delivery of flows to the Coorong at the volumes and timing necessary to deliver environmental outcomes for this site.

To maintain water levels in the Lower Lakes, prevent salinity levels from exceeding thresholds that are lethal to plants and animals and deliver environmental water to the Coorong to avoid environmental damage, the Basin Plan must provide for:

- establishing a secure minimum reserve or annual allocation for the site, and
- for the delivery of water to this site to be prioritised during dry periods.

The Basin Plan provisions should also ensure that operational water levels in the Lower Lakes are maintained above 0.4 metres AHD for 95% of the time and that water levels do not fall below 0.0 metres AHD to avoid the risk of broad scale acidification, high salinity and significant environmental degradation.

### ***Proposed resolution***

The Basin Plan through the environmental watering plan (and any other relevant sections) must:

- provide for a minimum reserve or allocation of environmental water for the Coorong, Lower Lakes and Murray Mouth to be delivered annually including during dry periods;
- provide for the delivery of flows to the Coorong at the volumes and times necessary to secure the health of this site; and
- prioritise delivery of environmental water to the Coorong in times of drought to sustain key vegetation communities, species and ecosystem functions.

The Basin Plan's environmental watering plan should include a requirement to provide for the use of Commonwealth held water and other relevant held environmental water to maintain water levels in the Lower Lakes above a minimum operational water level target of 0.4 metres AHD for 95% of the time and above an absolute minimum of 0.0 metres AHD for 100% of the time (measured as a daily average across Lake Alexandrina).

## **2.4 Restoring and maintaining high priority environmental assets**

### ***Nature of the disagreement***

The draft Basin Plan does not address the current condition of key environmental assets and the need to facilitate recovery from the recent drought.

### ***Issue and rationale***

Key Basin environmental assets were adversely impacted by the recent extreme drought compounding the effects of over-allocation. This included sites on the River Murray floodplain and at the Coorong, Lower Lakes and Murray Mouth which were pushed to the brink of environmental disaster during the drought.

While there have been some recent signs of environmental recovery, expert scientists have advised that it is critical that these sites be managed now to facilitate full recovery from drought (Goyder Institute, 2012) in order to facilitate 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.

In addition, the environmental watering plan must ensure water delivery, during dry periods, to sites that are particularly sensitive to the impacts of drought and to maintain key refugia.

***Proposed resolution***

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.

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

### 3. DRAFT BASIN PLAN MANAGEMENT OBJECTIVES AND OUTCOMES

#### ***Nature of the disagreement***

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 2007* (Cth) (Water Act).

#### ***Issue and rationale***

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 the MDBA must demonstrate that a minimum environmental outcome will be achieved. Provided this outcome can be achieved, the Basin Plan must then develop and implement provisions to optimise social, economic and environmental outcomes. The environmentally sustainable level of take must be the level of take which does not compromise key environmental outcomes. However in the draft Basin Plan the MDBA appears to have incorrectly placed social and economic outcomes on the same level as environmental outcomes and implementing relevant international agreements in outlining its overall objectives (section 5.02) and in defining objectives for long term sustainable diversion limits (section 5.05).

The objectives and outcomes of the revised draft Basin Plan should be amended to correctly reflect this hierarchy of outcomes and the objects of the Water Act.

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.

#### ***Proposed resolution***

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

- correctly reflect the Water Act requirements to give priority consideration to key environmental concerns before optimising social, economic and environmental outcomes; and
- include objectives and outcomes which address the risks to Basin water resources identified in chapter 4.



## 4. RISK MANAGEMENT STRATEGIES

### ***Nature of the disagreement***

The Basin Plan must be amended to include more comprehensive identification of risks that are clearly linked to specific risk management strategies. There is no clear 'line of sight' between the identified risks to water resources and environmental outcomes, which are only expressed in high level and broad terms and the risk management strategies. In addition, key risk management strategies required to address matters contributing to the risks identified are missing.

### ***Issue and rationale***

The 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 revised draft Basin Plan are not comprehensive and are expressed in such broad terms that they fail to reflect the previous work undertaken by the MDBA in understanding key risks to water resources. The risks must be properly identified so that strategies to manage them can be developed and the objects of the Water Act furthered.

As a result the risk management strategies presented also fail to comprehensively address key risks. The efficacy and clarity of the plan would benefit from the inclusion of a more specific set of risk management strategies and a clearer 'line of sight' between the risk management strategy and the identified risks. Critically, a number of key risk management strategies are missing or require better definition.

In particular, constraints that impede the function and delivery of environmental water pose a significant risk, if not one of the greatest risks, to the effective management of Basin water resources in achieving the outcomes required to meet the requirements of the Water Act, specifically the minimum environmental outcomes. This risk acts to contribute to the potential that insufficient water volume will be available for and delivered to the environment. It is vital that constraints are investigated and where appropriate or possible addressed to maximise the environmental outcomes that can be achieved. If not, this would significantly undermine the effectiveness of efforts to deliver on the stated objectives of the Basin Plan.

The MDBA's report, *River Management - challenges and opportunities* outlines opportunities where focused effort could overcome major constraints to the delivery of environmental water and further work is underway.

A strategy to address constraints should be embedded in the Basin Plan legal instrument. Only by doing so will the MDBA ensure that successive governments, State and Federal, will be required to act in the best interest of the Plan and the Basin on this matter. Such a strategy may complement, but is not contingent on any agreement by jurisdictions on a sustainable diversion limit adjustment mechanism.

Other risk management strategies should include enabling recovery of drought-affected key environmental assets and functions, addressing more equitable access to storages to address water security issues, improving modelling and decision support systems to inform river management and environmental water delivery, and coordinating the effective delivery of environmental water.

Strategies relating to the risks of climate change and groundwater over-extraction affecting the achievement of environmental outcomes and objective of the Water Act must be more clearly defined.

### ***Proposed resolution***

Section 4.02 of the Basin Plan must include comprehensive identification of risks that are clearly linked to the objects and requirements of the Act and to specific risk management strategies.

Section 4.03 must be amended to specify risk management strategies in more specific terms and include a number of additional risk management strategies, including:

- assess climate change risks to water availability and incorporate into reviews of sustainable diversion limits (SDLs) and the Basin Plan;
- improve the understanding of groundwater connections to surface water and the impact of groundwater use on meeting environmental water requirements;
- address storage access issues relating to water supply security and environmental watering;
- improve modelling and decision support systems to inform river management and environmental water delivery that will affect risks associated with achieving environmental outcomes;
- assist drought-affected key environmental assets and functions to recover to address the risk that environmental outcomes will not be achieved; and
- effectively coordinate the delivery of environmental water to address the risk associated with not achieving environmental outcomes.

Chapter 4 should also include a Constraints Management Strategy as a key risk management strategy with consequential amendments in chapters 1, 6 and 7 and schedule 10 as proposed below.

- Amend chapter 1 to include a definition of constraints under section 1.07.
- Amend chapter 4 to include new sub-sections under section 4.03 (4):
  - a) The MDBA undertake further modelling where constraints are relaxed or removed to improve knowledge of the impacts of constraints on environmental water delivery and meeting environmental water requirements;
  - b) The MDBA must prepare, within 12 months after the commencement of the Basin Plan a Constraints Management Strategy and report annually to the Murray-Darling Basin Ministerial Council on progress with the strategy; and
  - c) The MDBA will review and update the Constraints Management Strategy regularly (possibly bi-annually) and must publish the updated strategy as soon as practicable after it is updated.

