SUBMISSION BY
The Australian Department of Agriculture and Water Resources
Murray-Darling Basin Plan: Five-year assessment
Productivity Commission Issues Paper

The Department of Agriculture and Water Resources (the Department) welcomes the opportunity to respond to the Productivity Commission's (the Commission's) Issues Paper on the Murray-Darling Basin Plan five-year assessment. This submission includes the Department's actions, specific targets and current arrangements required to implement the Basin Plan, with respect to achieving its intended outcome - a sustainable, healthy working basin.

The Murray–Darling Basin (the Basin) is a complex, diverse and dynamic system containing thousands of stakeholders and communities, industries and environmental assets. The Basin Plan is a visionary, long-term policy which was set in 2012. The Basin Plan provides for the integrated management of the water resources of the Basin in a way that optimises economic, social and environmental outcomes. Key to this is ongoing and meaningful engagement with all stakeholders and communities. Basin Plan timeframes were set without examples of how long things would take and whether these timeframes were achievable. The successful implementation of the Basin Plan is a long-term undertaking which requires coordinated action by all Basin Governments, stakeholders and communities.

The Department has an important role in implementing water reform in the Murray-Darling Basin and for providing rigorous, evidence-based policy advice to the Australian Government. The Department is responsible for administering the *Water Act 2007* (the Water Act), the intergovernmental agreement and National Partnership Agreement on water reform, and reporting to the Council of Australian Governments on Basin Plan implementation progress.

The Basin Plan was made in 2012 with bipartisan support in the Australian Parliament, and the support of Basin State and Territory governments. The establishment of the Basin Plan followed several years of scientific, technical and socio-economic analysis, and extensive consultation with the public and Basin Governments.

The Basin Plan determines the long term average amount of water that can be extracted each year from the Basin for urban, industrial and agricultural use – known as sustainable diversion limits (SDLs). The SDLs ensure that sufficient water is available to maintain the health of the Murray-Darling Basin and will formally commence from 1 July 2019. The SDLs represent a reduction of 2,750 GL per year compared to baseline diversion limits, estimated to be 13, 623 GL in 2009.

The Basin Plan also made provision for:

- flexibility to adjust the SDL's through the operation of the SDL adjustment mechanism
- a review of SDLs in the northern Basin (the Northern Basin Review or NBR).

The Basin Plan allows for the Basin-wide SDL to be adjusted by no more than five per cent, that is, up or down by 543 GL per year.

The SDL adjustment mechanism also requires a suite of supply and efficiency measures to be implemented. Supply measures enable equivalent environmental outcomes to be achieved with less water. Efficiency measures improve environmental outcomes by recovering additional water for the environment with neutral or improved social and economic outcomes.

In 2013, the *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin* (the IGA) came into effect. As parties to the IGA, the Australian, and Basin State and Territory governments are committed to the co-operative implementation of the SDL adjustment mechanism for surface water. Basin First Ministers reconfirmed their commitment to implement the Plan, on time and in full, on 9 June 2017 by endorsing a plan by the Murray–Darling Basin Ministerial Council to the Council of Australian Governments (COAG) reiterates the commitment to collaborative Basin Plan implementation by all Basin governments.

Significant progress towards Basin Plan implementation has been made since 2012. As at 30 December 2017, over 2,100 GL of surface water had been recovered or contracted to be recovered towards reaching the SDLs under the Basin Plan. While work remains, the Department remains focused on delivering Basin Plan objectives by administering government programs and legislation, and the provision of investment to bridge the water recovery gap and meet the SDLs by 2019. Despite the setback of disallowance in the Federal Parliament of the Northern Basin Review amendments in February 2018, Basin governments are continuing to work together to deliver on all elements of the Basin Plan within established timeframes by 2024.

1. The Commission's assessment approach

The Department is focusing on three critical Basin Plan milestone dates:

- implementation of the SDL adjustment and Northern Basin Review amendments, and timely roll out of associated measures
- meeting water recovery targets and implementation of water resource plans by June 2019
- full implementation of the Basin Plan by June 2024.

The Department considers it would be useful for the Commission to consider implementation matters to June 2019 and to identify top priority matters that could be practically addressed within this timeframe. Beyond this, it would also be helpful for the Commission to identify matters that could be addressed in the period up to June 2024. This would most helpfully assist the Department as a steward of the Basin Plan, and other entities, to best give effect to Basin Plan outcomes.

2. Sustainable Diversion Limit Adjustment Mechanism

a. risks that may prevent Basin States from successfully implementing SDL adjustment projects

The SDL adjustment mechanism was incorporated into the Basin Plan at the request of Basin water ministers in 2012. The mechanism provides flexibility in how the Basin Plan's SDL's are achieved and provides a one-off opportunity to improve the Basin Plan's environmental, social and economic outcomes. On 16 June 2017, a key milestone in Basin Plan implementation was reached when the Ministerial Council reached consensus on the final package of SDL adjustment mechanism projects. The agreed package includes 36 supply measure projects, one constraints measure project and two efficiency measure projects.

On 5 December 2017, the MDBA settled its final determination of the SDL adjustment in the form of *Basin Plan Amendment (SDL Adjustments) Instrument 2017* (SDL adjustment amendment). The SDL adjustment amendment was adopted by the Commonwealth Water Minister and commenced as law on 13 January 2018. The amendment is currently subject to a notice of motion to disallow in the Australian Senate, which is expected to be debated on 8 May 2018. Without the amendment, the water recovery gap in the southern Basin would be re-set to pre-SDL adjustment mechanism levels and funding for the implementation of the supply measures would be re-purposed to water recovery as set

out in the *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin* (the IGA).

For supply (SDL offset) measures, implementation risks will vary between individual projects, noting that projects are at different stages of development. The Department has identified the following as potential risks to implementation by Basin States and the Australian Capital Territory:

- delays in settling funding and other implementation arrangements
- risks arising from concerns raised during community and stakeholder consultation processes (for example, concerns about the risk of un-mitigated third-party impacts)
- the risk of delays in securing works and regulatory approvals (for example, cultural heritage, environmental)
- time required to resolve changes to river operation rules and practices (including the Murray-Darling Basin Agreement) to the extent necessary to operationalise some measures
- the risk of weather events (for example, flooding) delaying project construction.

The Department will continue to work closely with Basin States and the MDBA in settling the implementation and funding arrangements for the agreed package of measures following the Basin Plan SDL adjustment amendment disallowance period. The *Principles for a new Intergovernmental Agreement Schedule for implementing the SDL adjustment mechanism* agreed by Basin water ministers in 2016 will inform these arrangements (MDB Ministerial Council 2016).

The Department will also be involved in assessing the completion of milestones in the implementation of projects through funding agreements. Basin governments have agreed that as projects move through the detailed design and implementation phase, there will be a coordinated and consistent approach to project delivery and consultation with stakeholders and local communities. One objective is to ensure projects are implemented in an adaptive way between now and 2024. The Department will continue to work with the MDBA, which is responsible for the reconciliation process, and all Basin States to agree an implementation pathway that provides this flexibility, while still achieving the environmental outcomes envisaged by the SDL adjustment.

b. the extent to which adopting a different definition of 'neutral or improved socioeconomic outcomes' for efficiency measures to what is in the Basin Plan would affect the likelihood of projects being delivered on time and on budget

The Basin Plan sets out that efficiency measures achieve neutral or improved socio-economic outcomes compared to the benchmark conditions of development as evidenced by either participation of consumptive water users in projects on- or off-farm, or alternative arrangements as assessed by a Basin State as achieving water recovery with neutral or improved socio-economic outcomes.

In 2017, Ernst and Young (EY) were commissioned by the Murray-Darling Basin Ministerial Council (the Ministerial Council) to undertake an independent analysis into the recovery of 450 gigalitres (GL) in additional environmental water through efficiency measures by 2024, with neutral or improved socio-economic impacts. The results of the analysis, released on 19 January 2018, found that the recovery of between 209 GL and 690 GL in efficiency measures is possible in a way that is socio-economically neutral or positive, consistent with Basin Plan requirements.

The EY analysis identified that urban projects and off-farm projects (such as upgrades to irrigation networks) have unequivocally positive socio-economic impacts as they reduce systems losses and improve water use efficiency. While the report identified that on-farm efficiency measures benefit participants by increasing the productivity and competiveness of the participating farmer, it acknowledged the potential for distributional impacts to arise if participants achieve a competitive

advantage through program participation. EY recommended that any on-farm impacts are managed through a whole of government approach to regional development, and ongoing monitoring and evaluation, to assess participation and monitor impacts.

EY proposed a phased implementation approach to recover the 450 GL with neutral or improved socio-economic impacts.

The Water Act details the types of efficiency measure projects for which payments can be made using funds provided for in the Water for the Environment Special Account (WESA). Any proposal to vary this definition would need to consider how the definition interacts with the specific requirements set out in the WESA.

The Water Act also requires two independent reviews of the WESA to be completed by 30 September 2019 and by 30 September 2021 respectively. The reviews must examine whether funding in the WESA is sufficient for increasing the volume of Basin water resources that is available for environmental use by 450 GL, and to this end whether progress (or anticipated progress) has been made and the design of projects is effective.

On the basis of the findings of the independent EY analysis and the Water Act's inbuilt review requirements of the WESA, the Department does not consider it necessary to adopt a revised definition of 'neutral or improved socio-economic outcomes' for efficiency measures.

c. whether there are other novel approaches to recovering water for the environment, such as purchase of entitlement options, that may contribute to Basin Plan outcomes while achieving neutral socioeconomic outcomes

The EY analysis identifies a range of novel approaches to recovering additional water for the environment including urban, mining, industrial, and on- and off-farm efficiency measures while achieving the criteria set out in the Water Act and Basin Plan.

