Murray-Darling Basin Plan: Five-year assessment

Submission from the South Australian Government

April 2018

Introduction

The introduction of the Basin Plan was a significant milestone in the history of water reform in Australia. After a number of years of scientific investigations, engagement with the community and negotiations between governments, the final Basin Plan came into effect with bi-partisan and multi-lateral support as well as backing from major stakeholders.

While we are not yet half way to full execution, implementation of the *Water Act 2007* (the Water Act) and Basin Plan has already been the catalyst for a number of substantial achievements. Jurisdictions and the Murray-Darling Basin Authority (MDBA) have already made good progress in a number of areas including:

- addressing over-allocation and returning water to the environment;
- assisting farmers to modernise their irrigation and water delivery infrastructure;
- developing and implementing coherent and effective arrangements for the management of environmental water;
- addressing barriers to trade and enabling more effective water markets; and
- establishing a new approach to monitoring and assessing the health of Basin water resources.

The MDBA's 2017 Basin Plan Evaluation confirmed that there are good signs that the Basin Plan is working and has been responsible for delivering positive outcomes (MDBA 2017).

While good progress has been made, there is still more work to be done and full implementation of the Basin Plan is not due to be completed until 2024. Over the next six years governments will need to focus their attention on a number of areas to ensure that the full suite of reform objectives can be achieved.

These implementation priorities include:

- achieving all legislated water recovery, including the final 450 gigalitres[1] (GL) from efficiency measures by 2024;
- effective implementation of the sustainable diversion limit (SDL) adjustment mechanism incorporating supply, efficiency and constraints management measures;
- retaining and potentially enhancing the $1.77 billion Water for the Environment Special Account and actively applying these funds to recover additional water in a socio-economically neutral or beneficial manner, and to address constraints;
- continuing to implement the environmental watering plan and water quality and salinity management plan including through strong multi-jurisdictional coordination of planning and decision making for environmental watering and river operations;
- maintaining transparent, efficient and effective water markets;
- delivering accredited water resource plans by 30 June 2019;
- ensuring compliance and enforcement is robust and gives confidence that Basin water resources are being used appropriately; and
- reporting and communicating outcomes of the Basin Plan effectively to build greater trust and understanding of the Basin Plan and its implementation.

The MDBA's evaluation has highlighted three of these implementation areas that need increased attention – water resource plans, compliance regimes and measurement of water take (MDBA 2017). Jurisdictions are aware of the risks associated with these implementation areas and are working collaboratively to put a number of strategies in place to address issues. Further information on these arrangements can be found in this submission as part of our responses to information requests 7 and 12.

While many of the areas of Basin Plan implementation are on track (MDBA 2017), it is important to remember that it will take many years for the full effects of the Basin Plan to be observed, particularly in regards to improvements in ecosystem health. This is an important concept to consider when assessing the effectiveness of the Basin Plan to date.

With this in mind, it is important to be circumspect about what changes should be considered at this critical time. In general, the legislative and policy framework surrounding the Basin Plan is sound. It is how well the Plan is implemented that will determine whether it achieves its objects and purposes. The South Australian Government considers that it is these implementation issues that the Productivity Commission should focus its attention on, with

[1] NB – all volumes referenced in this submission are expressed in long term average annual yield terms

any consideration of major legislative or policy changes deferred until the first formal review of the Basin Plan in 2026.

While implementation of the Basin Plan has not been without its challenges, the South Australian Government considers that the benefits of the Basin Plan and associated Commonwealth funding programs far outweigh the costs. It is important that all jurisdictions continue to work together to complete implementation of the Basin Plan and enable the full suite of benefits to be achieved.

Summary of key points

- The legislative and policy framework surrounding the Basin Plan is sound. The Productivity Commission should focus its attention on how implementation of the Basin Plan could be improved, with any consideration of major legislative or policy changes deferred until the first formal review of the Basin Plan in 2026.
- Basin jurisdictions should develop an over-arching SDL adjustment implementation strategy that addresses risk, clarifies roles and responsibilities, provides suitable levels of transparency and establishes the detail of governance and program management.
- Basin jurisdictions should use the recommendations from EY's independent review of efficiency measures as the basis for a work plan to ensure that the roll out of the 450 GL program delivers the best possible outcomes.
- Basin jurisdictions should work urgently to put arrangements in place to progress efficiency measures to ensure that at least 62 GL is recovered by 30 June 2019. This will enable the full supply contribution to be applied to SDLs and for the remaining water recovery target to be bridged.
- The Commonwealth Government should consider funding regional development activities separately from the Water for the Environment Special Account to ensure that this fund is focused on its primary purpose of water recovery.
- The legal test of socio-economic neutrality for efficiency measures at section 7.17(2) of the Basin Plan is unambiguous and should be retained without amendment. This does not mean that additional regional development activities cannot be undertaken.
- The Commonwealth Government should consider implementing a structured monitoring and reporting regime that will enable governments to monitor and assess the effects of efficiency measures investment, during and after the implementation of the program.

- The Commonwealth Government should consider funding an irrigation training and extension component as part of the efficiency measures program design.
- The MDBA should consider undertaking an assessment of whether the Commonwealth Environmental Water Holder's portfolio of water entitlements will deliver on the modelled outcomes of the Basin Plan and provide advice on how remaining water recovery should be undertaken as well as whether there are any opportunities to optimize the Commonwealth Environmental Water Holder's (CEWH) portfolio.
- The MDBA and CEWH should consider increased consultation with Basin states on the Basin-wide environmental watering priorities to achieve better alignment between State, MDBA and CEWH annual priorities and avoid duplication of effort.
- The CEWH should consider including the Coorong, Lower Lakes and Murray Mouth in its Phase 2 Long-Term Intervention Monitoring project to enable a comprehensive whole-of-Basin approach to monitoring the outcomes of CEWH environmental water delivery.
- Basin governments should ensure provisions are place in their water resource plans to consistently enable all environmental water used in their state to be re-used for environmental purposes.
- The upcoming review of water quality and salinity management plan targets under section 13.08 of the Basin Plan provides an opportunity to consider the findings of the review of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality and identify whether there are any inconsistencies that need to be resolved.
- No changes to the provisions for critical human water needs are needed at this time.
- Basin jurisdictions should consider developing a website which demonstrates spatially and in real time when take is and is not permitted and the rules of take in the different reaches of the Northern Basin.
- The MDBA should consider a consolidation of the key outcomes to be reported against under its monitoring and evaluation framework.
- The MDBA should consider providing increased transparency of its Basin-wide monitoring program to enable Basin states to more easily identify monitoring gaps and opportunities.