- Amend chapter 4 to include a new section to provide for a Constraints Management Strategy with provisions to the effect that:
  - (1) The Constraints Management Strategy must:
    - a) identify and describe the physical, operational and management constraints that are affecting, or have the potential to affect, environmental water delivery;
    - b) evaluate options, opportunities and risks associated with relaxing or removing key constraints and improving the effective and efficient delivery of environmental water; and
    - c) assess the impacts on environmental water delivery and third parties as well as downstream impacts and assess options to address the impacts.
  - (2) To inform the preparation, review and updating of the Constraints Management Strategy, the MDBA must:
    - a) implement a program to improve knowledge of constraints and the impact on meeting environmental water requirements, actions to improve environmental water delivery and management of third party impacts;
    - b) consider constraints related to effective delivery of water during drought and low flows; and
    - c) undertake modelling to assess the effects on meeting environmental water requirements and third parties.
  - (3) Prior to any review of sustainable diversion limits and the Basin Plan, the MDBA must have commenced implementation of the Constraints Management Strategy and must consider the implications of changes to constraints in the review.
  - (4) The MDBA must prepare the Constraints Management Strategy, and any updates, in consultation with the Basin governments (this would include the Commonwealth Environmental Water Holder).
- Amend chapter 6 to include an additional sub-section under section 6.06 (1):
 

*(g) management, relaxation and removal of constraints*
- Amend chapter 7 to include a new section which links the Constraints Management Strategy to the achievement of the objectives and outcomes of the Environmental Watering Plan.
- Amend schedule 10 evaluation and reporting requirements to include an additional item requiring the MDBA and Basin States to report annually on progress with implementing actions and measures to relax or remove constraints, to improve environmental water delivery and to address downstream impacts and impacts on third parties in the short, medium and long term.

## **5. SURFACE WATER SUSTAINABLE DIVERSION LIMITS**

### **5.1 South Australian River Murray Sustainable Diversion Limit**

#### ***Nature of the disagreement***

The sustainable diversion limit (SDL) for the South Australian River Murray does not recognise South Australia's efficient water use practices and past responsible management.

South Australia's mandated contribution to the water recovery target must be no more than the 101 GL reduction to our Baseline Diversion Limits (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.

#### ***Issue and rationale***

South Australia has a long track record of exemplary behaviour in managing the water resources of the River Murray. 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 in the revised draft Basin Plan. The proposed local 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 downstream 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, or to the broader South Australian community.

In practice a substantial amount of water has already been recovered for the environment from the South Australian River Murray, mainly from irrigators through the Commonwealth water buyback program. With other projects in the pipeline, the proposed 101 GL local reduction target is likely to be achieved in the near future.

As a result the South Australian Government is prepared to accept the proposed 101 GL reduction to our BDL (notwithstanding our reservations as to the fairness of how this figure was arrived at) on the proviso that any further water recovery from South Australia should only be through strategies agreed to by the South Australian Government and relevant industry organisations.

To achieve this outcome the Commonwealth Government must work with the State Government to identify a water recovery strategy for the State; and consult about the development of a broader water recovery strategy across the Basin. The overall water recovery strategy must consider how to optimise environmental, social and economic outcomes.

### ***Proposed resolution***

The Basin Plan must address this by ensuring:

- sustainable diversion limits for the SA River Murray take into account the State's past responsible behaviour, investment in irrigation efficiency and large proportion of water held for its urban water supplies to avoid a disproportionate impact on South Australia's irrigated agriculture production, and associated flow-through impacts to dependent regional communities;
- that no further contribution to the water recovery target above the proposed 101 GL local reduction is sourced from South Australia except where agreed to by the South Australian Government and the relevant industry organisations; and
- the Basin Plan provisions include a requirement that the Commonwealth Government 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. The Commonwealth Government must take a strategic approach to water recovery and water purchase in South Australia through consultation with, and the agreement of, the South Australian Government and relevant industry organisations.

## **5.2 Downstream apportionment**

### ***Nature of the disagreement***

The Chair of the MDBA has written to the South Australian member of the Murray-Darling Basin Ministerial Council requesting advice on the issue of downstream apportionment.

### ***Issue and rationale***

The South Australian Government considers there may be benefits in apportionment providing greater certainty and considers that the Ministerial Council should give further consideration to this matter including whether State level downstream reduction targets should be incorporated into the Basin Plan prior to the Plan being made.

The South Australian Government considers that any State level apportionment must be based on surface water diversions excluding urban water use or critical human water needs.

The Water Act recognises that critical human water needs are the highest priority water use for communities who are dependent on Basin water resources. The South Australian Government has made significant investment in desalination, and stormwater and wastewater recycling as well as efficiency measures to address our current and future urban needs but it can not reduce the State's base level urban water requirements from the River Murray.

Without removal of these critical human water needs in calculating State level apportionment, water recovery will have a significant and disproportionately high impact on South Australian irrigators and regional communities.

South Australia is doing its share to recover water for the environment including offering water for purchase from non-critical water holdings held by SA Water and providing a six GL entitlement to the environment in return for investment in the Adelaide Desalination Plant.

The South Australian Government notes that its considerations through the Ministerial Council will be in the context that any further contribution by South Australia to water recovery should only be through strategies agreed to by the South Australian Government and relevant industry organisations.

### ***Proposed resolution***

The South Australian Government requests that the MDBA and Basin jurisdictions work together to further develop an apportionment option based on determining State shares based on surface water diversions excluding urban water use or critical human water needs.

## **5.3 SDL Adjustment Mechanism**

### ***Nature of the disagreement***

The Chair of the MDBA has written to the South Australian member of the Murray-Darling Basin Ministerial Council requesting advice on the development of a once off SDL adjustment mechanism for inclusion in the Basin Plan. The proposed mechanism would allow for adjustments to SDLs where environmental works and measures, efficiency measures and other initiatives allow for reductions or increases in environmental water recovery.

### ***Issue and rationale***

While the South Australian Government supports the MDBA working with Basin jurisdictions to develop a proposed mechanism for consideration by the Murray-Darling Basin Ministerial Council, the starting point must be a water recovery volume that meets key environmental outcomes as required under the Water Act and the draft Basin Plan objectives.

Currently the proposed water recovery scenario in the draft Basin Plan only meets around 45% of the 112 flow targets proposed by the MDBA as measures of environmental outcomes (Young et al, 2011). Even considering that a small number of these targets may not be achievable in a regulated system such as the Murray-Darling, this does not represent an adequate environmental baseline from which to consider SDL adjustments.

In addition, any SDL adjustment must only be permitted when initiatives result in equivalent or improved environmental outcomes. There should be no reduction in the ability to meet flow targets and no trade-offs between environmental outcomes.

The benchmark must include removal of key system constraints, or a process must be adopted to allow key constraints to be addressed to enhance environmental outcomes, before considering any increase in SDLs (i.e. water recovery being reduced). This is necessary to ensure key environmental outcomes are achievable under the Basin Plan. As such there must be a complementary process for addressing constraints that includes Commonwealth Government investment in addressing key constraints impeding environmental water delivery.

Any SDL adjustment mechanism must operate both ways and allow for SDLs to be both reduced (i.e. increase water recovery) as well as for SDLs to be increased (i.e. reduce water recovery).