In relation to the purchase of water access entitlements, the Water Act sets out the types of efficiency measure projects for which payments can be made using the WESA. The Water Act specifically notes that water access rights may be purchased only if they are related to adjusting long-term SDLs under the SDL adjustment mechanism and consistent with the criteria set out in the Basin Plan. This means that water entitlements could only be purchased using the WESA where they are associated with improving water use efficiency, unless an alternative arrangement is proposed by Basin States.

3. Northern Basin Review

a. on actions governments should now take to achieve SDLs in the Northern Basin

When the Basin Plan was agreed in 2012, there was recognition that the knowledge about the northern Basin and its specific requirements could be improved. With the support of Basin governments, the MDBA committed to conduct research and investigations into aspects of the Basin Plan in the northern Basin, including the basis for the long-term average sustainable diversion limits for surface water and groundwater. The MDBA's four year review was informed by the best available, independently reviewed science and considered the views of hundreds of environmental, Aboriginal, industry and community stakeholders. The key recommendation from the review was a 70-GL reduction in the water recovery target (from 390 GL to 320 GL) for the northern Basin.

The Australian Government is committed to ensuring that the remaining water recovery task in the northern Basin is managed in a way that minimises socio-economic impacts on communities. The Australian Government's water recovery program focuses on investment in water saving

infrastructure, but will consider, in consultation with Basin States, strategic water purchases in areas where:

- a gap remains to be bridged to meet the SDL or
- contracted water recovery projects are at risk of failing to deliver.

This policy is formalised in the *Water Recovery Strategy for the Murray-Darling Basin, Commonwealth of Australia 2014* (the Water Recovery Strategy) which also includes a statutory limit of 1,500 GL on surface water purchases.

The Australian Government has announced that it remains committed to implementing the outcomes of the NBR despite the *Basin Plan Amendment Instrument 2017 (No. 1)* (the NBR amendment) being disallowed in the Australian Senate on 14 February 2018. The Government is currently considering all options to identify an acceptable pathway forward to implement the NBR outcomes, in consultation with the New South Wales and Queensland governments.

In February 2018, the Department released the *Northern Basin Programs Taskforce report* which investigated strategies to recover water in the northern Basin and includes the findings of the NBR. These findings include support for the recommendation to reduce the water recovery target in the northern Basin by 70 GL (from 390 GL to 320 GL), provided there is a commitment from the Australian, Queensland and New South Wales governments to implement toolkit measures, which will deliver improved environmental outcomes in the northern Basin. This also included providing additional support to local and Aboriginal communities that have been impacted by previous water reform.

The Australian Government agreed to all the recommendations in the taskforce report and remains committed to implementation, noting funding to implement the recommendations is dependent on securing support for the NBR outcomes in the Federal Parliament.

4. Constraints management

'Constraints' is a term used to describe river operational rules, or structures such as public roads and bridges, that limit the volume of environmental water that can be released from storages, such as Hume Dam. Constraints measures are activities that remove or ease constraints on the capacity to deliver environmental water. While easing or removing constraints will not in itself lead to the recovery of more water, previous work by the MDBA has shown that it will enable better outcomes to be achieved from the use of environmental water, including any additional water recovered for the environment through efficiency measures.

a. why progress to remove constraints has been slower than expected

Through the IGA, Basin governments agreed it was necessary for the SDL adjustment mechanism to provide assessment and agreement to a single package of constraints, supply and efficiency measures. The Australian Government made up to $5 million available to Basin States to assist in the preparation of business cases for constraints proposals. However, given the complexity of developing and assessing a package of SDL adjustment projects, to meet the expectations of all Basin governments, Ministerial Council requested a 12 month extension to the original 30 June 2016 timeframe.

This additional time to maximise the supply outcome has resulted in delays to the delivery of a package of measures, including constraints proposals.

b. the implications of this slow progress

Delays in the development of the constraints business cases means there is now a slightly compressed timeframe for project implementation to 2024. To address this, through the Ministerial Council's plan to the Council of Australian Governments (COAG) - *Implementing the Basin Plan* (the COAG plan), Basin States have committed to develop a work plan that sets out a coordinated cross-jurisdictional process for addressing constraints that enables strong community involvement in development and planning to ensure a staged implementation approach. The work plan is being developed by relevant Basin States in collaboration with the MDBA and the Department, for consideration by the Ministerial Council at its first meeting in 2018. It is intended this work plan will help to ensure all projects can be successfully implemented between now and 2024. The Department will continue to support the development of this work plan, particularly in regards to settling funding arrangements for constraint projects.

c. what can be done to ensure that constraints are removed in a more timely manner while managing impacts on third parties

Implementation of agreed constraint measures is subject to consultation with the community. Basin States are working to progress constraints measures individually and collaboratively, ensuring better coordination and integration of constraints projects through the Constraints Measures Working Group. The development and roll out of the work plan for constraints implementation will be fundamental to constraints removal.

Australian Government funding for the implementation of state-led constraints measure projects will proceed subject to proponent jurisdictions demonstrating that the risk of adverse third party impacts can be addressed to the satisfaction of landholders and communities. The Department will continue to assist the timely delivery of constraints proposals through the implementation of funding agreements with Basin States.

d. strategies that are, or could be, put in place to increase the extent to which Basin Plan objectives are met when constraints cannot be removed

The Department is continuing to work closely with Basin jurisdictions to support timely implementation of an agreed package of constraint measures.

In the event that certain constraints could not be removed or are delayed, the Department would continue to support environmental water managers applying a flexible and adaptive approach to targeting environmental water to specific sites in consultation with all affected landholders including:

- active overbank pumping (including into stranded wetlands)
- lengthening natural flow durations
- maintaining low lying inundation levels for longer periods
- delivery of Pre-requisite Policy Measure implementation plans (for example, by re-crediting floodplain return flows for further environmental purposes downstream)

Changes to operational practices and rules in the southern-connected Basin could also allow for significant environmental outcomes to be realised. These changes are aimed at providing for improvements in delivery, coordination, accounting, streamlining processes and procedures for quicker decision making for enhanced environmental water delivery.

Many of the mechanisms outlined above are being employed by environmental water managers in the Basin.

5. Recovery of water for the environment

a. the extent to which the Australian Government's strategy to recover water in areas where gaps remain will be cost effective, align with the Basin Plan's environmental objectives, and be transparent

The Australian Government has committed to ensuring that water recovery is managed in a way that minimises socio-economic impacts on Basin communities. Successful implementation of the SDL adjustment mechanism and NBR outcomes are key to the Australian Government's water recovery strategy and bridging the remaining water recovery gap in both the southern and northern Basin by 2019.

In accordance with the Australian Government's Water Recovery Strategy, the Department is prioritising investment in water saving infrastructure over water purchase, but will consider, in consultation with Basin States, strategic water purchases in areas where a gap remains to be bridged to the SDL or where contracted projects are at risk. While the recovery of water through purchase of entitlements in an open competitive tender process will generally provide the lowest price for water acquisition it may not always achieve other objectives. For example, co-investing in efficient water infrastructure is an effective way to achieve positive social, economic and environmental outcomes while delivering value for money.

The Department, in undertaking any water acquisition, will take into consideration the contribution towards the Basin SDL gap-bridging target, value for money and the environmental utility of the entitlement based on the CEWH's priorities. The Department, when undertaking strategic water purchases, will also consider additional factors such as the possible socio-economic impact of removing water from a catchment on local communities.

The Department has received some public criticism for withholding some market or commercially sensitive information related to its strategic water purchases. The Department has sought to withhold such information where it considers that there is a genuine issue of protecting the Commonwealth's interests in any potential future water purchase activity it may need to undertake. The Department has been transparent about the process that underpins these purchases including the use of professional market evaluations of water and related assets.

To assist the Commonwealth in achieving a portfolio of water holdings that maximise environmental utility, the CEWH has provided the Department with formal advice on its water portfolio preferences for each catchment. This advice is used to guide and inform all water recovery decisions, and includes prioritising entitlement types to ensure an appropriately balanced portfolio is achieved for each catchment.

In the Queensland Upper Condamine Alluvium, 40.4 GL of groundwater recovery is still required to reach the SDL. This is the only groundwater resource area where water recovery is required under the Basin Plan to ensure long-term sustainability of the resource. Since 2014, the Department has used both open and limited tenders to recover this water. On 19 April 2018, the Department opened a voluntary public open tender to purchase groundwater licences in the Alluvium. A budget of $100 million has been allocated for the tender. The Department has announced the maximum prices it is prepared to pay for eligible licences under the tender, and published a summary of the market valuation report used to inform its price setting.

In accordance with the Commonwealth Procurement Rules, the Department reports information on each purchase on AusTender, as well as on the Department's website, and state government water registers. It typically takes 3 to 6 months to negotiate, complete and publish a water entitlement purchase.

b. risks to achieving water recovery targets by 1 July 2019 and, where not already addressed under current arrangements, how any shortfalls may be resolved

The Department is actively managing risks to bridging the water recovery gap to meet Basin Plan SDLs by 30 June 2019. Implementation of the NBR outcomes and SDL adjustment mechanism are key to the water recovery task. A summary of key risks associated with achieving water targets by 1 July 2019 include:

1. Re-opening of water recovery gap in southern and/or northern Basin

The SDL adjustment mechanism provides for a reduction in the SDLs in the southern Basin by up to 605 GL. The SDL adjustment amendment is currently subject to a disallowance motion in Federal Parliament. Successful disallowance of the Basin Plan SDL adjustment amendment would re-establish the water recovery gap in the southern Basin.