- The MDBA should engage with the Basin States in developing monitoring activities, tools and methodologies.
- The development of the Basin Compliance Compact must continue to be pursued by all Basin governments as a top priority.
- The Commonwealth Government should consider providing additional funding to jurisdictions to support resourcing for the final phase of implementation once the *National Partnership Agreement on Murray-Darling Basin Reform* concludes.

Responses to information requests

Information request 2 – SDL adjustment

The SDL adjustment mechanism was included in the Basin Plan after extensive negotiations between Basin jurisdictions regarding how the social, economic and environmental outcomes implicit in the 2750 GL water recovery target contained in the Proposed Basin Plan (MDBA 2012) could be improved. Later consultations undertaken by the MDBA with the Basin Community Committee, national peak bodies, key scientists and technical experts, indigenous representatives and local government representatives revealed strong support for the mechanism within the broader community.

Consensus on the Basin Plan and SDL adjustment mechanism was only achieved through governments agreeing to reduce the water recovery from 2750 GL through supply measures if there was a corresponding commitment to pursue more ambitious environmental objectives (equivalent to 3200 GL in water recovery) through recovering 450 GL via efficiency measures with neutral or positive socio-economic effects. In their comments on the Proposed Basin Plan, the Murray-Darling Basin Ministerial Council noted that '...consensus on a mechanism...may be possible if the environmental objectives were sufficiently ambitious and the mechanism were used to deliver equivalent or improved outcomes as in the Basin Plan'[2]. It should be noted that the rationale for improving environmental outcomes was also supported by science and hydrological modelling.

Since establishment of the Basin Plan, jurisdictions have reiterated their commitment to implementing the full suite of measures through the SDL adjustment mechanism on a number of occasions including through the Intergovernmental Agreement on Murray-Darling Basin Reform[3] and implementation plan for the Council of Australian Governments (COAG)[4].

Progress on supply measures

Over the last five years, Basin jurisdictions have invested considerable effort to identify, develop and assess a suite of SDL adjustment supply measures which will deliver equivalent environmental outcomes with less water recovery.

The South Australian Government has participated in good faith in these arrangements by progressing five projects as a sole proponent and acting as a co-proponent with other jurisdictions for a further seven projects. Further information about the suite of SDL

[2] https://www.mdba.gov.au/sites/default/files/archived/revised-BP/AttachmentA_Main.pdf
[3] https://www.coag.gov.au/about-coag/agreements/intergovernmental-agreement-implementing-water-reform-murray-darling-basin
[4] https://www.mdba.gov.au/sites/default/files/mr/MincoreportBP.pdf

adjustment projects can be found at: https://www.mdba.gov.au/basin-plan-roll-out/sustainable-diversion-limits/sdl-adjustment-proposals-state-projects

While considerable progress has been made, jurisdictions are aware that achieving full implementation of all 36 SDL adjustment supply measures by 2024 will be challenging.

Jurisdictions are working collaboratively to establish governance, funding and program management arrangements that will enable effective coordination and successful delivery of the supply measures program, as well as undertaking work to develop state level delivery plans. These arrangements will be supported by a proposed new schedule to the *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin 2013* (the IGA) which is currently under development.

The South Australian Government considers that jurisdictions should also invest time in developing an over-arching implementation strategy that addresses risk, clarifies roles and responsibilities, provides suitable levels of transparency and establishes the detail of governance and program management, including regular review points. Having clear arrangements on these matters will be critical to successfully implementing such a complex program of works by 2024.

Risks associated with delivery of supply measures

One risk to the successful delivery of the supply measures program is a lack of understanding amongst the community, including some members of the academic community, about the benefits of supply measures and how potential risks or adverse impacts will be addressed or avoided. At the project level, delivery risks and mitigation strategies have been identified in business cases and will be reviewed and revised throughout project implementation in consultation with stakeholders and local communities.

At the December 2017 Murray-Darling Basin Ministerial Council meeting, Ministers acknowledged the need to effectively engage Basin communities on SDL adjustment projects as they move into the implementation phase[5].

A further risk associated with SDL adjustment relates to the ability of jurisdictions to recover sufficient efficiency measures by 1 July 2019, to enable the full supply contribution to be realised. The Water Act and Basin Plan limit the SDL adjustment to a net change of five per cent of the Basin-wide SDL (equivalent to 543 GL). Based on an adjustment of 605 GL, this means that at least 62 GL through efficiency measures needs to be realised by 1 July 2019.

[5] https://www.mdba.gov.au/media/mr/communique-murray-darling-basin-ministers-meet-albury

If this target is not achieved, the reduction in supply contribution will result in an outstanding water recovery gap that has not been bridged at 1 July 2019 when SDLs come into effect. This would be an unacceptable outcome and result in unnecessary uncertainty for communities. Given this risk has been foreseeable for some time it is critical that all jurisdictions work urgently to put arrangements in place to progress efficiency measures and ensure that this situation does not eventuate.

For its part, the South Australian Government has already taken steps to implement efficiency measures by running a pilot of the Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) program. This program has been in place since September 2016 and has delivered just over 1 GL in efficiency measures to date.

The South Australian Government welcomes the recent announcement made by the Commonwealth Government that an Expression of Interest process will be established for efficiency measures as well as the commitment to link payments for SDL adjustment supply measures to full cooperation in delivery of efficiency measures. These commitments will be important strategies to help ensure that the initial 62 GL and full 450 GL are delivered.

Risks to achieving the final 450 GL

In 2017 Murray-Darling Basin First Ministers re-confirmed their commitment to the Basin Plan and endorsed a COAG plan for delivering Basin Plan reforms. A fundamental element of the COAG Plan was commitment to recovering the final 450 GL and an outline of the steps that governments would take to achieve this.

In accordance with the COAG plan, the Commonwealth Government, on behalf of the Murray-Darling Basin Ministerial Council, commissioned EY (formerly Ernst and Young) to undertake an independent review of how the 450 GL could be recovered while delivering neutral or beneficial socio-economic outcomes.

EY's extensive review process included analysing over 150 academic articles, stakeholder submissions, program applications, case studies and socio-economic reports as well as undertaking over 60 different stakeholder consultation sessions across the Basin and working closely with the Basin Officials Committee.

Based on this work, EY concluded that there is sufficient evidence that the 450 GL can be achieved with positive or neutral outcomes, provided governments heed its recommendations on how best to design and deliver the program (EY 2018).