It will be essential that any SDL adjustment mechanism operates on a transparent and legally sound basis using the best available science and a method developed in consultation with jurisdictions. Attachment 2 to this notice outlines some of the key elements the South Australian Government considers necessary in developing any SDL adjustment mechanism.

### ***Proposed resolution***

Further development of a proposed SDL adjustment mechanism on a transparent and legally sound basis using the best available science and a method developed in consultation with jurisdictions and involving independent, scientific expertise. Limitations and assumptions underpinning any proposed mechanism must be clearly articulated to support informed decision making.

The MDBA must consider the matters outlined in Attachment 2 to inform development of any proposed SDL adjustment mechanism. Critically, the starting point must be a water recovery volume that meets key environmental outcomes as required under the Water Act and the draft Basin Plan objectives, and any SDL adjustment must only be permitted if it results in equivalent or enhanced environmental outcomes.

## **5.4 Specifying the Commonwealth's obligation to bridge the gap and avoid forced reductions**

### ***Nature of the disagreement***

The revised draft Basin Plan does not articulate the Commonwealth's obligation to 'bridge the gap' between the baseline diversion limits (BDLs) and SDLs through a combination of water purchase from willing sellers and water savings from investment in infrastructure and other projects.

### ***Issue and rationale***

The South Australian Government's position is that there should be no forced reductions, because the gap between the BDLs and SDLs will be bridged by the Commonwealth Government through a combination of water purchase from willing sellers, 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.

With the Commonwealth bridging the gap between baseline diversion limits and sustainable diversion limits by water purchases and water savings, the Basin Plan will not require compulsory acquisition of water entitlements or the States to reduce allocations in order to achieve SDLs.

The Commonwealth Government's obligation is not specified in the Basin Plan creating uncertainty and concern for water users.

### ***Proposed resolution***

To provide certainty for Basin communities, the Basin Plan must address this issue by including provisions articulating the Commonwealth Environmental Water Holder's obligation to 'bridge the gap' for both the local and shared reduction amounts.

Section 10.3 of this notice recommends amendments to the environmental watering plan under chapter 7.0 to recognise the Commonwealth Environmental Water Holder's responsibility to recover water through including provisions (under either Division 7 - Planning for recovery of additional environmental water or section 7.02) to the effect that:

*The Commonwealth Environmental Water Holder will recover the volume of water necessary to bridge the gap between baseline diversion limits and sustainable diversion limits in order to achieve the objectives of the environmental watering plan.*



## 6. GROUNDWATER SUSTAINABLE DIVERSION LIMITS

### ***Nature of the disagreement***

The revised draft Basin Plan does not specify a precautionary approach to setting groundwater sustainable diversion limits that requires an assumption of connection to surface water unless proven otherwise.

The MDBA and the Basin Plan must not allow for increased groundwater SDLs unless it can be demonstrated that, based on scientific evidence and analysis, increased diversions will not impact on surface water resources or environmental watering.

### ***Issue and rationale***

A precautionary risk management approach must be taken to manage groundwater extraction to avoid impacts on surface water flows and key environments. Consistent with the National Water Initiative (NWI), the National Water Commission advises that:

*'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 the precautionary principle in the Basin Plan along with provisions to require appropriate scientific analysis and risk assessment to be undertaken to demonstrate that the extraction of groundwater will not adversely impact on surface water flows, environmental watering or associated ecosystems before allowing for increased groundwater SDLs. Review and amendment of the draft Basin Plan provisions should be undertaken before the Plan is finalised to ensure that these provisions are adequate to manage groundwater use in a precautionary manner that assumes a connection with surface water resources unless it can be demonstrated otherwise.

For example, Chapter 9 requires provisions which clearly set out that a risk assessment must be undertaken in order to determine whether a water resource plan needs to include rules to prevent groundwater use affecting surface water resources and environmental watering requirements, impacting on the productive base, water quality outcomes or priority ecosystem functions and assets (sections 9.18 to 9.21). 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.

### ***Proposed resolution***

The MDBA and the Basin Plan must not allow for increased SDLs unless it can be demonstrated that, based on scientific evidence and analysis, increased diversions will not impact on surface water resources or environmental watering.

Review and amend the draft Basin Plan to ensure that its provisions are adequate to manage groundwater use in a precautionary manner that assumes a connection with surface water resources unless it can be demonstrated otherwise. This must include amendments to:

- include a precautionary principle in the Basin Plan with regard to groundwater that requires an assumption of connection to surface water unless proven otherwise;

- 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; and
- include provisions under chapter 9 division 4 clearly stating that a risk assessment process must be undertaken as part of complying with sections 9.18 to 9.21.

## 7. SUSTAINABLE DIVERSION LIMITS AND SOCIAL AND ECONOMIC ISSUES

### ***Nature of the disagreement***

The Basin Plan fails to adequately address planning, investment and responsibilities for mitigating social and economic impacts and maximising economic opportunities from this reform.

### ***Issue and rationale***

The South Australian Government submission on the draft Basin Plan outlines the key issues and proposals for resolution.

Communities located in the Riverland and below Lock 1 may be particularly sensitive to changes as a result of the Basin Plan. For example, 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.

Beyond bridging the gap, there is opportunity for the Commonwealth Government to commit to a process of strengthening the affected regional 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 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 adaptation to more water efficient industries.

In addition, 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.

### ***Proposed resolution***

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.

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.

## **8. PROPOSED 2015 REVIEW OF SUSTAINABLE DIVERSION LIMITS IN 2015**

### ***Nature of the disagreement***

The South Australian Government rejects the need for a review of SDLs in 2015 on the basis that a review in 2015 will not allow time for sufficient, robust evidence to be gathered on which to review the SDLs. A review of SDLs in such a short time after completion of the Basin Plan introduces lack of clarity and further uncertainty for water users.

### ***Issue and rationale***

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 Basin Plan coming into effect and the review.

The proposed 2015 timeframe for review of SDLs raises a number of issues as:

- It introduces another level of uncertainty and lack of clarity by possibly leading to changes to SDLs only a short time after the Basin Plan is made;
- There is insufficient time to gather new knowledge and develop an adequate monitoring and evaluation program to support the review, including gathering information on whether key environmental outcomes are being delivered;
- Construction and successful implementation of many proposed and potential works and measures that aim to improve water use efficiency are unlikely to have occurred by this time, nor is there likely to have been time to realise the intended water savings and other benefits;
- Changes to river operations and management are also required to enable the efficient and effective delivery of environmental water and may have an impact on sustainable diversion limits. This will also take time to investigate, resolve and implement;
- 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 (SMART) bound condition objectives and targets, and then to determine trends in ecological health from monitoring and evaluation programs; and
- The proposed review sits outside of the Basin Plan monitoring and evaluation process. There is a need to develop robust monitoring and evaluation to support any review and how it would be used to inform review and revision of the Basin Plan.

The Water Act already supports a review process and clearly did not envisage that a review would take place so soon after the Basin 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.

### ***Proposed resolution***

The Basin Plan must address these issues by:

- determining a water recovery target and hence SDLs in the Basin Plan based on best available science;
- removing the 2015 review from the Basin Plan referred to in section 6.07;
- setting out a framework for any review including establishing a review advisory committee including jurisdictional representation and appropriate expertise (including scientific expertise); and
- providing for development of transparent terms of reference, governance and review methods in consultation with the Basin States.