The NBR outcomes recommended a 70 GL reduction in water recovery for the northern Basin. The NBR amendment to provide for this reduction was recently disallowed in Federal Parliament resulting in the volume of water recovery in the northern Basin returning to the original 390 GL target. Without agreement on a pathway to implement the outcomes from the NBR, the remaining water recovery task in the northern Basin will be at 76.6 GL. The Australian Government remains committed to implementation these outcomes, in consultation with the New South Wales and Queensland governments.

2. Failure to deliver on contracted water recoveries

The Ministerial Council has agreed that Basin governments would continue working together to deliver on contracted water recoveries to meet water recovery targets by 30 June 2019. The Department is in active discussion with relevant Basin States on delivery of existing contracted water recovery commitments or alternative means to deliver equivalent volumes of water.

3. Increased cost of water recovery

The Department continues to closely monitor water entitlement prices as they affect the Department's value for money assessments and potential recoveries from available funding. The cost of water recovery may rise, putting pressure on the Government's capacity to bridge the gap by 30 June 2019 within the existing funding envelope.

4. Cap factors

Basin States must develop and submit water resource plans (WRPs) to the MDBA for assessment by early 2019. The development of each WRP will involve finalising 'cap factor' values for water entitlements in each SDL resource unit by settling the planning assumptions on which water allocation decisions will be made and the anticipated response of water users to these decisions. These cap factors provide for the calculation of the Long Term Average Annual Yield (LTAAY) of water entitlements recovered for the environment. Settling planning assumptions could potentially lead to changes to the cap factors that were adopted by the Ministerial Council in 2011. Any changes could affect the LTAAY value of both the water entitlement already recovered for the environment, and any residual volumes of water entitlements required to fully bridge the gap to the SDLs.

5. Strategic water purchases

While the Government's focus remains on investing in water saving infrastructure, in some catchments, further purchasing of water entitlements will be required. The final volume and location of this remaining water recovery is dependent on a range of variables, not least of which relates to the

Government's objective of delivering the outcomes of both the NBR and the SDL adjustment mechanism. In this context, decisions on each water purchase takes into consideration up-to-date recovery forecasts and any other relevant information. In addition, all water recovered through water purchasing must meet the requirements of the Commonwealth Procurement Rules and other legislative requirements (including the legislated 1,500 GL cap on Commonwealth surface water purchase).

c. examples of water recovery (both infrastructure projects and purchases) that have been either well implemented or had major deficiencies, including risks to securing contracted but not yet delivered water from water-saving infrastructure projects

Infrastructure programs

The Department recognises the importance of continuous improvement and monitors program delivery to identify and implement improvements to the design, methodology and administration of its programs. The Department has monitoring, evaluation, review and improvement frameworks in place for all its programs.

The Department's water recovery programs are delivered in a manner that minimises any adverse socio-economic impacts associated with the Basin Plan. These programs aim to assist irrigators and communities to make more efficient use of the Basin's water resources. Water recovery from infrastructure occurs through investments in on- and off-farm irrigation efficiency projects.

Further details and specific examples of Commonwealth on- and off-farm infrastructure projects are at **Appendix 1**.

As mentioned above, the Ministerial Council has agreed that Basin governments will continue working together to deliver on contracted water recoveries to meet water recovery targets by 30 June 2019.

Strategic water purchase

There have been more than 30 open tenders conducted to purchase water entitlements across the Basin since 2008-09. The water purchasing program acquires water entitlements through open and limited tender procurement methods in accordance with the Commonwealth Procurement Rules.

While open tender was the primary method of procurement in the earlier years of this program (2007-2013), due to community concern about the effects of untargeted surface water purchasing, and the 1,500 GL legislative cap, the Department has not used this method to procure surface water entitlements since 2015. More recently, the Department has employed a limited tender approach to surface water purchasing, where potential purchases are assessed based on their individual merits.

Examples of recent strategic purchase are:

- May 2016 – NSW Border Rivers – 256 ML (nominal) and 256 ML (LTAAY) at $384,000
- June 2016 – SA Murray – 3.2 GL (nominal) and 2.88 GL (LTAAY) at $8m
- January 2017 – NSW Murrumbidgee (Lowbidgee) – 12.1 GL (nominal) and 4.1 GL (LTAAY) at $4.5m
- June 2017 – QLD Warrego – 10.61 GL (nominal), 10.13 GL (LTAAY) at $16.9m
- June 2017 – NSW Lower Darling – 21.9 GL (nominal), 17.8 GL (LTAAY) at $78m
- August 2017 – QLD Condamine Balonne –28.7 GL (nominal), 26.4 GL (LTAAY) at $78.9m

Groundwater purchase

Following several months of consultation with licence holders, industry representatives and the Queensland Government about the most appropriate mechanism to reach groundwater recovery

targets for the Queensland Upper Condamine Alluvium, the Department has opened a tender on 19 April 2018 to purchase eligible groundwater licences in the Alluvium. Licence holders have acknowledged that water use in the Alluvium needs to be managed at a lower, more sustainable level in order to maintain a productive and viable resource. To increase transparency, the department has for the first time published the maximum prices it is prepared to pay for licences in each sub-area of the Alluvium and provided a summary of the market valuation used to inform its price setting. The Department also intends to list details of contracts awarded under this tender on its website, in addition to the mandatory reporting requirements (AusTender). Purchases of groundwater entitlements are not counted toward the 1,500 GL cap on surface water purchasing.

6. Structural adjustment assistance

a. what specific assistance has been provided to help communities adjust to the Basin Plan

Over $13 billion in Australian Government funding is being provided to implement of the Basin Plan and associated activities, with the vast majority for water infrastructure refurbishment and other improvements to water use efficiency.

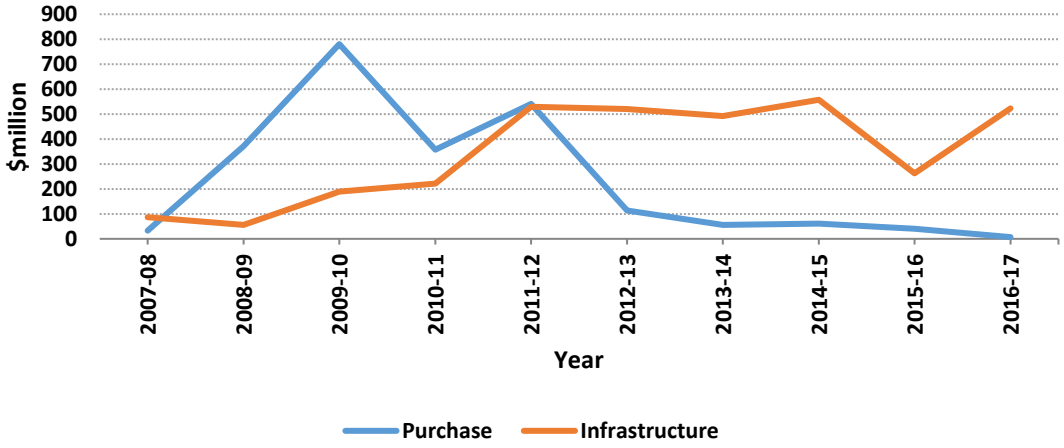
The Australian Government is providing more than $8 billion for modernising infrastructure and water efficiency improvements as part of Basin Plan implementation. This represents a major investment in the long-term productivity of irrigated agriculture and the sustainability of regional communities.

The Australian Government's water recovery programs are delivered to secure a long term sustainable future for irrigated agriculture and communities through more efficient use of the Basin's water resources. They have had social, economic and distributional effects on local communities.

As previously stated, the Australian Government's approach to water recovery is to prioritise investment in productivity-enhancing water infrastructure, capping water purchase at 1,500 GL. Noting this, water purchase can be an effective and efficient means of acquiring water, where governments are liable for the cost of recovering water for the environment. Purchasing water from willing participants can facilitate structural adjustment. Since 2011–12 Australian Government expenditure in the Basin has shifted from purchasing water entitlements to investment in water infrastructure projects (Figure 1). Commonwealth water recovery programs are designed to minimise adverse socio-economic impacts on communities (see below).

The Australian Government considers strategic purchases in circumstances where these would provide environmental benefit, while minimising negative social and economic impacts.

Figure 1 Commonwealth expenditure on water recovery in the Murray-Darling Basin



Community assistance

The Department is conscious of the need to support communities through changes resulting from its water reforms, particularly from implementation of the Basin Plan. The Australian Government continues to provide funding to assist communities to adapt to a future with less water.

The Australian Government is investing more than $400 million through a range of programs to assist regional communities affected by water reforms in the Murray-Darling Basin. The programs enable communities to plan for reduced water availability and enable practical steps to be taken to secure future water supplies.

A key program is the Murray-Darling Basin Regional Economic Diversification Program, which is providing $72.65 million in Australian Government funding, administered by the Department of Infrastructure, Regional Development and Cities, to the New South Wales, Victoria and Queensland governments. The program is assisting Basin communities to increase economic diversification and adjust to a water-constrained environment. The projects funded range from identifying industry opportunities, to developing community spaces and providing various training and development initiatives. The program is due to be completed in June 2019.