Under the COAG plan, it was agreed that Basin governments would deliver a work plan for efficiency measures by early 2018. However, despite this agreement, jurisdictions have not

been able to agree on a way forward and the milestone date agreed in the COAG plan has passed.

It is understood that some parties oppose further investment in on-farm irrigation efficiency projects to support recovery of the final 450 GL[6]. This view is maintained despite EY finding that, on balance, such projects can deliver beneficial outcomes for participants and associated communities. It is also noted that the original Basin Plan, as agreed in 2012, expressly contemplated that on-farm efficiency projects would be one of the principal means by which the final 450 GL would be recovered. The additional off-farm component in the Basin Plan was introduced later to provide, among other things, additional flexibility in how the 450 GL could be recovered.

The South Australian Government has seen firsthand the significant benefits that well-designed efficiency measures, coupled with productivity/regional economic development investment, can deliver (see response to information request 5). The Government would welcome opportunities to share its experiences on how to work with communities to ensure that efficiency measures programs deliver positive outcomes. It is understood that there are a number of other efficiency measures programs, such as the program implemented in Trangie/Nevertire, New South Wales, which have delivered positive outcomes and may also provide insights to guide future arrangements.

The EY report provides a practical way forward, offering considered suggestions for engaging community support and progressing a range of agricultural, water delivery and urban water efficiency measures. The South Australian Government encourages Basin jurisdictions to use these recommendations as a basis for an efficiency measures work plan to ensure roll out of the 450 GL delivers the best possible outcomes for the Basin.

Consistent with EY's findings, this should include complementary investment in post-project monitoring and evaluation. Should a risk of adverse impacts be identified through this monitoring, opportunities for regional development or structural adjustment assistance could be considered and discussed with the community.

Risks associated with available funding

EY's independent review of the efficiency measures program found that a key risk to the Commonwealth Government's ability to achieve the 450 GL target is the current statutory budget available for water recovery under the Water for the Environment Special Account (EY 2018).

[6] https://www.premier.vic.gov.au/standing-up-for-the-basin-plan-and-victorian-communities/

Based on the cost of past water efficiency measures and current water entitlement prices, there is a high likelihood that it will not be possible to achieve the entire 450 GL without increasing the available funds. The Water Act provides for two statutory reviews of the Account, in 2019 and 2021, which will provide an opportunity to review whether the Account's settings are appropriate to achieve the objectives set out in section 86AA(2).

Exacerbating the risk that the Account may be insufficient is the fact that the s86AD(2)(c)(ii) of the Water Act enables payments from the account to be used to address any detrimental social or economic impact that is associated with an efficiency measure. If this section is not applied judiciously, there is potential for it to reduce funding available for water recovery which remains the primary purpose of the Account. As a result, the South Australian Government considers that it would be appropriate for the Commonwealth Government to consider funding regional development activities separately should these activities be needed to complement efficiency measures to optimise outcomes for Basin communities.

Benefits of the 450 GL

The final 450 GL is a critical element of delivering a healthy river and floodplain system and maximising the benefits of the Basin Plan. Some of the important environmental outcomes that can be achieved through recovery of this water are outlined in Schedule 5 of the Basin Plan.

With the proposed 605 GL in water recovery offsets through the SDL adjustment mechanism, the final 450 GL becomes even more important for environments across the Basin and in particular in the lower Murray.

The 605 GL adjustment involves trade-offs in environmental benefits between sites and reaches along the river. In general, these trade-offs have resulted in increased environmental benefits upstream of South Australia and reduced environmental outcomes at the lower end of the River Murray. The additional 450 GL in water can help to counter-balance this outcome by providing increased flow to the lower River Murray. With constraints on environmental water delivery addressed, the benefits will be enhanced even further.

Importantly, recent work by EY has shown that recovery of the 450 GL can also provide positive socio-economic benefits (EY 2018). This study found that investment in on-farm efficiency measures can deliver a net benefit to industry through either enabling or bringing forward water efficiency upgrades. On average it has been estimated that approximately 23 per cent of the funding provided by the Commonwealth Government for these projects contributes to enhanced production which could enable a net financial benefit to industry of between $70 million and $302 million, depending on the type of commodity produced. Investment in off-farm and urban water efficiency projects is also anticipated to deliver

positive social and economic benefits as long as a whole-of-life assessment is undertaken to assess their viability.

The South Australian Government notes that some stakeholders have raised concerns that efficiency measures are more expensive than investing in direct buyback. While this may be the case on a simple $/ML metric, a number of studies show that efficiency measures provide broader economic benefits and can help to deliver water returns in a way that is positive for communities (discussed further in response to Information Request 5).

Definition of 'neutral or improved socio-economic outcomes'

Section 7.17(2) of the Basin Plan requires efficiency measures to achieve neutral or beneficial socio-economic outcomes as evidenced by participation of the relevant consumptive water user in the measure or by an alternative arrangement as proposed by a Basin State.

This legal test is deliberately precise. It was not contemplated as a merits review of whether the final 450 GL should be pursued but rather a legal requirement governing how governments would achieve the target.

The importance of satisfying the Basin Plan legal requirement for the implementation of efficiency measures and the recovery of the final 450 GL was reaffirmed in the December 2016 COAG communique and the subsequent implementation plan endorsed by COAG.

The South Australian Government's view is that the legal test is unambiguous, does not inhibit the likelihood of projects being delivered on time and budget and should be retained without amendment.

None of the implementation pathways recommended by EY would be inconsistent with the legal test.

Novel approaches to recovering water for the environment

The South Australian Government considers the current methods of water recovery appropriate to enable the delivery of secure, unencumbered water entitlements for the environment in an efficient manner. Use of other water recovery approaches such as 'options contracts', which would provide the Commonwealth Environmental Water Holder water allocations only under defined circumstances, would not be appropriate for furthering one of the key objects of the Water Act which is to return the Murray-Darling Basin to environmentally sustainable levels of extraction.

While it is important that water recovery measures deliver a secure entitlement that is available for use by the environment in perpetuity, a more flexible approach could be taken when

allocations associated with efficiency measures are made available to the Commonwealth. For example, the COFFIE program currently provides the option in SA to lease back the saved allocation, at the transaction cost rather than prevailing water market price, for one year after the project has been implemented to help irrigators adjust to the new infrastructure and operating regime. The inclusion of this option has been well received and could be considered more broadly for efficiency measures to further develop interest and maximise the early benefits from participation (noting that the timing of any economic benefits is critical to maximising the socio-economic outcomes from recovering the 450 GL).