## **9. WATER QUALITY AND SALINITY MANAGEMENT PLAN**

### **9.1 Maintaining strong and effective water quality and salinity management at a Basin and water resource management plan scale**

#### ***Nature of the disagreement***

The water quality and salinity management plan and the associated water resource plan requirements in the draft Basin Plan need to be strengthened and not further weakened to the point that there is no obligation placed on Basin governments to take action.

#### ***Issue and rationale***

Poor water quality and high salinity affects environmental assets, irrigators and critical human water supplies and has significant environmental, social and economic implications. Water quality and salinity issues affect water resources across the Basin and must be managed in a coordinated and integrated manner.

The draft Basin Plan proposes a management framework that includes water quality and salinity management targets to guide management and planning and requirements for water resource plans to identify the causes of water quality degradation, assess risks and develop and include management measures and strategies.

Under no circumstances should the MDBA weaken or reduce the water quality and salinity objectives, targets and management frameworks in the Basin Plan. The Basin Plan must include non-discretionary requirements for water resource plans to manage water quality and salinity.

#### ***Proposed resolution***

There should not be any further weakening or removal of water quality and salinity objectives and targets and the associated management frameworks. As outlined in this notice additional or improved targets are required and the raw water targets that have been removed need to be reinstated.

The water resource plan requirements under Chapter 9 water must include clear non-discretionary requirements to identify causes of water quality and salinity degradation, set management targets, assess the risks to water quality and salinity and include measures and strategies to address the identified causes and risks.

Additional salinity targets upstream of South Australia to guide management of water flows should be included in the Basin Plan (as recommended in the Government's previous submission of 16 April 2012); and the MDBA should coordinate a process to develop further salinity targets for consideration in any future review and amendment of the Basin Plan.

### **9.2 Targets for managing water flows**

#### ***Nature of the disagreement***

The provisions in the revised draft Basin Plan fail to indicate that flows must be managed to not exceed the targets set in section 8.12 and must clearly indicate that 95% of the time is an annual requirement.

The salinity flow management target at Lock 6 (section 8.12) is located within South Australia and does not provide for adequate accountability for salinity levels entering South Australia.

An additional salinity flow management target is required for Lake Alexandrina.

### ***Issue and rationale***

Flow management actions upstream of the South Australian border can significantly impact water quality and salinity levels in South Australia. It is therefore critical that the Basin Plan sets clear management targets to ensure flows are managed to not exceed the salinity targets.

The South Australian Government submission on the draft Basin Plan recommended a target be set at or upstream of its border to provide a basis for assessment of water quality entering the State and to guide upstream management actions. The MDBA has not adopted the site proposed by South Australia for a salinity operational target (at the border) and instead proposes a site at Lock 6. South Australia has previously provided information to the MDBA on the border target site at monitoring station A4261022 and detailed rationale for using this border location, including:

- the site at the South Australian border is fully telemetered and the equipment operates well with monitoring data readily available;
- water at this location is fully mixed including main channel flows from above Lock 7, Lake Victoria/Rufus River inflows and Lindsay River inflows; and
- it provides more precise insight into the quality of water entering South Australia.

In addition, the South Australian Government submission on the draft Basin Plan recommended an additional salinity operational target for salinity levels in Lake Alexandrina be included such that salinities “are maintained below 600 mg/L (~1000 EC) for 95% of the time (lake average) and below 900 mg/L (~1500 EC) for 100% of the time”. While it is noted that the target has been partially adopted in the revised draft, there is no reference to the upper maximum value.

The current provisions under section 8.12 fail to make it clear that flows must be managed to avoid exceeding the listed salinity targets. Instead the current drafting appears to state that management of flows must aim to meet the targets.

The provisions under section 8.12 fail to clearly define how the salinity targets will be assessed and over what time period. The provisions should make it clear that the achievement of the specified targets in 8.12 paragraph (5)(c) are for 95% of the annual water accounting period i.e. 95% of days within the year. The MDBA also needs to demonstrate that Milang is an appropriate site for representing average salinity for Lake Alexandrina as an operational target.

### ***Proposed resolution***

The Basin Plan must address these issues by amending:

- section 8.12(5)(c) to make it clear that flows must be managed to not exceed the target values listed;
- replacing the target site at Lock 6 with the target site at the border, that is amending section 8.12(5)(c) Item 3 to refer to the River Murray at the South Australian Border (A4261022). This site to have proposed target value (mg/L) of 310 and target value (EC) of 517 unless MDBA modelling can justify a different target value.

- more clearly specifying how the targets will be assessed including defining that the 95% of the time requirement refers to a twelve month period i.e. one water accounting period; and
- section 8.12 should be amended to include an additional operational target for water flows in Lake Alexandrina as sub-section 5(d): To maintain salinities below 900 mg/L (~1500 EC) (lake average) 100% of the time measured in Lake Alexandrina.

The MDBA must also demonstrate that Milang is an appropriate measurement site noting that lake salinities should be measured as an average across several spatially representative sites.

### **9.3 Inclusion of a water level target for the Lower Lakes**

#### ***Nature of the disagreement***

The revised draft Basin Plan does not include a water level target for the Lower Lakes.

#### ***Issue and rationale***

The experience of the recent extreme 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 prevention of adverse impacts below Lock 1 and the Lower Lakes. Water levels below 0.0 metres AHD result in an increased risk of broad scale acidification (Heneker and Higham, 2012; Pollino et al, 2011). As such maintaining Lower Lakes water levels above 0.0 metres AHD has been set as an environmental water requirement by the MDBA. It should be noted that water levels less than 0.4 metres AHD preclude the release of flows to the Coorong and even at this level, releases are severely restricted due to the effect of sea levels.

A minimum water level target provides for salt management by permitting releases and management of potential acidification of Lake Albert, the margins of Lake Alexandrina, and the river below Lock 1 by maintaining the inundation of sulfidic sediments. Subsequently, it will permit the avoidance of salinity and acidification risks to water quality and agricultural production along the main river channel below Lock 1 if combined with barrage releases. 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 that maintains levels above 0.4 metres AHD with an absolute minimum of 0.0 metres AHD measured as daily averages across Lake Alexandrina. This proposal anticipates a variable lake operating regime. It is noted that, depending on flow, this would achieve water levels higher than these minimums between Lock 1 and Wellington.

#### ***Proposed resolution***

The revised draft Basin Plan must also 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).

The Basin Plan's environmental watering plan should include a requirement to provide for the use of Commonwealth held water and other relevant held environmental water to maintain water levels above a minimum operational water level target of 0.4 metres AHD for 95% of the time and above an absolute minimum of 0.0 metres AHD for 100% of the time (measured as a daily average across Lake Alexandrina).



## **9.4 Timeframe for achievement of the salt load target**

### ***Nature of the disagreement***

The timeframe for measuring the achievement of the salt load target (i.e. averaged over 10 years) is too long and will average out and mask significant impacts that may occur. The revised draft Basin Plan does not set out what actions will occur to address a situation where the salt load target is not met on an ongoing basis.

### ***Issue and rationale***

Scientific analysis including modelling undertaken by the South Australian Government (Heneker, 2010) shows that to ensure adequate monitoring of salt discharge to ensure river flows are being managed to maintain connectivity with the sea and avoid salt build up and ecological damage, measurement of the target over a three year rolling average is necessary.

The modelling analysis shows that:

- 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.

The South Australian Government's scientific analysis also indicates that the MDBA is not currently using the appropriate relationship between flow and salinity to estimate salt discharge and that the most robust approach involves modelling and measurement of both flow and salt levels.