In South Australia, the Australian Government has committed funding of up to $265 million for the South Australian River Murray Sustainability (SARMS) Program. The program provides funding under four elements; irrigation efficiency, water purchase, irrigation industry assistance and regional economic development.

a. The irrigation industry assistance delivers up to $120 million in competitively awarded grants to support irrigators to reposition their business to increase productivity, competitiveness and resilience to market and climatic variations.

b. The regional economic development element provides a total of $25 million and is managed by the Department of Infrastructure, Regional Development and Cities. $12.5 million of the funding delivered competitive grants to support employment and economic diversification activities in the region, $7.5 million funded the redevelopment of the Loxton Research Centre, a collaborative hub for industry, research, education and government opened in February 2017, and $5 million supported industry-led applied research to fill identified investment gaps.

Across the Basin, the Australian Government has provided $64 million to local governments through the Strengthening Basin Communities Program. The program provided assistance for community-wide planning for a future with less water and investment in water saving initiatives, including cost effective water infrastructure that meets the needs of communities now and into the future.

Other projects providing assistance include $117 million for the Integrated Pipelines project in South Australia, $98 million for the Wimmera-Mallee Pipeline project in Victoria, and $20 million for the Orange City Pipeline project in New South Wales.

b. the extent to which this assistance has supported particular industries or region

It is acknowledged that the Murray-Darling Basin is experiencing social and economic changes. These changes can be attributed to a range of factors, including Australian Government water reforms, long-term trends in agriculture such as productivity growth and reduced labour demands, changing exchange rates and commodity prices, water trade, and growth in the non-farming sectors of the economy.

Over $8 billion is being invested in water infrastructure and irrigation efficiency programs in the Basin, which will have broader benefits than recovering water for the environment. Water-saving infrastructure projects – both on- and off-farm – benefit communities living along the rivers in the Basin.

The co-investment with irrigators in on-farm irrigation monitoring and delivery systems to increase on-farm productivity in exchange for water savings is significant for the long-term productivity of irrigated agriculture and the sustainability of regional communities into the future. Funding is provided for a range of water infrastructure and efficiency activities, including for over 2,600 on-farm projects underway or completed across the Basin.

Similarly, the investment in off-farm infrastructure will benefit more than 10,000 individual irrigators. The modernisation of over 1,000km of irrigation network delivery channels is having significant positive impacts on farm enterprises productivity and profitability and farmers' lifestyles through improving water quality and the timing and reliability of water delivery.

Investment in water use irrigation efficiency programs supports the future economic base of the community, facilitating increases in local jobs, businesses and support services across the Basin. In many cases, local contractors undertake the infrastructure works and environmental projects providing short-term economic benefits to the community. This is supported by the findings of the House of Representatives Standing Committee on Agriculture and Water Resources inquiry into water use efficiency programs that determined the programs are an effective approach to drive change in irrigation practices and implement efficiencies.

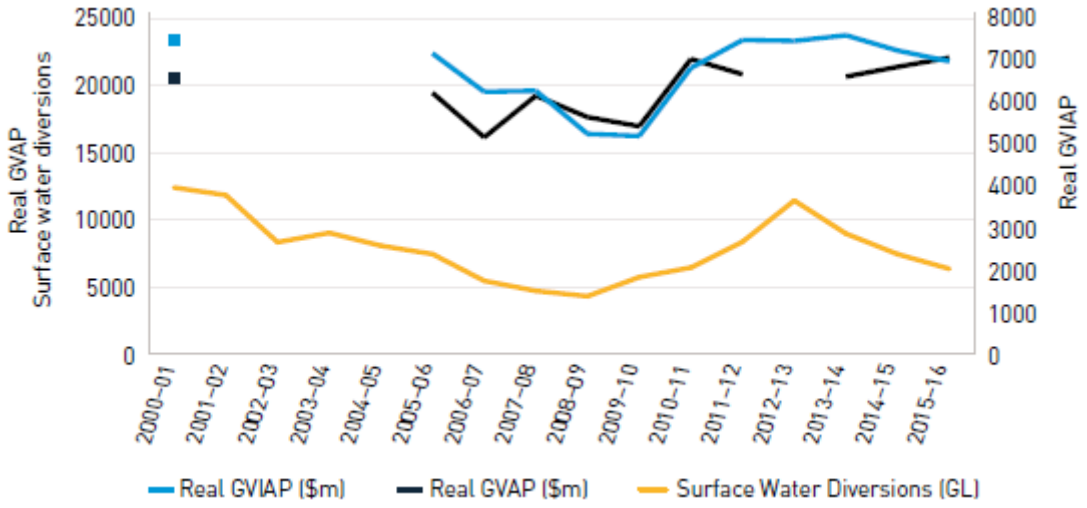
c. evidence that this assistance has facilitated adjustment that would not have otherwise occurred and has contributed to meeting the intended outcome of the Basin Plan, including more resilient industries and communities with confidence in their long-term future

The investment in on-farm irrigation efficiency projects generates water savings that are shared between the Commonwealth and farmers. Although farmers' water entitlements are reduced, as water is recovered for the environment in some instances the productive capacity of the individual farm and therefore the irrigation district is increased.

The Australian Government's investment in on- and off-farm irrigation infrastructure projects enables more efficient water use and contributes to the long-term productivity of irrigated agriculture and the sustainability of regional communities. It supports a range of investments in rural water use, management, and efficiency; with the main emphasis on projects to improve the operation of off-farm delivery systems which supports irrigators to improve the efficiency of water use on-farm. The combined effect of off- and on-farm measures optimises water delivery to the crop roots while reducing the level of take from waterways in the Basin.

Increasing water use efficiency through upgraded infrastructure allows production levels to be maintained or increased with the use of less water (MDBA 2017a). The Gross Value of Irrigated Agricultural Production (GVIAP) has shown a marked improvement in recent years following the Millennium drought. Despite water entitlements being transferred from irrigators to the Commonwealth, the Gross Value of Irrigated Agricultural Production for the Basin rose by over 35% over the 7 years between the decade low in 2008-09 and 2015-16 (Figure 2).

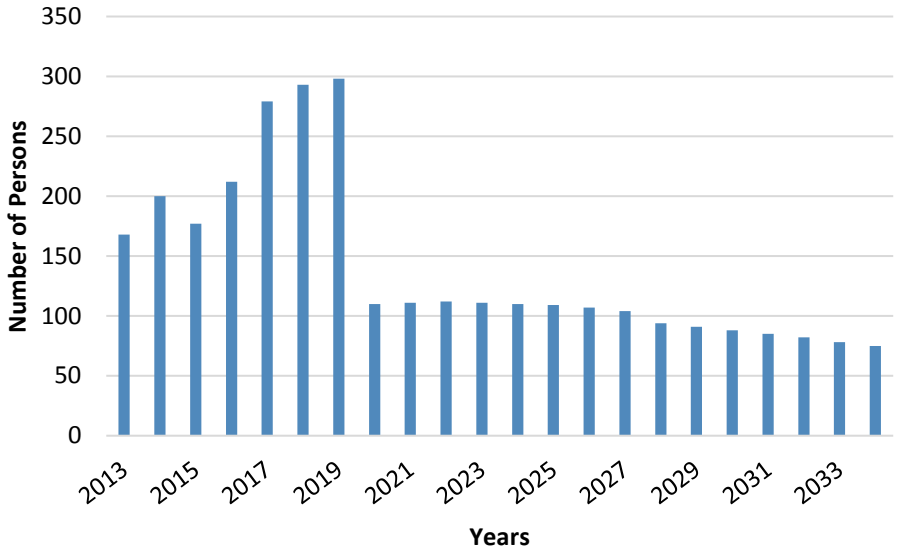
Figure 2 Gross value of irrigated agricultural production



Source: Australian Bureau of Statistics (ABS) – 4,618.0 Gross value of irrigated and total irrigated production.

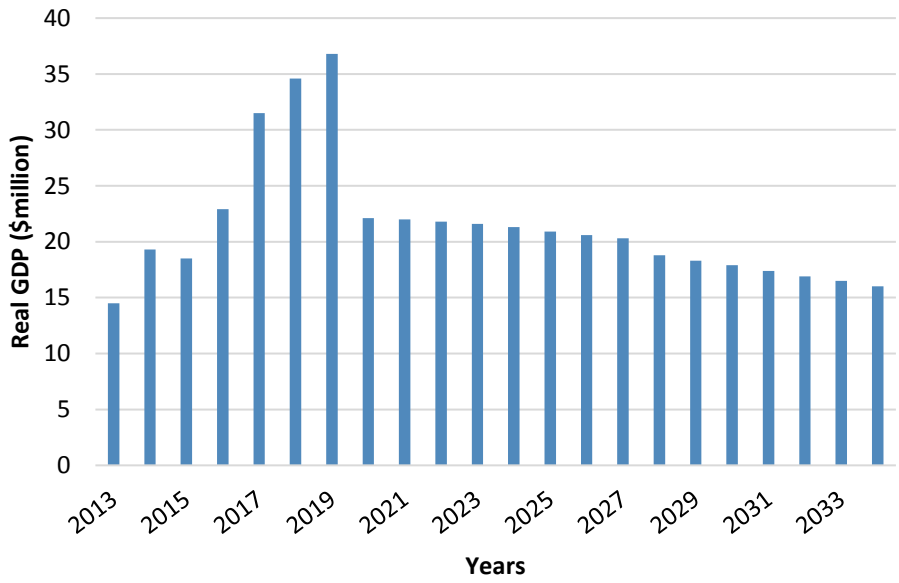
In 2017, the Department commissioned Marsden Jacobs Associates (MJA) to analyse the social and economic impacts of the Australian Government's water recovery efforts in the Murrumbidgee Irrigation Area (MIA) in New South Wales; a region that has seen significant investment through the On-Farm Irrigation Efficiency Program and the Private Irrigation Infrastructure Operators Program. In their report, MJA found considerable employment increases from 2013 to the peak of construction phase in 2019, with 298 additional jobs created in the Griffith region in that year. These net gains in employment are expected to continue well beyond 2020 (Figure 3 below). MJA also estimated a $470 million increase in regional domestic product over 25 years to 2034 (Figure 4 below). The report attributed the gains to the ongoing 'wash through' of the construction expenditure circulating in the local economy, the productivity gains from the ability to irrigate according to crop needs with the modernised infrastructure and the share of water savings retained by irrigators. The MJA study shows that a significant portion of the economic benefits generated by the Australian Government's investment in on- and off-farm irrigation infrastructure improvements remain within the MIA region.