Information request 4 – progress on constraints management

Basin jurisdictions are implementing a number of major initiatives to address policy, technical and physical constraints that limit the delivery of water through the River Murray system and its tributaries. These actions aim to improve the way that these rivers are operated for the benefit of both productive users and the environment by enabling modest enhancement to natural flows.

Key initiatives being progressed include:

- pre-requisite policy measure implementation plans which seek to address key policy constraints to the delivery of environmental water by 1 July 2019;
- a Constraints Management Strategy and business cases to address physical constraints at seven key focus areas: Hume to Yarrawonga, Yarrawonga to Wakool, Goulburn, Murrumbidgee, Lower Darling, SA River Murray and Gwydir;
- an enhanced Environmental Water Delivery supply measure project which seeks to build on the opportunities offered by constraints management to better coordinate watering across the Basin in real time and synchronise managed watering with natural events;
- the River Murray System Capacity, Risks and Options Project which aims to improve our understanding of the potential capacity of the system and associated delivery risks, as well as measures that could potentially be implemented to mitigate those risks; and
- multi-site watering trials which are testing innovative ways of operation that may be outside current rules and policies.

Progress to remove constraints

When the Constraints Management Strategy was completed by the Murray-Darling Basin Authority in 2013 it originally proposed three broad phases of implementation. Planning and implementation of projects was proposed to start in mid-2016.

Since this time, five of the seven constraints measure projects (Hume to Yarrawonga; Yarrawonga to Wakool, Lower Darling, SA River Murray and Murrumbidgee) have been notified as supply measures contributing to the 605 GL adjustment. As a result of this decision, constraints measures are now being progressed as a package with supply measures and the timing to progress projects has reflected the agreed inter-jurisdictional assessment, decision making and notification processes in the Basin Plan. These projects are now due to be delivered by 2024.

The additional time provided by this change has been used by jurisdictions to undertake further integration work by refining technical information, developing policy principles and undertaking additional community engagement to address community concerns about the proposals. The extra time has also allowed states to develop the Enhanced Environmental Water Delivery (EEWD) supply measure project which will complement the constraints management projects by improving coordination, forecasting, planning and operations across the Basin to better synchronise managed environmental watering events with natural flows.

Effects of delayed progress on constraints

While the delayed progress of constraints measures is having some limited environmental impacts, such as restricting the ability to boost flows at Yarrawonga above 15,000 ML/day, there is still a significant body of work that needs to be delivered before jurisdictions could consider trialing and operating the river with increased capacity. Mitigation measures and managed flows will be implemented incrementally to ensure risks are adequately managed and to build community trust and confidence in constraints measures.

Strategies for progressing constraints

The overall constraints program remains on track for the longer-term implementation timeframe of completion in 2024.

In accordance with the COAG Plan, Basin jurisdictions are now working to develop a work plan for constraints measures. The work plan was due in November 2017 but has been delayed to 2018. Previous uncertainties associated with the disallowance of the Northern Basin Review amendments and the potential disallowance of the SDL adjustment amendments, which are now resolved, have contributed to this delay.

Timely completion of this work plan by states and release of Commonwealth funding for states' constraints measure projects (even if this commences with an initial tranche of payments) will enable states to start re-engaging with local stakeholders and communities to progress detailed investigations, planning and design.

Strategies for achieving Basin Plan objectives if constraints are not removed

While there is further work to be done with communities to understand the potential impacts, design measures and determine final flow rates, there is no indication that constraints will not be able to be removed. It is too soon and unnecessary to consider alternative strategies. The current initiatives need to be given time to be delivered.

Delivery of the final 450 GL in water recovery is one important way to increase the extent to which Basin Plan objectives are met. As noted above, with the 605 GL in water recovery offsets and associated trade-offs, the 450 GL becomes even more important for environments across the Basin and in particular in the lower Murray.

Delivering the 450 GL in conjunction with relaxing constraints will enable up to 80,000 megalitres per day of water to be delivered, providing enhanced environmental benefits. For example, by promoting longitudinal connectivity from the border to the Coorong, Lower Lakes and Murray Mouth and promoting lateral connectivity to deliver water to the wetlands, floodplains, creeks and anabranches connected to the main river channel.

Even without relaxing constraints, the additional 450 GL is expected to deliver significant additional benefits including flows during dry years and additional flows for sites that are primarily volume dependent, such as the Coorong, Lower Lakes and Murray Mouth. Some examples of specific benefits in South Australia include:

- reducing the number and duration of periods when salinity is above critical thresholds, thereby avoiding significant ecological damage;
- avoiding low water levels, acidification and river bank collapse along the River and in the Lower Lakes and Coorong during dry periods; and
- with the prospect of a significant SDL offset, decreasing the maximum period with no barrage outflows from over 200 days to around 80 days.

The South Australian Government encourages Basin governments to continue to work collaboratively and closely with communities to implement constraints management measures.

Information request 5 – water recovery

Under the Basin Plan, the South Australian River Murray has a water recovery target of 183.8 GL. To date, 143.9 GL of this target has been recovered or is under contract. The remaining gap is expected to be bridged through the state's portion of supply measure offsets.

Similarly, across the Basin, over three quarters of the water recovery target has been met, with SDL adjustment offsets likely to address the remaining gap.

Effectiveness of the Commonwealth Environmental Water Holder's entitlement portfolio

Subject to completing recovery of the final 450 GL, the Commonwealth Environmental Water Holder's entitlement portfolio is considered to be appropriate for the purpose of achieving the modelled outcomes expected under the Basin Plan.

The logical time to reassess this is when the final SDL adjustment package has been implemented. In the meantime, the South Australian Government favours a market-driven approach to recovery of the final 450 GL, in line with the findings of EY, so that the socio-economic outcomes from efficiency measures can also be optimised (i.e. in addition to achieving the environmental outcomes under Schedule 5 of the Basin Plan).

Risks to achieving water recovery targets

As discussed in our response to information request 2, a risk to the achievement of water recovery targets is the lack of progress towards implementation of efficiency measures to counter balance the SDL adjustment offset.

Examples of water recovery done well

South Australia has a number of examples of efficiency measures that have been implemented well and resulted in positive outcomes for participants and communities.

One example is the South Australian River Murray Sustainability Program (SARMS). This $265 million program was designed by irrigators and comprised two areas of investment:

- the $240 million Irrigation Industry Improvement Program (3IP), which funded water recovery and agribusiness productivity improvement to recover 40 GL of South Australian irrigation entitlement for the environment (which corresponds to 36 GL in long term average annual yield); and

- a complementary $25 million Regional Economic Development (RED) element, which supported a suite of regional development, research and innovation projects.