### ***Proposed resolution***

The following changes are required to the Basin Plan:

- section 8.18(4) must be amended to require the MDBA to assess, on an annual basis, achievement of the salt load target against the number of tonnes of salt per year averaged of the preceding three years;
- section 8.18(3) must be amended to require the MDBA to use 'best available scientific methods' to estimate the discharge of salt; and
- a section added to outline the actions to be taken by the MDBA where the salt load target is not met on an ongoing basis.

It is recommended that the MDBA engage with South Australian Government officials to discuss its approach to measurement of the salt load target.

## 9.5 Provisions for water quality targets for raw water for human consumption

### *Nature of the disagreement*

The water quality targets for raw water for human consumption have been removed from the revised draft Basin Plan with potential to increase the economic cost of water treatment and to put treated water quality at risk for small communities with limited treatment capacity.

### *Issue and rationale*

South Australians have an expectation that water quality across the Basin is well managed so that water flowing into South Australia is of a reasonable quality. The best practice approach to managing water quality risks to drinking water supplies is a multi-barrier approach which aims to ensure that contaminants are not present in the raw water that is extracted for treatment for human consumption.

The removal of the raw water quality targets places treated water quality at risk for small communities with limited treatment capacity and has the potential to increase the economic cost of water treatment in South Australia.

It is stated in the MDBA's public consultation report for the draft Basin Plan that the raw water quality provisions have been removed in response to feedback from the States and makes reference to the Australian Drinking Water Guidelines (ADWG) as providing adequate guidance. The South Australian Government has not provided any feedback of this nature.

The Australian Drinking Water Guidelines is based on a risk management process and six guiding principles; the first of which is:

- *The greatest risks to consumers of drinking water are pathogenic microorganisms. Protection of water sources and treatment are of paramount importance and must never be compromised.*

Within the risk based water quality management framework in the ADWG it is a clear requirement that source water management is required to ensure that adverse pollution loads do not place undue reliance on the downstream interventions, such as filtration and disinfection. None of the treatment systems and options available are absolutely effective and all processes are subject to failures at times.

Recognition of this is one of the factors behind the multiple barrier concept which is to ensure that there is sufficient resilience in the total system to avoid adverse public health outcomes. The abrogation of a source water authority from its responsibilities to protect source water quality in favour of water treatment options runs counter to the ADWG and demonstrates a lack of understanding of the ADWG.

The World Health Organisation has adopted the same approach in its International Guidelines for Drinking Water and also emphasises the importance of source water protection in the total scheme of public water supply production.

Although the States have adopted the ADWG, this should not be taken as a reason for abandoning source water quality protection. Doing so is clearly against the guiding principles of the ADWG. The second guiding principle of the ADWG is:

- *The drinking water system must have, and continuously maintain, robust multiple barriers appropriate to the level of potential contamination facing the raw water supply.*

Removal of any focus on source water protection implies an increased risk to public health and the water utilities would need to consider the addition of further treatment steps to achieve adequate safety – with the corresponding costs.

Targets in the plan are achievement points to be aimed for, that should drive planning and positive action, or discourage negative action, to enable achievement of the targets.

For all the other water quality objectives in chapter 8 for which objectives are specified (e.g. water-dependent ecosystems, irrigation water and recreational water), the objectives have been clarified by providing more specific targets. It is very concerning that the target for the raw water objective, arguably the most important value of them all, has been removed.

### ***Proposed resolution***

The water quality targets for raw water for human consumption contained in the 28 November 2011 version of the draft Basin Plan must be reinstated. This includes sections 8.09 (1)(b), 8.13, 9.36(2)(b) and 9.38 of the 28 November draft Basin Plan.

## **9.6 Reference to Ramsar Ecological Character Descriptions**

### ***Nature of the disagreement***

The provisions for setting water quality targets for declared Ramsar wetlands have been revised and do not allow for the best available approach to setting water quality targets for these important wetlands.

### ***Issue and rationale***

The MDBA has amended the provisions in the revised draft Basin Plan relating to water quality targets for declared Ramsar wetlands under section 8.14 to remove reference to targets in ecological character descriptions. This change and changes to section 9.32(4) then preclude water resource plans from setting better targets than provided for under schedule 9 of the draft Basin Plan. It is noted that for many sites there are no salinity targets set under this schedule, the targets lack site specificity and do not necessarily represent the best targets for these sites. The targets included in schedule 9 for South Australian Ramsar sites have been developed using the least preferred methodology included in the ANZECC guidelines, and are not adequate to provide for the protection of these sites.

For other water-dependent ecosystems alternative values can be included if the target complies with section 9.32(4)(a-d).

Section 8.14 should state that the water quality targets for declared Ramsar wetlands are those set out in schedule 9 unless a better target value is set out in an Ecological Character Description for that wetland.

Section 9.32(4) requires amendment to allow for better water quality targets to be set in water resource plans for declared Ramsar wetlands consistent with protecting the ecological character of these sites.

If the MDBA removes the reference to Ecological Character Description then South Australia requires a change to include the term *described* ecological character in the Basin Plan.

### ***Proposed resolution***

The following amendments to the revised draft Basin Plan are required:

- Chapter 8 (Parts 3) 8.04(1) 'Objectives for water-dependent ecosystems' proposed wording:
  - a) *The water quality objective for declared Ramsar wetlands is that the quality of water is sufficient to maintain the described ecological character of those wetlands.*
- Chapter 8 (Parts 4), section 8.14 (2) 'Water quality targets for water-dependent ecosystems': The link to described ecological character descriptions must be retained as a more appropriate default reference than the targets in schedule 9 in the absence of better targets in a water resource plan. Add a sub-section that states:
  - a) *Despite subsection (1), for a declared Ramsar wetland, if better target values are described in an ecological character description for that wetland published on the Commonwealth Department's website then these target values apply.*
- Chapter 9, section 9.32(4) should be amended to allow for a water resource plan to propose a better target consistent with protecting the ecological character of these sites.

## **10. ENVIRONMENTAL WATERING PLAN**

### **10.1 Improvements to the Environmental Watering Plan**

#### ***Nature of the disagreement***

The South Australian Government's recommendations 45 to 53 on the draft Basin Plan regarding the Environmental Watering Plan have not been adequately addressed.

#### ***Issue and rationale***

The recommendations sought changes to improve the workability and robustness of the Environmental Watering Plan. While a number of the issues and recommendations are reiterated below, for completeness the MDBA should refer to pages 61 to 67 of the South Australian Government submission to the draft Basin Plan.

#### ***Proposed resolution***

The MDBA should hold bilateral discussions with South Australian Government officials to discuss the recommendations and how the outcomes being sought could be addressed in the Basin Plan.

### **10.2 Effect of the Environmental Watering Plan on the Commonwealth Environmental Water Holder**

#### ***Nature of the disagreement***

While the revised draft Basin Plan requires the Commonwealth Environmental Water Holder (CEWH) to operate consistently with the Environmental Watering Plan and the proposed new Basin wide environmental watering strategy, there is no requirement to consider State long term watering plans.

#### ***Issue and rationale***

State long term watering plans will be detailed planning documents that will identify assets, objectives, targets and watering requirements, cooperative arrangements, and risks among other things. They will be developed through a consultative process. State long term plans should inform the actions of the CEWH.

#### ***Proposed resolution***

Amend the Basin Plan (for example in section 7.02) to require the Commonwealth Environmental Water Holder to have regard to State long term environmental watering plans in performing its functions.