Figure 3 Effect on MIA employment (persons) in Griffith region, 2013 to 2034



Source: MJA 2017.

Figure 4 Effect on MIA economic activity (Real GDP $m), 2013 to 2034



Source: MJA 2017.

The 2017 independent analysis of efficiency measures conducted by EY found that urban projects or off-farm projects such as upgrades to irrigation networks generate positive socio-economic impacts as they reduce system losses and improve water use efficiency. While EY identified that on-farm irrigation efficiency measures benefit participants and are positive at a Basin-wide scale, as they increase the productivity and competitiveness of the participating farmer. EY also found that there is potential for distributional effects if participants in on-farm irrigation efficiency programs achieve a competitive advantage through program participation. As a consequence, EY recommended that

governments work with communities, irrigators and industry sectors to ensure that efficiency measures have neutral or positive social and economic outcomes.

d. whether future structural adjustment assistance is warranted, and if so, what lessons can be learnt from past programs

The Australian Government will continue to prioritise water recovery through water infrastructure investment in a way that minimises impacts on communities, and contributes to supporting improved water use efficiency and agricultural productivity. Noting the NBR amendment has recently been disallowed in the Federal Parliament, full delivery of the outcomes of the NBR (should it eventually become law) and the successful operation of the SDL adjustment mechanism will further support these objectives by:

- reducing the water recovery target in the northern Basin by 70 GL
- delivering on the recommendations of the NBR taskforce report, including providing support to:
  - the Dirranbandi, St George, Collarenebri and Warren communities by funding local engagement and/or development facilitators to help communities identify and implement opportunities for development or to support existing programs and initiatives
  - the Northern Basin Aboriginal communities by funding a locally based Aboriginal facilitator to work with these communities to address concerns in water management matters and promote economic development opportunities.
- reducing the water recovery target in the southern Basin by 605 GL
- recovering 450 GL in efficiency measures with neutral or improved socio-economic outcomes.

The 2017 independent analysis of efficiency measures conducted by EY has a number of suggestions for the rollout of future programs by Basin governments. This analysis will inform the Commonwealth's investment in programs and decision making processes.

7. Water resource plans

a. the main risks to remaining WRPs being finalised and accredited by mid-2019

Basin States are working closely with the MDBA to develop their WRPs in time to be accredited by 30 June 2019. Achieving this outcome will require a considerable amount of work to be undertaken within short timeframe, including public consultation. This timeframe means there is limited scope for slippage, should unforeseen issues emerge that require additional time to resolve. At the same time, it is critical that quality is not compromised in meeting this timeframe and that WRPs are developed to a high standard and in accordance with consultation and other requirements. The MDBA is assisting Basin States by reviewing documents as they are prepared and providing preliminary advice to help ensure WRPs meet accreditation requirements. All jurisdictions, including the Commonwealth through the Department, are engaged through the Basin Officials Committee (BOC) in monitoring the progress of WRP development.

b. how, and to what extent, recent measures to make the WRP accreditation process more efficient and streamlined have sped up the preparation of WRPs and whether there are opportunities to further streamline the accreditation process for WRPs

Following the accreditation of the first WRP in Queensland (the Warrego-Paroo-Nebine WRP) and the submission by South Australia of the draft South Australian Murray Region WRP, the MDBA and Basin States have reviewed the accreditation process and made adjustments to improve its efficiency.

The Department is also working closely with the MDBA to ensure that the Commonwealth Minister's consideration of draft WRPs for accreditation will be facilitated in a coordinated and timely manner.

c. other ways WRPs or associated planning processes (e.g. consultation, modelling inputs) could be changed to better meet the objectives of the Basin Plan?

As part of the Basin Compliance Compact requested by the Ministerial Council on 19 December 2017, Basin jurisdictions are investigating options to improve metering, measurement technology, hydrological models and hydrometric networks. The intention is that these improvements will feature in more effectively operationalising the WRPs and water management when they are in place.

d. how effective Basin States have been in consulting with all relevant stakeholders

Meaningful consultation that allows stakeholders the opportunity to influence policy outcomes is a critical aspect of WRP development. Individual States are responsible for consultation on their WRPs and all Basin States have processes in place for public engagement. Tight timeframes for which WRPs need to be finalised within, remains the key challenge for stakeholder engagement.

Queensland has recently gone out for public consultation for its two additional WRPs. It is expected these WRPs will be submitted for accreditation late this year.

e. the main risks to planning assumption work being finalised on time

The MDBA is working closely with Basin States to finalise planning assumptions to inform development of WRPs. Timely completion of this work will require adequate resourcing, efficient and effective resolution of policy issues, and effective consultation with stakeholders.

8. Environmental water planning and management

a. how environmental water planning under the Environmental Management Framework is, or is not, facilitating achievement of the Basin Plan's environmental objectives within legislated timeframes, and what improvements should be made

The Water Act requires the Basin Plan to include an environmental watering plan for the water resources of the Basin. The purposes of the environmental watering plan are to:

- safeguard existing environmental water
- plan for the recovery of additional environmental water
- coordinate the management of environmental water.

in order to:

- protect and restore the wetlands and other environmental assets of the Basin
- protecting biodiversity dependent on the Basin water resources
- achieve other environmental outcomes for the Basin.

The Water Act established the CEWH with statutory functions to manage the Commonwealth environmental water holdings and to administer the Environmental Water Holdings Special Account. The Water Act requires the CEWH's functions to be performed for the purpose of protecting or restoring environmental assets so as to give effect to relevant international agreements.

The CEWH must manage the Commonwealth environmental water holdings in the Murray-Darling Basin in accordance with the environmental watering plan provided for in Chapter 8 of the Basin Plan and the Basin-wide environmental watering strategy (the strategy). The strategy was first published by the MDBA in 2014 and must be reviewed and updated at least every five years.

The MDBA publishes annual environmental watering priorities under this strategy, which guide the planning of water for the environment across the Basin each year. Other elements in the

environmental watering process include long-term watering plans and water resource plans that Basin states are responsible for preparing for each region.

The MDBA's 2017 Evaluation of the Environmental Management Framework concluded that the framework has effectively coordinated environmental watering, supporting the optimisation of environmental outcomes across the Basin (MDBA 2017b).

The Basin Plan sets out a number of objectives for the Environmental Management Framework. One of these is to enable adaptive management to be applied to the planning, prioritisation and use of environmental water. Successful roll out of key Basin Plan projects will also support delivery of environmental water in the long-term. These projects include:

- the proposed northern Basin 'toolkit' measures including:
  - the protection of environmental flows through State management arrangements
  - active management of environmental flows through a range of event-based mechanisms to improve the use of and assist with coordination of environmental water flows
  - work to address current physical restrictions to achieving desired flows to the Gwydir wetlands.
- the SDL adjustment mechanism projects including:
  - constraints projects that will ease or remove constraints on the capacity to deliver environmental water, improving ecological outcomes.
  - supply measures that will achieve equivalent environmental outcomes with less held environmental water.
- implementation of pre-requisite policy measures (PPMs) that consist of:
  - arrangements to re-credit environmental return flows from floodplains for downstream environmental uses
  - measures that enable environmental water to be released from dams on top of natural flow events in ways that deliver more environmental benefits.

b. how effective and efficient the delivery of environmental water is — including through coordination among owners of held environmental water, managers of planned environmental water and other stakeholders — and how any barriers could be reduced

Water managers, including the MDBA, CEWH, Basin States and river operators, work together through the Southern Connected Basin Environmental Watering Committee to maximise benefits from delivering water for the environment. Achieving the environmental outcomes set out in the Basin Plan is reliant on the CEWH and other environmental water managers using recovered environmental water efficiently and effectively. Water managers use a range of mechanisms to deliver environmental water to achieve system-wide benefits, including building on natural flows, using the same water for multiple environmental watering events, and returning water to the river so that it can be re-used downstream.

A number of environmental watering committees (discussed below) ensure that effective and efficient delivery of environmental water is coordinated among Basin governments.

c. whether Australian and State Government objectives for the delivery of environmental water align, any examples of where this has not been the case, and how differences are resolved through the Environmental Management Framework

Another objective of the Environmental Management Framework, set out in the Basin Plan is to facilitate consultation, coordination and cooperative arrangements between the, the CEWH and Basin States.

Environmental watering is coordinated between Basin governments through the Southern Connected Basin Environmental Watering Committee (SCBEWC) and supported by the Environmental Water Working Group (EWWG). These committees are established in accordance with the Basin Plan Implementation Agreement.

While the SCBEWC is not a decision making body it provides an intergovernmental forum for the coordination and planning for delivery of environmental water in the Southern Connected Basin. In particular, it provides a forum for coordinating and planning environmental water delivery in the River Murray System, including the allocation and management of The Living Murray portfolio, consistent with Basin Plan Environmental Water Plan and its objectives.