The 3IP element offered a flexible funding model which reflected the fact that South Australian River Murray irrigation was already very efficient and addressed the requirements of an increasingly business savvy irrigation sector. The program focused on supporting irrigation enterprises to transition to improved business models and operations, enabling them to take advantage of opportunities emerging in a maturing water market and to deal with future risks around water availability. Due to the flexible funding approach, the program was able to fund projects that moved beyond the traditional 'pipe and pump' derived efficiencies and delivered new innovations such as crop netting.

Some examples of case studies of projects implemented under SARMS are provided at Appendix 2. A video which provides other examples can be accessed at: https://www.youtube.com/watch?v=agpbq5cEwd4.

The Regional Economic Development element invested in research, agricultural collaboration and innovation through redevelopment of the Loxton Research Centre and funding to non-irrigating businesses to deliver regional employment opportunities and improve regional economic diversity[7].

A video which showcases some of the benefits that are being realised by successful funding recipients under this program can be accessed at: https://www.youtube.com/watch?v=GrJAP9mPRgg.

The program has also attracted significant levels of co-investment. Once Round Four contracts have been finalized, 3IP is expected to attract around $70 million in project co-investments (noting that co-investment was not an eligibility criterion for the 3IP). RED has attracted around a further $27 million in co-investment as part of the $13 million in grants invested (matching co-investment was an eligibility criteria for these sub-programs). Based on modelled impacts of the pre-cursor program to the 3IP, the overall SARMS investment is expected to significantly boost regional economic activity.

Other program evaluations, case studies and evaluations also confirm the positive benefits that can be achieved through efficiency measures.

For example, RMCG (2016) undertook an economic analysis of eleven On Farm Irrigation Efficiency Program case studies. This analysis found that, on average, the investments delivered a net present value of $15,000 per hectare, a benefit-cost ratio of 3.2 and an internal

[7]http://pir.sa.gov.au/alerts_news_events/news/regions_sa/sarms/loxton_upgrade_shines_spotlight_on_local_food_and_wine

rate of return of 31 per cent. The investments also delivered significant productivity gains, with the average increase in production calculated to be worth approximately $1,300 per hectare per annum after taking additional variable costs into account.

The projects have also had broader regional benefits with RMCG 2016 reporting a net employment increase of one job per 300 to 1000 hectares of upgraded agricultural land. There are also short-term employment benefits associated with use of local irrigation equipment suppliers and contractors, as well as some additional longer term off-farm jobs from additional food processing.

The benefits of efficiency measures are not limited to South Australia, with Frontier Economics and TC&A (2017) reporting that on-farm improvements to irrigation layouts and irrigation management strategies have helped dairy businesses in Victoria adapt to changing industry conditions such as low milk prices and increased input costs.

In addition, an economic study of the effect of water recovery in the Murrumbidgee found that investments in on and off farm efficiency measures were estimated to increase regional gross domestic product in the order of $470 million between 2010 and 2034. Other benefits include an estimated increase in regional employment of 168 full time equivalent jobs in 2013 which is expected to rise to 298 jobs in 2019 as construction activity peaks. The initial investment is delivering long lasting regional benefits with ongoing boosts to employment estimated to gradually decrease from 110 additional jobs in 2020 to 75 additional jobs in 2034.

Information request 6 – regional structural adjustment

Regional development assistance for the South Australian River Murray

There is anecdotal evidence that the RED element of SARMS has been successful in supporting fit-for-purpose economic development activities right along the South Australian River Murray. Projects include:

- a new almond hulling and shelling plant at Swan Reach which is providing additional processing capacity for a rapidly expanding almond industry;
- a purpose built accommodation and training facility at Paringa to address the shortfall in accommodation for seasonal workers; and
- the development of an industrial precinct to complement the multi-faceted Motorsport Park at Tailem Bend.

The funding has also been used to deliver research programs that are delivering information to assist agribusiness decision making and improve outcomes for agri-businesses, with examples including:

- development of a fungicide resistance service for citrus packers which provides packers with a tool to help meet industry requirements for export by reducing decay and lowering chemical residues[8]; and
- advice to wine grape growers through a technical note on the longevity and performance of rootstocks – the funding allowed researchers to look back at wine grape rootstock trial sites originally planted during the 1970s, 1980s and into the early 1990s and will assist growers in decision making[9].

In aggregate, RED is expected to increase regional jobs and improve regional economic diversity.

The investment in SARMS follows South Australian Government investment in the region under the Riverland Sustainable Futures Fund. This $20 million fund ran from 2010 to 2014 to facilitate the region's recovery from prolonged drought, unprecedented low water allocations and low commodity prices. The fund supported 31 local projects, leading to the creation of up to 235 jobs and more than $48.7 million in total project investment[10].

Further structural adjustment

The Millennium drought has had significant and long-lasting impacts on the economic security of communities and industries along the South Australian River Murray. SARMS recognised the need for complementary socio-economic development activities to address this issue and realized significant outcomes in terms of business development, planning and restructure for participating irrigators. Despite these successes, further investment is required to continue to support our regional businesses and communities.

South Australian producers are faced with a unique set of opportunities to produce food and fibre for a hungry world. Food demand, and in particular demand for premium food and beverage products, is growing quickly. To meet these demands, producers will need to grow more with less and secure new markets to sell their goods. This will require businesses to change the way they do business, grow their capabilities in exporting and adopt new

[8] http://pir.sa.gov.au/__data/assets/pdf_file/0004/296887/Final_report_-_Longevity_and_sustained_performance_of_rootstocks_in_Lower_Murray_horticulture_-_Viticulture_and_Citrus.pdf
[9] http://pir.sa.gov.au/__data/assets/pdf_file/0012/296886/Technical_guide_-_Longevity_and_sustained_performance_of_rootstocks_for_Australian_vineyards.pdf
[10] http://www.pir.sa.gov.au/regions/grants/riverland_sustainable_futures_fund

technologies and practices. Governments are well placed to help industry make these improvements by accelerating investment in capability, capacity and expertise.

Information request 7 – water resource plans

Water resource plans are a fundamental element of Basin Plan implementation and provide the mechanism by which states will comply with new SDLs, establish rules to meet environmental and water quality objectives and take account of potential and emerging risks to water resources, amongst other things.

South Australia is responsible for delivering three water resource plans under the Basin Plan – the South Australian Murray Region, Eastern Mount Lofty Ranges and South Australian River Murray.