### **10.3 The Commonwealth Environmental Water Holder's role in recovery of environmental water**

#### ***Nature of the disagreement***

The Basin Plan fails to articulate the responsibility of the CEWH to recover water to bridge the gap through water savings infrastructure, irrigation efficiency investments, water purchase and potentially other market-based approaches.

#### ***Issue and rationale***

The Commonwealth Government has made a commitment to 'bridge the gap' between BDLs and SDLs in the Basin Plan. This should be reflected in the Basin Plan to provide certainty for water users and reduce the risk that SDLs would need to be enforced through reductions in State water resource plans.

#### ***Proposed resolution***

Amend the environmental watering plan under chapter 7.0 to recognise the CEWH's responsibility to recover water to bridge the gap. A new section should be included, under either Division 7 - Planning for recovery of additional environmental water or section 7.02 (which outlines the effect of the environmental watering plan on the Commonwealth Environmental Water Holder), to the effect that:

*The Commonwealth Environmental Water Holder will recover the volume of water necessary to bridge the gap between baseline diversion limits and sustainable diversion limits in order to achieve the objectives of the environmental watering plan.*

### **10.4 Environmental objectives and targets to measure progress**

#### ***Nature of the disagreement (R45)***

The revised draft Basin Plan does not specify a process for developing measurable objectives and targets and how these will be assessed. The proposed planning and prioritisation framework does not include an integrated framework for monitoring and evaluation that allows for both short term adaptive management and longer term review.

#### ***Issue and rationale***

The Environmental Watering Plan should include a section which sets out the framework through which the MDBA will work with the Basin States to develop a robust environmental monitoring and evaluation plan for annual adaptive management as well as longer term measurement of progress. This will allow for adaption and improvement in long term and annual environmental water planning and prioritisation processes. The monitoring and evaluation framework should be linked to State long term watering plans and the ecological objectives and targets developed in those plans.

### ***Proposed resolution***

The Basin Plan must include provisions under Part 3:

- for the MDBA to develop, in consultation with Basin States, SMART<sup>1</sup> 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; and
- provide for environmental monitoring and evaluation linked to State long term watering plans.

### **10.5 Governance, coordination and integration**

#### ***Nature of the disagreement***

The revised draft Basin Plan does not adequately provide for clear governance and strong coordination mechanisms for planning in connected systems, environmental water delivery and real time adaptive management.

#### ***Issue and rationale***

Effective coordinating mechanisms need to be included to avoid duplication and the establishment of parallel processes between the MDBA, Basin States and the CEWH. This should not only cover planning and prioritisation but also environmental water delivery, monitoring and evaluation and adaptive management.

Experience with policy and planning for environmental watering to date has shown the need for coordination mechanisms, not just in policy and planning, but also in delivery and real time management to avoid duplication and discrepancies between planning and delivery objectives.

The South Australian Government recommended a number of simple changes to address these issues, including stronger and broader provisions regarding the establishment of committees, principles about cooperation, reference in the Basin Plan to the development of guidelines for prioritisation of environmental water delivery and monitoring and evaluation.

The current guidelines referenced in the revised draft Basin Plan are insufficient and do not cover all aspects of environmental watering.

Committees should have a broader function than simply advising on Basin-wide environmental watering priorities and should be able to advise on environmental watering priorities, water delivery, monitoring and evaluation and provide policy and operational advice to both the MDBA and the CEWH. The existing provisions regarding a committee are not considered adequate.

In addition, the South Australian Government recommended that the MDBA coordinate the development of long term watering plans for connected water resources. While the MDBA has now revised the draft Basin Plan to include reference to a Basin-wide environmental watering strategy, it is unlikely that this strategy would adequately address the coordination issues raised.

A new section is required to provide for coordination mechanisms in environmental water planning in connected systems and environmental water delivery and real-time management.

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<sup>1</sup> SMART: specific, measurable, achievable, realistic and timebound

### ***Proposed resolution***

The Basin Plan must:

- include a new section to provide for coordination mechanisms in environmental water planning in connected systems, environmental water delivery and real-time management;
- establish committees to coordinate and advise on environmental watering activities from planning through to delivery and monitoring;
- include an additional principle (or principles) requiring the MDBA, Basin States and the CEWH to work cooperatively to determine and implement environmental watering priorities in the Basin;
- refer to and 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; and
- require the MDBA to coordinate the development of long term watering arrangements, in particular for connected water resources, in consultation with jurisdictions.

## **10.6 Basin-wide environmental watering strategy and State long term watering plans**

### ***Nature of the disagreement***

The revised draft Basin Plan includes provision for a Basin-wide environmental watering strategy. There is a need to clarify the intent and application of the strategy in relation to its timeframe, interaction with state long term watering plans and the process for identifying priority assets and functions and their watering requirements.

It is considered that State long term watering plans are not given appropriate weighting as a key element of the environmental watering framework. The Basin-wide environmental watering strategy should not delay the development of State long term watering plans and where relevant should be informed by those long term watering plans.

### ***Issue and rationale***

The revised draft Basin Plan proposes the development of a Basin-wide environmental watering strategy within 24 months after the commencement of the Basin Plan with States to develop long term watering plans within 12 months after the Basin-wide environmental watering strategy.

Three years to have long term watering plans is too long and any Basin-wide strategy could be informed by State long term watering plans and priorities, including identification of priority assets, functions and watering requirements.

Issues include:

- a three year delay before long term watering plans are developed leaving a length of time with no coordinated guidance for environmental water prioritisation and delivery;
- an effective environmental water management framework should include State long term watering plans as a core planning mechanism which can inform the Basin-wide environmental watering strategy as well as setting of Basin annual priorities; and
- State long term watering plans will be comprehensive documents that identify priority assets and functions and their watering requirements and involve engagement with local



communities and people affected by the management of environmental water. However they are not given adequate standing in the proposed environmental water management framework. In the draft plan, the long term watering plans are one of a number of matters that are considered when Basin annual watering priorities are developed. Long term watering plans and State annual priorities should be given far greater weighting to avoid a duplication of processes and to determine appropriate priorities for water delivery.

The Basin Plan should require the MDBA to focus on the areas where it can add value and provide a truly Basin-wide perspective e.g. the identification of gaps, the resolution of conflicts in priorities and development of multi-site watering objectives and associated flow regimes for connected systems when developing the Basin-wide environmental strategy and the annual priorities.

There is a need to clarify the interaction and hierarchy between different plans and strategies to avoid the risk of process duplication, inconsistencies, and lack of achievement of key environmental objectives and outcomes.

If the MDBA is unable to address the timing issue described above, 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.

### ***Proposed resolution***

The Basin Plan must address these issues by revising the timing and process for development of a Basin-wide environmental watering strategy, State and Basin annual priorities and state long term watering plans to:

- enable planning to occur in a shorter timeframe with State long term watering plans to be developed prior to or parallel to the Basin-wide environmental watering strategy;
- clarify the interaction between the Basin-wide environmental watering strategy and State long term watering plans, including allowing for the strategy to have regard to the state plans;
- make it clear in section 7.29 that identification of assets and priority ecosystem functions would only occur by the MDBA where gaps or conflicts in State long term watering plans and annual priorities have been identified;
- ensure that section 7.14(2)(a)(ii) is a mandatory content of the Basin wide environmental watering strategy, to provide for multi-site watering objectives and associated flow regimes for connected systems; and
- amendments to section 7.29 are required to give a greater weighting to State long term watering plans and annual priorities.