Examples of key achievements from this coordinated approach to environmental watering in 2016-17 include:

- a large scale Murray cod spawning event in the Lower Darling River in spring, supported entirely from environmental water
- use of environmental and operational water in summer and autumn that was delivered in a way to get golden perch to move from the northern Basin (where they had bred on-mass) into the southern basin via the Lower Darling River and Great Darling Anabranch
- use of infrastructure and environmental water to extend the inundation of floodplain wetlands and vegetation, such as at Barmah-Millewa Forest, Hattah Lakes and the Chowilla Floodplain.

EEWG was established as sub-committee of the Basin Plan Implementation Committee. The key role of the EEWG is to provide advice on policy and planning issues relating to the Environmental Water Plan. The EEWG may also provide advice on local engagement, accounting for environmental water use and environmental water delivery.

As a member of both committees, the Department will continue to support this ongoing work. The Department remains confident that the existing arrangements provide adequate forums for the Commonwealth and Basin state water holders to work together to meet shared objectives under the Basin Plan.

d. the extent to which the Prerequisite Policy Measures (PPMs) assumed to exist under the Basin Plan will be in place by the target date of 30 June 2019, so that the Plan's environmental objectives can be achieved under the SDLs agreed by governments, and how any identified concerns should be addressed

Basin States have indicated that they remain committed to implementing PPMs by 30 June 2019, in accordance with PPM implementation plans, as detailed in the Basin Plan implementation milestones set out in the agreed COAG plan.

Implementation plans for PPMs have been prepared by New South Wales, Victoria and South Australia for the southern connected Basin where supply measure projects under the SDL adjustment mechanism have been notified. To assist in the preparation of the River Murray implementation plan,

the MDBA coordinated drafting on behalf of the three southern Basin States. The MDBA assessed the adequacy of each implementation plan, including seeking independent advice.

Consistent with the Basin Plan, in determining the initial supply offset under the SDL adjustment mechanism, the MDBA made the assumption that PPMs would be in place by 30 June 2019. The MDBA will be required to re-examine these assumptions in 2024 when considering whether a reconciliation of SDL adjustment measures is required. At 2024, the MDBA will be required to remove any measures that did not come into effect by 30 June 2019 from the reconciliation adjustment.

The Department will continue to monitor this element and report on progress of PPMs through regular updates on Basin Plan implementation progress to COAG.

e. any opportunities to better integrate environmental water planning and management with natural resource management programs and complementary works to facilitate achievement of the Basin Plan's environmental objectives

On 16 June 2017, the Ministerial Council reaffirmed its support for complementary environmental projects in the Basin and agreed to consider further advice at future meetings on how to best embed complementary measures in Basin Plan implementation. It is the Australian Government's view that complementary environmental activities are important actions to undertake, as long as they do not come at the cost of flow-related outcomes.

Considerable work is planned or underway on a range of complementary environmental projects as part of existing Basin Plan processes such as environmental works and measures in the northern Basin, environmental works and measures being undertaken within the SDL adjustment projects and state priority projects. Examples of these include:

- fishways under construction on the Barrages in South Australia as part of the Coorong and Lower Lakes long-term management plan
- fishways as part of Locks 8 and 9, Yanco Creek and Menindee supply measure projects to be implemented by New South Wales.

Basin governments will continue to make use of existing programs in ways that further deliver complementary environmental outcomes, including linkages to other state and Commonwealth programs where relevant, such as the development of the National Carp Control Plan and Landcare initiatives.

9. Water quality and salinity management

a. any inconsistencies between the various national water quality guidelines and the water quality management plan requirements in WRPs and whether these inconsistencies are being resolved and managed

The water quality and salinity management aspects of the Basin Plan are based on key Guidelines of the National Water Quality Management Strategy (NWQMS).

The NWQMS guidelines of specific relevance to WRPs are the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Water Quality Guidelines, formerly known as the Australian and New Zealand Environmental Conservation Council (ANZECC) Guidelines), managed by the Department, and the Guidelines for Managing Risks in Recreational Water (managed by the National Health and Medical Research Council).

Both guidelines are not mandatory, but rather provide the over-arching framework and tools for assessing and managing water quality. State and territory governments use these guidelines to develop standards appropriate for local conditions and circumstances.

The Basin Plan requirements for WRPs require water quality targets to be:

- consistent with the ANZECC Guidelines
- determined in accordance with the procedures as set out in the ANZECC Guidelines, or
- offer a higher level of protection than the targets included within the Basin Plan.

On this basis, it is considered that there are currently no inconsistencies between relevant national water quality guidelines and the water quality management plan requirements in WRPs.

b. the adequacy of the actions of water managers to achieve the water quality objectives of the Basin Plan

The Basin Plan sets high-level objectives and targets for water quality and salinity management. In accordance with the requirements of the Water Act, the Basin Plan sets out the water quality and salinity management plan which includes:

- targets for managing water flows –dissolved oxygen, blue-green algae and salinity
- targets for WRPs –targets for fresh water-dependent ecosystems, irrigation water and recreational water
- targets for the purposes of long-term salinity planning and management –surface waters of rivers and tributaries

The Basin Plan also obliges river managers and water holders and managers individually to have regard to salinity targets. The Basin Plan and Schedule B of the Murray-Darling Basin Agreement also outline the salinity management obligations of each government party. The *Basin Salinity Management 2030* strategy, which superseded the *Basin Salinity Management Strategy 2001-2015*, provides a framework for how governments will work individually and collectively to meet the obligations of Schedule B and the Basin Plan.

The Basin Salinity Management Advisory Panel (BSMAP), was established to advise the Murray-Darling Basin Authority and the BOC in relation to salinity management. In 2016, updated terms of reference for BSMAP were adopted, which included:

- meeting the requirements set out in the Schedule B
- managing reporting and accountability arrangements contained in the Water Act
- coordinating the implementation of all aspects of the Basin Salinity Management 2030 strategy.

The Department continues to support the implementation of the *Basin Salinity Management 2030* strategy as an important mechanism to achieve the water quality objectives of the Basin Plan.

10. Water trading rules

a. whether the Basin Plan trading rules advance the water trading objectives and outcomes stated in chapter 5 of the Plan

The Basin trading rules have been effective in advancing the objectives and outcomes of Chapter 5 of the Basin Plan and in establishing an operating market for water in the Basin. The rules are robust and have provided a degree of certainty and clarity, enabling a range of traded water products to emerge.

Opportunities for improvement and addressing potential emerging issues do exist. Scope exists for other solutions to the challenges of inter-valley trading that better enable access and participation. The presence of physical constraints to the provision of water, as well as the need for rapid reconciling of

water supply and demand across the Basin, suggest other arrangements for accounting and balancing water supply and demand may be needed.

Changes to the composition of irrigated agriculture in particularly the southern water markets will require more agile evolution of the trading rules, and the mechanisms to do so are not yet present in the governance of water trading and water accounting. Similarly, there will be increasing demand for more streamlined systems supporting trade rules that consider delivery challenges in the provision of traded water, particularly during periods of peak demand. If the market moves increasingly toward forward contracts for water, there will be a demand for some certainty on when the water can be delivered. This is a live concern for the Department and the MDBA.

b. whether changes to state trading rules made to date as part of implementation of the Basin Plan adequately recognise and protect the environment and third party interests

Since the water trade rules came into effect in 2014, Basin States have made progress in aligning their trading rules with the Basin Plan, including the removal of major restrictions on inter-regional trade in water entitlements. For example, Victoria has made the following changes to their water trading rules:

- allowing anyone to purchase water allocation
- holders of an allocation account will not change when water shares are linked to the account or removed from it
- anyone can receive a limited term transfer of a water share
- the seller must state the agreed price of the trade
- many application forms have been updated
- the 4% limit on water share trade out of an irrigation area has been removed.

While all Basin States have made progress, state trading rules have potential to stop trade at a state or large river system scale, affecting the environment and entitlement holders. The Department's view is that Basin state governments have some way to go to fully deliver reforms through removing unreasonable restrictions on allocation trade and improving market information.

The Trade Working Group is an intergovernmental working group that convenes regularly to address issues with mutual trading rules within the Basin. Current issues the Trade Working Group are considering include reducing environmental and third party impacts including changes to interstate tagging, trading rules for surface and groundwater guidelines, and trade restrictions to inter-valley accounts.

c. whether implementation of the Basin Plan has improved access to market information and what further actions Basin States, irrigation infrastructure operators or the MDBA might need to take

Water market participants require complete, accurate and timely information to trade with confidence. This is a pre-condition for any competitive market. Access to information is improving, but deficiencies remain and there are further actions Basin States, the MDBA and other entities can improve access to and quality of water market information.

Incomplete information

Water registers would need to collect and publish additional information on water trades to provide complete and accurate market information such as:

- date the trade was executed (for example the date the price was set)
- timing of water delivery, when this is part of the water trade

- if the price of a permanent trade was “wet” (with current year water allocation) or “dry” (without current year water allocation)
- clear identification of environmental water trades and transfers
- differentiation between leases (where risk on annual allocation volume against entitlement passes to the buyer) and forward contracts (where the buyer has certainty on volume).

Timeliness

Delays remain in reporting and publication of trade prices. While some trades are available almost instantly, others are not published in time to be of value to water market participants in price discovery.

Accuracy of reported prices

A significant number of trades are reported at zero or uncommercial prices – this can approach or exceed 25% of reported trades in particular markets and so has the potential to distort average prices and reduce price transparency. The pattern of these trades suggests many would be transfers under a single owner or between related parties, and so are validly reported at zero. However, the overall volume of zero-dollar trades would warrant further examination to ensure accuracy of reporting. Note that Basin Plan section 12.48 requires that the seller of a water right notify the price of the trade.