The first of these plans was submitted to the MDBA for assessment on 8 January 2018. Based on progress to date, the South Australian Government is confident that all three of these plans can be finalised within committed timeframes.

Across the Basin, 33 different water resource plans will need to be accredited by 30 June 2019, with only one accredited to date. It is acknowledged that the large number of plans requiring development, assessment, finalisation and accreditation within such a short timeframe will put significant pressure on the resources of the States, MDBA and Department of Agriculture and Water Resources.

Jurisdictions and the MDBA are aware of these upcoming challenges and have put a number of strategies in place to address the risk including:

- engagement with the MDBA to seek advice on draft components;
- quarterly reports on water resource plan progress published by the MDBA;
- secondments for State water planners to assist the MDBA to meet timeframes for advice and assessment;
- guidelines to assist jurisdictions to achieve a streamlined assessment; and
- establishing an assessment template that will form the basis of the MDBA's accreditation recommendation.

From South Australia's perspective, the development of Basin Plan consistent water resource plans has already delivered a number of improvements to water planning and management including in areas such as risk assessment, Aboriginal engagement and accounting for water take.

The requirements of Part 14 of Chapter 10 of the Basin Plan for engagement with Aboriginal nations in particular have provided an important catalyst to enhance engagement with nations on water management. In consultation with South Australian Aboriginal Nations, the South Australian Department for Environment and Water (DEW) has established partnerships for active and informed participation in water resource planning and to identify objectives and outcomes for water resource management. This engagement has greatly enhanced our understanding of Aboriginal interests in water and has provided the foundation for improved engagement with Aboriginal nations throughout South Australia.

Information request 8 – environmental water planning and management framework

On the whole, the South Australian Government considers that Basin jurisdictions have made good progress in implementing the environmental water planning and management framework. This view is shared by the MDBA who found in their evaluation that '*…notable progress has been made in the successful delivery or anticipated delivery of the major components of the environmental management framework*' (MDBA 2017).

Since the establishment of the Basin Plan, environmental water requirements and expected outcomes have been defined at a Basin, State, regional and site scale through the Basin-wide environmental watering strategy, States' long term environmental watering plans and State and Basin wide annual watering priorities.

South Australia's River Murray Long Term Environmental Watering Plan was completed in 2015[11]. Plans for the Eastern Mount Lofty Ranges and the South Australian Murray Region were submitted to the Murray-Darling Basin Authority in 2017. The South Australian Government has also delivered annual environmental watering priorities for the River Murray since 2014-15[12] and is in the process of documenting operating policies and procedures to support the implementation of pre-requisite policy measures by 30 June 2019.

The parties are working together to coordinate the delivery of water across the Basin to maximise the efficiency and effectiveness of environmental water use. Delivery of environmental water is coordinated through the Southern Connected Basin Environmental

[11] http://www.environment.sa.gov.au/topics/river-murray/improving-river-health/environmental-water/environmental-water-planning

[12] http://www.environment.sa.gov.au/topics/river-murray/improving-river-health/environmental-water/environmental-water-planning

Watering Committee, the Water Liaison Working Group and Operations Advisory Groups and there are increasingly effective and cooperative relationships between environmental water holders.

The MDBA's evaluation has demonstrated that there are early signs that implementation of the environmental water management and delivery framework is benefiting native fish, water birds and native vegetation (MDBA 2017). Some of the SA and the MDBA's key findings include:

- native fish have responded positively to environmental water, including a recent Black Bream spawning and growth in the Coorong estuary. Environmental water has been used to support endangered Murray hardyhead populations, ensure golden perch can move to suitable habitats and has supported an increase in Murray cod breeding;
- the rate of decline in water bird numbers has reduced with evidence of positive responses to environmental water; and
- there are early signs of positive responses of native vegetation to environmental water such as growth of seedlings and saplings and improvement in the condition of some river red gum forests.

Further information about how environmental watering actions are helping to achieve the Basin Plan's environmental objectives can be found in South Australia's River Murray Environmental Watering Reports[13].

To complement water recovery, Basin jurisdictions continue to explore opportunities to deliver enhanced environmental outcomes through natural resources management initiatives such as the National Carp Control Plan and Landcare. It should be noted that while these programs have merit in their own right they are not a substitute for water recovery. Restoration of flow regimes is generally a pre-condition for such programs and works to be effective. Installation of fish ways, for example, will not be effective unless there is adequate flow.

In South Australia, the SA Murray-Darling Basin Natural Resources Management Board has implemented a number of successful complementary natural resource management programs. One such example is the delivery of environmental water in conjunction with reintroduction programs for threatened fish such as Murray hardyhead, Yarra pygmy perch and southern pygmy perch. Pumping environmental water to threatened fish refuge sites has also supported this program.

[13] https://www.environment.sa.gov.au/about-us/our-reports/annual-reports

While the environmental water planning and management framework is generally operating well, the South Australian Government considers that there are some areas that could be improved, including:

- increased collaboration between the MDBA and CEWH and the Basin states on the Basin-wide environmental watering priorities to achieve better alignment and less duplication of effort between their respective annual priorities;
- including the Coorong, Lower Lakes and Murray Mouth in the CEWH's Phase 2 Long-Term Intervention Monitoring project to enable a comprehensive whole-of-Basin approach to monitoring the outcomes of CEHW environmental water delivery; and
- Basin governments ensuring provisions are included in water resource plans to consistently enable all environmental water used in their state to be re-used for environmental purposes. In this regard it should be noted that New South Wales has recently taken steps to better protect environmental water by implementing interim arrangements such as through the Bulk entitlement delivery process being implemented through Environmental Watering Trials.

Jurisdictions are currently working with the MDBA to better understand the risk of the system not being able to meet user demands during peak demand periods (e.g. at the Barmah Choke). The risk has been highlighted by the increased irrigation development in the lower River Murray as well as the changing patterns of water delivery due to environmental demands, among other things. While this is not a Basin Plan issue per se, it reflects the complexity of river management and the need to continue to review and adapt management practices.

Information request 9 – water quality and salinity management

Effective water quality management is essential to ensuring the health of the environment, the suitability of drinking water supplies for up to 90 per cent of South Australia's population and the productivity of food and wine industries.

Water Quality Management Plans under the Basin Plan will identify the key causes of water quality degradation, include water quality targets and identify measures that will contribute to the achievement of Basin Plan objectives. The approach is consistent with the National Water Quality Management Strategy and will ensure that there is a uniform approach to water quality management across the Murray-Darling Basin, while ensuring that there is flexibility to integrate existing state planning mechanisms and frameworks.