If there are to be delays in developing a plan and priorities for the southern connected system then 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 CEWH, to commence in the 2013-14 water year and which guides the application and delivery of environmental water.

The South Australian Government proposes the MDBA arrange a bilateral discussion to clarify the Government's concerns and proposed solutions regarding the operation of the environmental watering plan.

## **10.7 Environmental Watering Plan Implementation and compliance**

### ***Nature of the disagreement***

State implementation obligations are unclear and greater guidance is required.

### ***Issue and rationale***

The Environmental Watering Plan should make specific reference to the development of detailed guidelines to guide implementation, coordination and cooperative arrangements. Issues and areas where guidance is required have previously been outlined in the South Australian Government's submission on the draft Basin Plan.

### ***Proposed resolution***

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 CEWH) that have regard to long term planning, prioritisation and application of environmental water.

## **10.8 Managing salinity and securing the health of the Coorong, Lower Lakes and Murray Mouth**

Sections 2.3, 9.2 and 9.3 discuss issues relating to salinity management and securing the health of the Coorong, Lower Lakes and Murray Mouth. These issues and the proposed resolutions should be considered in making amendments to the environmental watering plan.

## 11. WATER RESOURCE PLAN REQUIREMENTS

### ***Nature of the disagreement***

The approach to 'having regard to risk' and the need for management and 'fit-for-purpose' planning within the water resource plans chapter (Chapter 9) has not achieved the right balance and lacks clarity.

The revised draft Basin Plan has not addressed South Australia's recommendation that wherever there is a need to 'have regard to' an issue or risk in water resource plans, jurisdictions must demonstrate that they have given adequate regard to that requirement. Similarly, if there is a requirement to consider if rules are necessary, there should be a clear evidence base before electing not to include rules. This could include demonstration that a risk assessment has been conducted.

The MDBA has claimed that the Basin Plan allows for fit-for-purpose planning using the 'have regard to' construct, however this has not been applied consistently across Chapter 9.

The MDBA must be rigorous and transparent in their accreditation assessments.

### ***Issue and rationale***

There is the risk that jurisdictions will have cursory regard to requirements and risks (particularly lower level risks) whenever there is a need to 'have regard' to a range of issues and requirements necessary for water resource plans. If there is a requirement to consider if rules are necessary, it is left to the jurisdiction to determine this with little guidance as to how or any requirement for evidence of what was considered in the decision making process. For example, section 9.22(b) in its current form only requires an explanation, if a risk assessment has been undertaken and risks have been identified. The new clause 9.31 has the same construct and therefore the same flaw.

There are elements in Chapter 9, for example section 9.09 - register for held environmental water and 9.51 - measures in response to extreme events where the flexibility provided in other parts in terms of the 'having regard to' construct has not been included and therefore South Australia still considers that there is a risk that requirements that are tailored to regulated highly developed river systems have to be rigidly applied to undeveloped, unregulated surface water and groundwater systems which are less applicable.

Water resource plans are one of the key mechanisms for implementing the Basin Plan and must be transparently accredited and effectively implemented.

### ***Proposed resolution***

The Basin Plan should require that wherever it is necessary to 'have regard to' whether it is necessary to include rules, there must be a requirement to undertake a risk assessment to demonstrate that regard was had. If the water resource plan determines that it is not necessary to include rules, it must provide in all cases a clear rationale for determining why it was not necessary to include rules to manage water resource issues identified in Chapter 9. In particular, section 9.22 needs to be strengthened to address this flaw.

There should be a consistent approach to 'fit for purpose' planning based on a risk management approach and a clear statement upfront in the water resource plan requirements allowing 'fit-for-purpose' planning based on a risk management approach, i.e. flexibility to

adapt accreditation requirements based on the management objectives and risk assessment for the water resource.

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

## **12. WATER TRADING RULES**

### ***Nature of the disagreement***

The revised draft Basin Plan proposes that all trade rules will commence on 1 July 2014 which extends the period where it is possible for inappropriate barriers to trade to still be put in place.

### ***Issue and rationale***

The 28 November 2011 version of the draft Basin Plan proposed that water trade rules with exceptions for some surface water trade rules would commence from 1 July 2013. This has been amended so that all trade rules would commence from 1 July 2014. The 2014 date extends the period where it is possible for inappropriate barriers to trade to still be put in place.

While it is recognised that States will require a transition period, this could be achieved by allowing the trade rules to commence on 1 July 2013 thus preventing any new trade restrictions but for the MDBA to exercise discretion in implementing compliance and enforcement until 1 July 2014.

### ***Proposed resolution***

Sections which deal with preventing inappropriate trade restrictions must commence on 1 July 2013. The MDBA is to exercise discretion in implementing compliance and enforcement, which is to be fully implemented from 1 July 2014.

## **13. MONITORING AND EVALUATION**

### **13.1 The Basin Plan should require a detailed monitoring and evaluation plan**

#### ***Nature of the disagreement***

The Basin Plan should include provisions to require a more detailed and specific monitoring and evaluation plan to be developed. The Basin Plan itself only provides a high level framework.

#### ***Issue and rationale***

Chapter 12 in the revised 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 is not considered sufficient to effectively monitor the outcomes of the Basin Plan.

South Australia has previously recommended that the Basin Plan set out provisions that refer to the development of a detailed monitoring and evaluation plan to address a number of matters, including outlining in more detail roles and responsibilities, 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.

A key purpose for a detailed plan would be to gain commitment from the various parties to assign roles and responsibilities for the monitoring, evaluation and reporting and address the mandate set out in Chapter 12 of the Basin Plan.

#### ***Proposed resolution***

South Australia recommends a new section under Chapter 12 which should include provisions to the effect that '...the MDBA, in consultation with Basin States, will prepare and implement a Basin Monitoring and Evaluation Plan which is reviewed on an annual basis'.

The Basin Monitoring and Evaluation Plan should include a detailed framework for monitoring and collation of lines of evidence and scheduled evaluations to support an overall Monitoring, Evaluation, Reporting and Improvement (MERI) framework (refer to the Australian Government MERI framework for NRM; Australian Government, 2009). Agreement by named contributors where partnerships are required to assure availability of data and other sources of evidence is required to support Basin Plan MERI. The plan could include:

- evidence gathering to support the information needs of the Basin Plan, which outlines:
  - criteria by which the MDBA will assess each matter outlined in Schedule 10;
  - indicators (biophysical, socio-economic and resource management);
  - monitoring programs;
  - other sources of evidence (e.g. relevant reports and expert knowledge);
- evaluations to support the evaluation, reporting and review requirements of the Basin Plan; and
- data management provisions.

## **13.2 Changes to Schedule 10**

### ***Nature of the disagreement***

The South Australian Government is concerned that the current drafting of Schedule 10 weakens and obscures the monitoring and evaluation reporting requirements under the draft Basin Plan.

### ***Issue and rationale***

The Government is not supportive of the changes made to Schedule 10, from the 28 November 2011 version of the draft Basin Plan, in particular the replacement of reference to outcomes to be achieved with the broader concept of 'matters' upon which to report. This weakens the transparency and undermines the ability to demonstrate accountability for the outcomes the Basin Plan intends to achieve.