Improving access to market information

More public information is needed on how water markets operate, including trading rules, processes and details about water rights. The jurisdictions that manage and administer water entitlement trades can provide this information, but it can be made simpler and easier to access for current and potential market participants. Clear accessible information, available to the public (with appropriate provisions for privacy and commercially sensitive information) would also improve transparency over the movement and disposition of water access rights - since these rights are created by legislation.

A private sector water market information platform is under development, with grant funding through the Business Research and Innovation Initiative. Marsden Jacob and Associates (MJA) is well advanced with the application, to be a “freemium” model: free to basic users with a premium offering providing revenue.

Irrigation Infrastructure Operators (IIOs)

Water rights are traded within the schemes operated by Irrigation Infrastructure Operators (IIOs) but these may not be publicly accessible (as required by Schedule 3 of the Water Act).

For example, each New South Wales IIO appears as a single Water Access Licence on the New South Wales register, so internal trades among IIO members are not visible. Of three major New South Wales IIOs in the southern-connected Basin, one publishes all traded prices and buy/sell bids on its website (visible to the public) while two do not make information on trades publicly visible (without logging in to their website).

Legislative provisions on market information

Current provisions of the Water Act and Basin Plan provide only general obligations to make trade information available. There is no guidance on the standards for completeness, timeliness or accuracy of information, and there are no remedies or sanctions for failure to meet obligations.

d. whether processes for reviewing Basin State trading rules — including the roles of the MDBA and the water trade working group — are sufficiently transparent, evidence-based and consultative

There are currently no formal processes to separately review the Basin State trading rules. The full effect of implementing the Basin Plan water trading rules has not yet been realised. State trading rules in interim and transitional plans are not required to be consistent with the Basin Plan water trading rules until 2019, with the introduction of WRPs. The MDBA's 10 yearly review of the Basin Plan will form the primary means of assessing trading rules after 2019.

11. Critical human water needs

a. risks to meeting critical human water needs (CHWN) under the Basin Plan, how the Plan addresses these risks, and what, if any, further measures are required

The Basin Plan and Murray-Darling Basin Agreement set out the way in which environmental water in the River Murray System is prioritised to meet and deliver critical human water needs (CHWN). The Murray-Darling Basin Agreement and the Basin Plan set specific water volumes required to meet CHWN and establish a tiered approach to water sharing.

The three water sharing tiers are:

- Tier 1 - normal water availability
- Tier 2 - very low water availability
- Tier 3 - extremely low water availability.

The Basin Plan sets triggers for water quality and salinity that allow movement between water sharing tiers. These trigger points help to manage risks to meeting and delivering CHWN, as well as consideration of water quality. This approach enables greater planning in water management for meeting CHWN.

Tier 1 arrangements are in place when there is no risk to conveyance water and the quality of water for CHWN. Since the making of the Basin Plan, only Tier 1 arrangements have been in place. The MDBA has not declared either tier 2 or tier 3 water sharing arrangements.

The Basin Plan also sets out requirements for monitoring, assessment and management of risks with regard to CHWN, including a process specific to managing CHWN risks associated with inflow prediction. These requirements complement the MDBA's normal processes for managing risks to water availability in the River Murray System.

The Department considers the current triggers and measures within the Basin Plan adequate to meet any risks to CHWN which may arise.

b. any concerns about provisions in WRPs relating to CHWN under extreme conditions

All Basin state governments are currently progressing WRPs. As previously stated, only one WRP, the Warrego-Paroo-Nebine, on 15 June 2017 has been accredited. The Department has no concern about the provisions in the one accredited WRP. The Department will continue to examine all provisions, including those relating to CHWNs, as WRPs are submitted to the Commonwealth Water Minister for accreditation.

12. Compliance

a. risks to the MDBA's ability to monitor and enforce compliance with the Basin Plan and WRPs from July 2019, and what, if any changes should be made to address these risks

Compliance has been an area of significant activity in Basin Plan implementation over the last 12 months and the Department recognises the importance of this to public confidence in the Plan and achieving its outcomes on the ground. The MDBA's and Independent Panel's *Murray–Darling Basin Water Compliance Review* (the Review) identified found that the MDBA needed to be more assertive in its compliance and enforcement role (MDBA 2017c). The review also raised concerns with the limited nature of sanctions, penalties and evidentiary provisions under the Water Act.

The Review recommended a range of actions for the MDBA, and recommendations for Basin States to undertake, to address the identified concerns. Upon release of the Review, the MDBA committed to implementing all actions relevant to its regulatory role.

In response to this and other reviews, the Murray-Darling Basin Ministerial Council requested on 19 December 2017 that Basin officials prepare a Basin Compliance Compact. The Compact will detail a compliance implementation framework that includes specific plans for improving compliance and enforcement for each Basin jurisdiction and the MDBA. Through the Compact, Basin officials are investigating options to improve the level of compliance and enforcement across the Basin, implement accurate and reliable metering and measurement of water take, provide greater transparency and accountability and more effective communication so that the public can be confident that water resources are being used effectively.

The Commonwealth will also provide an extra $9.1 million in funding to the MDBA over the next three years to strengthen its compliance functions. The MDBA has already enacted a number of recommendations from the compliance reviews including:

- Establishing an Office of Compliance as well as a new independent assurance committee to advise the MDBA on its compliance program
- Published an online register of reported non-compliance matters and adopted an escalation pathway for when and how the MDBA will follow up on alleged breaches
- Commenced publishing quarterly reports on progress with the development of water resources plans
- Begun work to improve hydrological modelling and hydrometric networks and data, which will be included in the Basin Compliance Compact.

b. the extent to which non-compliance with the Basin Plan will be addressed by recent changes to compliance and enforcement announced by governments

On 25 November 2017, the Prime Minister, the Hon. Malcolm Turnbull MP, and the Assistant Minister for Agriculture and Water Resources, Senator the Hon. Anne Ruston, announced the Six Point Implementation agenda to deliver the Basin Plan. This agenda included measures to strengthen compliance, such as boosting the MDBA's capacity and resourcing for compliance and working with Basin jurisdictions to improve the Basin compliance framework.

The Department is working with officials from the MDBA and Basin States to draft the Basin Compliance Compact. The preparation of this Compact is now well advanced and will be considered by the Ministerial Council at their next meeting.

A number of reviews have now been completed or are now underway in response to the allegations of non-compliance and Basin governments have responded accordingly.

By way of example, the New South Wales government has responded to concerns raised in the Matthews' report on New South Wales water management and compliance with the publication of a Water Reform Action Plan. This plan seeks to implement the recommendations from the Matthew's report. New South Wales is currently undertaking public consultation on a series of issues papers and an exposure draft for proposed legislative reform.

c. any further changes that should be introduced to increase water take compliance across the Basin

In developing the Basin Compliance Compact, it will be important that governments' responses to compliance concerns are enduring. Key elements which will assist are:

- clear division of responsibility between regulator and regulated entities
- clear and realistic timeframes for governments to achieve outcomes and public transparency in how timeframes are being met
- review processes and audits to ensure that responses to compliance reviews are evaluated, improved and maintained over time and to provide layers of assurance to water entitlement holders and the wider community.

These discussions will continue as part of the development of the Compact.

13. Monitoring, evaluation and reporting

a. how well current arrangements for monitoring, evaluation and reporting support the delivery of the objectives of the Basin Plan; and how they could be improved to increase the likelihood of the objectives being met

The Department has monitoring, evaluation, review and improvement frameworks in place for all its programs, including investment in water-related infrastructure, water entitlement purchases and other activities to support the implementation of the Basin Plan. The monitoring and evaluation in place for the Sustainable Rural Water Use and Infrastructure Program for example, supports the objectives of the program and includes monthly reporting on water entitlements, collection of program information, statistics and case studies. It also includes opportunities to apply lessons learnt in previous grant rounds or programs.

The Department also contributes to monitoring, evaluation and reporting on the socio-economic effects of the Commonwealth water recovery programs.

In October 2017, the Department published two reports contributing to the MDBA's 2017 Basin Plan evaluation. The *Commonwealth water reform investments in the Murray–Darling Basin - Analysis of social and economic outcomes* report presented an analysis of the social and economic effects of Commonwealth water reform investments in the Murray–Darling Basin, focusing on the Australian Government's on- and off-farm water recovery programs and water purchasing.

The second was an independent economic consultant report commissioned by the Department on the *Economic effects of the Commonwealth water recovery programs in the Murrumbidgee Irrigation Area*. The aim of the report was to provide a deeper understanding of the overall economic effects of Commonwealth water recovery programs in the Murrumbidgee Irrigation Area, focussing on the short to long-term effects on the Griffith regional economy.

The Department will continue to provide information on water recovery to support the MBDA evaluation and reporting.

b. whether there is a clear delineation of responsibilities for monitoring, evaluating and reporting on the Basin Plan, and, if not, how it could be improved

The MDBA has primary responsibility for monitoring, evaluating and reporting on the Basin Plan, including undertaking five-yearly Basin Plan evaluations, starting in 2020. The Department has responsibility for monitoring, evaluating and reporting on the socio-economic effects of the Commonwealth programs that it administers.

Under its Six Point Agenda for delivering the Basin Plan the Australian Government committed to enhancing monitoring and communications by establishing a robust program of ongoing monitoring and evaluation of the long-term socio-economic outcomes and impacts associated with Commonwealth-funded water recovery programs. The Six Point Agenda was announced by the Prime Minister, the Hon. Malcolm Turnbull MP on 25 November 2017 partly in response to the MDBA's 2017 Murray-Darling Basin Water Compliance Review.