Inconsistencies between national water quality guidelines and Basin Plan requirements

The South Australian Government notes that the Australian and New Zealand Guidelines for Fresh and Marine Water Quality have recently been reviewed. The upcoming review of water quality and salinity management plan targets under section 13.08 of the Basin Plan provides an opportunity to consider the findings of this review and identify whether there are any inconsistencies that need to be resolved.

Actions of water managers to achieve water quality objectives

In addition to operating within state legislation and codes of practice, the Department for Environment and Water has also implemented new measures to achieve Basin Plan requirements.

The Department develops and implements South Australia's River Murray Annual Operating Plans. These plans are the state equivalent of the MDBA's River Murray System Annual Operating Plans guide River Murray operational decisions in South Australia. The plans outline high level objectives and outcomes for river operations, including having regard for Basin Plan targets for managing water flows.

At the Basin level, the actions taken by jurisdictions to have regard to the targets for managing water flows are reviewed and reported on annually. This process has proven to be effective in reviewing the adequacy of actions taken to manage water quality and identifying opportunities to improve river operations and delivery of environmental water to achieve Basin Plan water quality objectives.

The Department also requires people who want to undertake an action (such as weir pool raising or wetland drying) that may have an impact on the River Murray or other downstream users to complete a River Murray Action Request form. The purpose of completing the River Murray Action Request form is to provide a complete picture of all actions proposed to be undertaken and to determine the combined impacts of all actions. This enables relevant South Australian Government departments to make a prompt decision about whether the proposed action should be undertaken, modified or not undertaken.

Achievements

To date, delivery of significant volumes of environmental water, in conjunction with unregulated flow events, has assisted in meeting the Basin Plan water quality targets upstream of Lock 1 and improving water quality in the Lower Lakes following drought. For example, in October 2017, the average daily salinity of Lake Albert reached the pre-drought

salinity objective of 1500 EC (down from a high of 22,000 EC in 2010[14]). This was achieved through a combination of lake level cycling and the provision of additional environmental water secured under the Basin Plan.

In 2016-17 salinity at all South Australian reporting locations remained below Basin Plan target levels. This was the second year in a row that salinity was below target levels since annual reporting began in 2012-13.

Information request 10 – trade rules

The Basin Plan builds on the National Water Initiative by setting water trading rules and arrangements to increase access to information, improve the operation of the water market and remove inappropriate restrictions on trade.

Progress on implementing the Basin Plan trading rules

The South Australia Government has implemented a range of initiatives to meet the requirements of the Basin Plan's including:

- making amendments to rules in the Water Allocation Plan for the River Murray Prescribed Watercourse[15] to lift restrictions on trade or clarify trading rules. These rules have been reviewed by the MDBA and found to be consistent with the requirements of the Basin Plan;
- adopting internal policies to ensure that water announcements[16] are timely and sensitive water market information is managed appropriately;
- requiring trade applicants to supply price information on transfer forms[17] and improving the provision of price information; and
- publishing information about the trading of environmental water for greater transparency.

[14] http://www.epa.sa.gov.au/data_and_publications/water_quality_monitoring/lower_lakes/lake_albert
[15] http://www.naturalresources.sa.gov.au/samurraydarlingbasin/water/water-allocation-plans/river-murray-wap
[16] https://www.environment.sa.gov.au/topics/river-murray/water-allocation-and-carryover/water-allocations-and-announcements
[17] https://www.environment.sa.gov.au/licences-and-permits/water-licence-and-permit-forms

Achievement of water trading objectives and outcomes

The South Australian Government's view is that implementation of water trading reforms has assisted in advancing the water trading objectives and outcomes stated in chapter 5 of the Basin Plan, particularly through:

- enabling more trade opportunities through States taking action to lift restrictions and align their trading rules with the Basin Plan;
- enabling informed decisions through the provision of more accessible and useful water market information; and
- supporting market confidence through implementation of better arrangements to manage water market sensitive information and improving processes to manage any actual or perceived conflicts of interest of bodies who manage water market sensitive information and may engage in trade activity.

On a practical level, an effective water market is enabling water users to become more active in water trading. Grafton and Wheeler (2018) estimated that approximately half of all irrigators in the southern Murray-Darling Basin have made at least one entitlement trade while 78 per cent have conducted at least one water allocation trade.

Despite these successes there are still some areas for further improvement.

While much progress has been made in removing restrictions on water trading, further gains could be made by providing increased opportunities for water allocation trade where environmental and third party impacts can be appropriately managed.

Limitations in the rules and arrangements for making trade adjustments between States under the Murray-Darling Basin Agreement are currently contributing to the imposition of restrictions (such as inter-state and inter-valley trade restrictions). There are currently gaps in information which make it difficult to determine whether these restrictions are appropriate and whether there are alternative means to manage these risks while maximising trade opportunities.

In this regard, Basin States and the MDBA are working together to assess the appropriateness of rules for accounting for trade in the Southern connected Basin and the efficiency and effectiveness of the current operating environment.

Improved access to market information

Continuing to invest in better capture and reporting of water resource and trade data, including price information, remains a future priority and opportunity for Basin States and the

MDBA. The South Australian Government is investigating ways to make these improvements and sees value in further collaboration with Basin States, the MDBA and other stakeholders to reach a shared understanding of the key issues and potential strategies to address them.

Information request 11 – critical human water needs

In recognition that critical human water needs are the highest priority water use for Basin resources, the Basin Plan and Murray-Darling Basin Agreement include provisions to deliver critical human water needs and establish a tiered approach to water sharing. These arrangements, in addition to other provisions for risk management and governance, provide greater flexibility in managing water for critical human water needs. The South Australian Government considers that no changes to the provisions for critical human water needs are needed at this time.

Information request 12 – compliance

Compliance and enforcement arrangements are a fundamental part of managing water in the Murray-Darling Basin and all Basin governments have a role in ensuring that appropriate systems are in place.

In response to concerns raised about illegal take of water and inadequate enforcement of water planning rules in the northern part of the Basin, Basin Ministers have commissioned a number of reviews into the adequacy of current arrangements. All Basin Ministers are committed to taking prompt and effective action in response to the findings of these reviews, with a number of actions already underway. Some of the key actions already being implemented include:

- endorsement of a Memorandum of Understanding between the MDBA and the Natural Resources Access Regulator (the new independent regulatory body for water compliance in New South Wales);
- establishment of an MDBA Office of Compliance including strengthened processes and governance arrangements to handle allegations of non-compliance;
- establishment of an online register to report on the handling and progress of compliance matters;
- development of a formalised 'escalation pathway' for agencies to follow for alleged breaches; and
- establishment of an Independent Assurance Committee to advise the MDBA and states on key issues that should be addressed.