The MDBA must demonstrate transparency and logic in setting expected outcomes and targets (refer to Australian Government MERI framework for NRM). Linking the anticipated intermediate and long term outcomes to the compliance and audit functions of the plan is also important to ensure a robust and defensible 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 objectives and outcomes. This will create the transparency and accountability required by the MDBA to demonstrate the success of the Basin Plan to all stakeholders including the Australian public.

A strong and robust MERI will provide the appropriate mechanism to adjust and improve all elements of the Plan, including the SDL, the specific requirements, the targets and the indicators of success. South Australia has provided two options to the MDBA in Attachment 2 to strengthen Schedule 10 by including a more direct link between outcomes and the reports required.

The State Government's submission on the draft Basin Plan recommended that the MDBA consider provisions in the Environmental Watering Plan that provide for guidelines on the trade of environmental water by the Commonwealth Government (recommendation 68). This has not been addressed but could be explored through other mechanisms such as revision of schedule 10 to enable reporting against environmental water traded. Schedule 10 currently requires reporting on the identification of environmental water and the monitoring of its use. This could be expanded to include reporting on trade.

### ***Proposed resolution***

South Australia recommends a clear link to outcomes be made evident in schedule 10 by the inclusion of a column specifically for management and condition outcomes to be achieved in relation to each matter (see example in Attachment 2). A second option is to reinstate Schedule 10 from the November 2011 version with additional columns of category and links to the relevant chapter (see example in Attachment 2 - option 2).

Schedule 10 must be amended to include reporting on the trade of environmental water by the CEWH which must occur annually.

## **14. TRANSITIONAL ARRANGEMENTS AND IMPLEMENTATION COSTS**

### ***Nature of the disagreement***

State implementation obligations and requirements under the Basin Plan remain unclear. The MDBA needs to work closely with the South Australian Government to establish pathways and practical timeframes for transition.

### ***Issue and rationale***

The accreditation process for water resource plans and other Basin Plan implementation requirements must be clearly articulated by the MDBA. To date, draft guideline development has not adequately articulated accreditation and other implementation requirements.

The delay in the development of the Basin Plan already has implications for the development of compliant water resource plans in South Australia in accordance with the timeframes established under the Water Act. The MDBA needs to work closely with the South Australian Government to establish pathways and practical timeframes for transition.

### **Proposed resolution**

The Basin Plan must address these issues by clearly defining implementation and accreditation requirements for States, including clear guidelines, and developing an agreed implementation schedule. This could include allowance for a partial accreditation or pre-accreditation process to fit in with State statutory planning processes.

Ideally this should be done before the MDBA revises the draft Basin Plan for provision to the Murray-Darling Basin Ministerial Council for further consideration and comment.

The MDBA must work closely 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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## **SOUTH AUSTRALIAN GOVERNMENT'S 71 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 their 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.

## PROPOSED PRINCIPLES FOR CONSIDERATION IN DEVELOPING AN SDL ADJUSTMENT MECHANISM

### *Benchmark*

- Any SDL adjustment mechanism must start from a benchmark that achieves key environmental outcomes as required under the Water Act. This must involve a greater level of achievement of MDBA flow targets than achieved under the current draft Basin Plan.

Scientific analysis based on modelling and information to date indicates that the water recovery volume of 2750 GL does not achieve key environmental outcomes and that this is compounded by the impact of constraints on environmental water delivery. This analysis indicates that any benchmark must be based on a volume higher than 2750 GL and relaxation or removal of constraints.

- Environmental works and measures and other initiatives are already accounted for in the modelling to determine the environmentally sustainable level of take (ESLT), such as The Living Murray works and measures, should not be considered through the adjustment process to avoid 'double counting'.
- The mechanism would apply to measures additional to those considered in determining the SDL reduction amounts set out in the Basin Plan.

### *Equivalent or improved environmental outcomes*

- Adjustments should only occur when works achieve equivalent or enhanced environmental outcomes i.e. no reduction in the ability to meet flow targets and other relevant indicators representing ecological outcomes.
- The limitations of watering with environmental works and measures compared with natural flooding must be taken into account. This recognises that artificial watering does not necessarily provide the same ecological benefit as natural watering.

### *Precautionary approach*

- Overall a precautionary approach should be adopted with the use of conservative metrics and scoring.
- Recognising the limitations of modelling the effect of all SDL adjustments through this process any change should be within a defined range of plus or minus 10% of the benchmark volume.

### *Method*

- The method must be consistent with the work undertaken to determine the ESLT in the final Basin Plan.
- It must be objective, repeatable and legally valid. The scope for subjective decision making must be negligible with clear criteria or automation established for processes that involve decision making e.g. watering requirements selected through the Environmental Event Selection Tool.

- All metrics and scoring must be supported by scientific evidence and consider outcomes on a local, reach and Basin scale.
- Initiatives to be assessed collectively to adequately consider combined and downstream impacts of works.
- Modelling limitations including lack of sensitivity to increased flows due to the effect of constraints must be taken into account.

### *Outcomes and consequences*

- The mechanism must be clear on who benefits from SDL adjustments and who bears the consequences of initiatives that result in an SDL adjustment but do not proceed or do not deliver the estimated adjustment and/or environmental outcomes.
- The mechanism must include a process for monitoring and accounting for initiatives and whether they deliver the estimated adjustment and/or environmental outcomes when implemented.

### *Gateway process*

- Eligible initiatives will be assessed through a gateway process and will be agreed by the Basin Officials Committee.
- The Gateway process must include:
  - a risk/impact assessment process to assess potential adverse site and downstream impacts including impacts on water quality, ecological risks and third parties;
  - a process to ensure that identified constraints projects which achieve enhanced environmental outcomes with the benchmark volume of water are not used as an SDL adjustment; and
  - cost and benefit analysis.
- Initiatives must be contracted by mid 2019 and come into operation no later than mid 2022 to be eligible.

RECOMMENDED CHANGES TO SCHEDULE 10

Option 1 – Include outcomes into Schedule 10 (May version)

Item	Matter	Outcome	Reporter	Category	Relevant Chapter
	<i>Environmental watering plan</i>				
7	The identification of environmental water and the monitoring of its use.	<ul style="list-style-type: none"> <li>• The environmental management framework (Part 4 of Chapter 7) is implemented</li> <li>• Environmental water was delivered in accordance with identified priorities and plans</li> <li>• Progress towards achieving objectives in chapter 7 is assessed in accordance with targets as measured against short term, intermediate term and long term outcomes.</li> </ul>	Basin States, CEWH, Authority	<p>B</p> <p>B</p> <p>B</p> <p>A</p>	Chapter 7



**Option 2 – Include category and chapter references into Schedule 10 (November 2011 version)**

<b>Item</b>	<b>Basin Plan outcomes</b>	<b>Reporter</b>	<b>Category</b>	<b>Relevant Chapter</b>
	<i><b>Basin Plan as a whole</b></i>			
1	Risks to water resources and risk management actions are identified and included in appropriate planning instruments across the Murray-Darling Basin.	Basin States, Authority	A	Chapters 4, 5 and 9
2	Measures have enabled a transition to long-term average sustainable diversion limits.	Department	B	Chapters 5 and 6
3	Local knowledge and solutions inform the implementation of the Basin Plan.	Department, Basin States, Authority	B	Chapters 6, 7 and 9
4	Risks to water resources in the Murray-Darling Basin are effectively managed through implementation of the management actions in appropriate planning instruments.	Basin States, Authority	A	Chapter 4, 5 and 9
5	There is transparent and effective management of the water resources of the Murray-Darling Basin.	Authority	A	Chapter 5