In addition to these strategies, the South Australian Government considers that governments could consider developing a website which demonstrates spatially and in real time when take is and is not permitted and the rules of take in the different reaches of the Northern Basin.

The development of the Basin Compliance Compact must also continue to be pursued by all Basin governments as a top priority. This Compact seeks to implement transparent and accountable water management through clearly defined roles and responsibilities for the MDBA and Basin States. The Compact will include Schedules that set out work programs for each Basin State in response to recommendations made by the various compliance reviews. These work programs will be flexible and adapt to new knowledge and emerging technology with progress to deliver on actions reported on regularly.

The South Australian Government considers it important that actions required by states under the Compliance Compact are proportional to the issue that need to be addressed and do not have unnecessary adverse impacts on compliant water users.

For example, the South Australian Government considers it unnecessary to mandate for existing operational meters that are operating within agreed in field tolerances of +/-5 per cent to be replaced with meters that comply with the current Australian Standard (AS4747). The Government does however recommend that all new and replacement meters are AS4747 compliant, provided a suitable meter is available on the market.

The South Australian Government considers it appropriate that all licensed water extractions from the Basin should be metered. Recognising that it is not always feasible to meter licensed water extractions in all situations, there should be agreed rules across Basin states for when the requirement to meter licensed extraction is exempt.

Information request 13 – monitoring and evaluation framework

Chapter 13 of the Basin Plan provides a comprehensive framework for monitoring and evaluating the effectiveness of the Basin Plan. This includes clear reporting obligations related to the objectives and outcomes against which the effectiveness of the Basin Plan will be evaluated.

South Australia continues to be compliant with its annual Basin Plan reporting requirements and has achieved its annual milestones for Basin Plan implementation under the National Partnership Agreement on Implementing Water Reform in the Murray-Darling Basin.

Usefulness of the MDBA's Framework for Evaluating Progress

Through the 2017 Evaluation, the MDBA has tested its monitoring and evaluation framework and identified some areas that require further refinement. Key areas requiring improvement include planning, coordination and alignment of monitoring programs and evaluation of outcomes.

The South Australian Government supports the MDBA's findings and seeks to work with the MDBA to implement recommendations. In particular, the South Australian Government would support a consolidation of the key outcomes to be reported against.

It should be noted that in accordance with Basin Plan section 13.23(1), the MDBA is required to conduct an assessment of monitoring, evaluation and reporting capabilities relevant to the framework, focusing on effectiveness. This assessment must consider the findings and recommendations from relevant evaluations, reviews, audits and assessments. This assessment will be undertaken during 2018 and the MDBA is currently working with Basin states to finalise the terms of reference.

Delineation of responsibilities for monitoring, evaluating and reporting

In 2018 the MDBA has committed to two actions:

1) reviewing guidelines for Schedule 12 reporting to improve evaluation of outcomes; and

2) conducting the assessment of monitoring, evaluation and reporting capabilities relevant to Chapter 13 required under section 13.23(1) of the Basin Plan.

These activities are expected to provide greater clarity around roles and responsibilities and enable evaluation of outcomes to be improved.

Improving the use of data and information for decision making and evaluation

With respect to environmental monitoring, the MDBA is responsible for undertaking a Basin-wide monitoring program as well as undertaking an evaluation of the outcomes of the Basin Plan. Improved transparency of the Basin-wide monitoring program would enable Basin states to more easily identify monitoring gaps and opportunities. At present it is also unclear how priorities are set between asset and system scale monitoring via this program.

Development and maintenance of long-term quantitative data is another area that needs future focus and the South Australian Government considers that the MDBA should engage with the Basin States in developing monitoring activities, tools and methodologies. It is important that all parties have a clear understanding of who is collecting information and how it is being used,

including for evaluation and reporting. Full implementation of an open data approach[18] which facilitates freely sharing data would also be of benefit.

Information request 14 – Basin institutional and governance arrangements

The South Australian Government considers that the current institutional and governance arrangements for the Basin Plan provide sufficient oversight of implementation and support engagement with the community. They allow for adaptation where necessary to address the changing requirements of Basin Plan implementation.

In an effort to ensure that governance remains fit for purpose, jurisdictions are developing arrangements to oversee the next phase of SDL adjustment project implementation. These arrangements will be recognised in a new schedule to the IGA which will outline the roles and responsibilities of the different jurisdictions and organisations including the Murray-Darling Basin Ministerial Council, Basin Officials Committee and any subsidiary committees and working groups that may be required.

The South Australian Government considers that any changes to the legislated governance arrangements at this stage would distract focus and be detrimental to delivery of the Basin Plan at this crucial stage of implementation.

One matter, however, that the Productivity Commission may wish to consider is whether jurisdictions will be adequately resourced to address the next phase of implementation once funding under the *National Partnership Agreement on Murray-Darling Basin Reform* concludes. Under this Agreement, the Commonwealth Government provided funds to jurisdictions in recognition of the significant additional resources that are required for Basin Plan implementation above and beyond what Basin States already have in place.

The final payment under this agreement will be delivered for the 2019-20 financial year. Given that there are a number of implementation priorities that fall beyond this timeframe, there may be a case for additional Commonwealth funds to be provided to jurisdictions to support resourcing for the final phase of implementation.

[18] https://digital.sa.gov.au/resources/topic/open-data/open-data-declaration

Appendix 1 – Reports referenced in the submission

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RMCG (2016), *Case Studies to inform MERI for Irrigation Efficiency Programs - Final Report.* Bendigo: RMCG.

Appendix 2 – Case studies reviewed

1. Ricegrowers Association of Australia Inc, *On Farm Irrigation Efficiency Program Case Study: The Hughes Surface Irrigation System Upgrade*. Available from: http://www.rga.org.au/f.ashx/OFIEPCaseStudies/Hughes-Case-Study.pdf.

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8. PIRSA, South Australian River Murray Sustainability Program Irrigation Industry Improvement Program: Autumn Fruits (Pennyfield Pome). Available from: http://pir.sa.gov.au/alerts_news_events/news/regions_sa/sarms/autumn_fruits_continues_to_grow_on_good_ideas

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10. PIRSA, South Australian River Murray Sustainability Program Irrigation Industry Improvement Program: Golder farms. Available from: http://pir.sa.gov.au/alerts_news_events/news/regions_sa/sarms/dairy_rises_to_the_occasion_for_water_savings

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