To help deliver this commitment the Department engaged ABARES to develop a new framework including key socio-economic indicators that will be used in developing an ongoing and public report. This work is underway and the Department will draw on these outputs when it contributes to the MDBA's 2020 Basin Plan evaluation.

c. the usefulness of the MDBA's Framework for Evaluating Progress and its recent application in evaluating the Basin Plan

The Framework is a high-level, aspirational document produced in 2014 before many of the evaluation issues were fully understood. The Department notes the Framework provided guidance for the MDBA's 2017 Basin Plan evaluation. The Department is of the view that the Framework may need updating to provide a useful basis for evaluating the Basin Plan's effectiveness in 2020.

d. how data and information obtained through monitoring, evaluation and reporting could be made more useful for decision making and evaluation of the Basin Plan (including how to make this data and information more outcomes-focused

The MDBA's work on community-level socio-economic effects of the Basin Plan for its 2017 interim evaluation was limited by the lack of reliable data on key socio-economic indicators. The Australian Bureau of Statistics 2016 census data was not available when the 2017 evaluation was undertaken. It is expected this will continue to be a limitation at the time of the 2020 evaluation.

Measuring any change in socio-economic conditions at the community-level is complex and requires multiple indicators. Analysis is highly sensitive to modelling assumptions and care must be taken to ensure these are not over-simplified or overly rely on the use of proxies.

e. the general information required to provide confidence to communities and others that the Plan is being implemented well and is achieving its objectives

The Department has responsibility for monitoring, evaluating and reporting water recovery and financial information on all programs administered by the Department. This includes on-farm, off-farm and environmental water recovery projects, water purchase projects and water security projects as well as the socio-economic effects of Commonwealth water recovery programs.

To improve current monitoring, evaluating and reporting arrangements, the Department has engaged ABARES to assist with developing a new monitoring and evaluation program for assessing the socio-economic effects of Commonwealth water recovery programs. This work is underway and will form the basis of the Department's monitoring and evaluation efforts to feed into the 2020 Basin Plan evaluation.

f. whether processes are in place to monitor key risks to the continued availability of Basin water resources

As discussed above, the Department has responsibility for monitoring, evaluating and reporting on the socio-economic effects of the Commonwealth water recovery programs that it administers.

The MDBA has primary responsibility for monitoring, evaluating and reporting on broader Basin Plan implementation.

Between 2007 and 2012, the Australian Government funded CSIRO to undertake 'sustainable yields' assessments across the Basin. This work included modelled projections of the likely impacts of climate change in each catchment, and for the Basin as a whole out to 2030.

Furthermore, as part of the Howard Government's National Plan for Water Security, the Bureau of Meteorology was funded to develop its water resource information and accounting capability. This work has now led to a medium-term water resource forecasting capability in the Basin and elsewhere in Australia.

14. Basin institutional and governance arrangements

a. whether current institutional and governance arrangements provide for sufficient oversight of the plan and support engagement with the community

The Department recognises that effective institutional and governance arrangements are vital to the successful implementation of the Basin Plan. The current roles and responsibilities of the various agencies in Basin Plan implementation are set out at **Appendix 2.**

The MDBA and Independent Panel's *Murray-Darling Basin Water Compliance Review* made some recommendations on this matter. The Basin Officials Committee (BOC) will consider these recommendations at its next meeting (scheduled for 17 May 2018).

The BOC is then expected to provide advice to the Ministerial Council, including any recommendations for change.

The Basin Plan Implementation Committee (BPIC) was established under the Basin Plan Implementation Agreement between the MDBA, Basin States and the CEWH. At present, the BPIC is seeking to ensure the committee is supporting implementation of the Basin Plan in a manner that is efficient, effective and timely. This includes BPIC working groups undertaking a self-assessment of their role and advice they provide to BPIC.

b. whether there are risks to the achievement of the objectives of the Plan that arise from the current institutional and governance arrangements

While the Department does not consider that there are significant risks arising from current institutional and governance arrangements, we do think that governance arrangements should be revisited periodically to ensure the arrangements remain effective and transparent, and to manage any associated risks to the achievement of Basin Plan objectives and outcomes.

As noted above, there is a matter which is under active consideration by the BOC and the Department will continue to work in consultation with Basin governments to ensure that any such risks are addressed.

c. what improvements can be made to ensure that institutional and governance arrangements are fit for the next phase of implementing the Plan

Continuous improvement through adaptive management is fundamental to Basin Plan implementation. The processes being undertaken by the BOC and BPIC demonstrate this approach.

Basin Governments have further demonstrated this approach to continuous improvement, particularly in respect of supporting engagement with communities. Through the 2017 COAG plan, Basin governments reinforced their commitment to a collaborative approach to working with the community and engaging local communities in the management of the respective parts of the Basin.

Recognising the value of meeting in regional areas impacted by the Basin Plan, the Ministerial Council has held its last two meetings in Mildura and Albury respectively, with stakeholder events occurring at both of these meetings. The BOC is also seeking opportunities for Basin officials to find opportunities to engage effectively with community members. The BOC has agreed to hold at least one meeting per year in a regional town, with a view to holding side meetings with local stakeholders. The first of these is to be held in Albury on 17 May 2018.

In 2016, the MDBA initiated a pilot Regional Engagement Officer network to build these community links between people living in the Basin. This will assist the MDBA to better understand, meet the needs of, and address the concerns of people most affected by and interested in the Basin Plan. The CEWH has also appointed six local engagement officers across the Basin.

The Department supports these initiatives and will continue to work with all Basin governments and the MDBA to identify further opportunities for continuous improvement.

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Appendix 1

Benefits of Commonwealth infrastructure programs for irrigators and communities

Australian Government off-farm programs delivered in the Basin aim to improve the efficiency and productivity of water use and management of private irrigation networks. These programs deliver water savings by reducing the loss of water from irrigation networks and farms through seepage, evaporation and escapes, and contribute to the Australian Government's water recovery task. In the absence of the Basin Plan, Australian Government investment in off-farm and on-farm programs in the Basin would not be occurring at current levels, meaning that water users would have to meet the cost of infrastructure upgrades independently.

The benefits of these off-farm infrastructure upgrades will be felt by more than 10,000 individual irrigators and have significant impacts on their farm enterprise and lifestyle through improving water delivery reliability, timeframes and quality. Off-farm programs funded under the Sustainable Rural Water Use and Infrastructure Program include the Goulburn Murray Water Connections Stage 2 Project, Private Irrigation Infrastructure Operators Program (PIIOP) in New South Wales and the Sunraysia Modernisation project.

There are over 2,000 projects across the Basin that are helping farmers modernise and improve their on-farm water use efficiency. The types of projects include laser levelling, reconfiguration of irrigation layouts, installation of new infrastructure such as recycling systems, piping, and drip or spray systems to improve in-field application systems. Programs, such as the On Farm Irrigation Efficiency Program (OFIEP) have made it possible to access significant volumes of water that would have otherwise been lost to seepage and evaporation.

Data from over 1,000 individual projects funded through OFIEP indicates that on-farm water use efficiency is expected to increase by an average of 18 percent, based on the annual average volume of water used before project works were undertaken compared with the volume that would be required following infrastructure works.

Irrigators are evidencing increases to water use efficiency through a number of outcomes including producing the same output with less water, through flexibility in the type of crop they are able to produce and/or through the quality of the produce grown. Infrastructure investments are also delivering tangible benefits at the farm gate beyond water use efficiency, such as increased ability for crop rotation, increasing crop diversification and improved soil management.

In addition, there is early evidence that infrastructure modernisation programs are having positive socio-economic outcomes for farmers who participate. Lifestyle benefits and labour savings reported by irrigators include:

- remote system operation eliminating the need to get up at night to manually manage watering
- the ability to take advantage of night time off-peak electricity rates
- reduction in maintenance requirements
- increased labour efficiency.

Australian Government investments in on-farm and off-farm programs under the Basin Plan are also having positive flow-on effects into local towns and communities. Increased farm opportunities and profitability is helping to secure the economic base of communities, allowing for more local jobs,

businesses and services. For example, investment by Murrumbidgee Irrigation through PIIOP Round One resulted in increased business for local contractors and suppliers. This quantum of work for local businesses can be expected to have a localised multiplier effect as they in turn spend a proportion of their increased revenue on other local goods and services.

A survey of irrigators by the University of Canberra highlights the benefits that irrigators see in Australian Government-funded on-farm works. All respondents who received upgrades reported that it was useful for their farm enterprise, with a large majority of them saying it was very useful (just over 80 per cent) and the rest saying it was moderately useful. In addition, irrigators who had received on-farm water infrastructure grants reported better farm financial performance than those who had not received grants, and this effect was more pronounced once the time lag between receiving a grant and experiencing benefits from the investment is taken into account (Schirmer *et al* 2015).

Australian government approach to limited tender purchase

An open tender involves publishing an open approach to market and inviting submissions. At the closure of this process, submissions are assessed according to the criteria specified in the approach to market.

The limited tender approach makes use of the limited tender procurement model and allows licence holders to submit a proposal for consideration at any time. Once a submission is received the Department conducts an assessment, taking into account the location and size of the offer, contribution to Basin Plan targets, environmental value, likely socio-economic impacts and value for money. Submissions that the Department considers to have merit are processed through a formal approval process and if approved, a limited tender is conducted. Generally, the use of this procurement method is only allowed when certain conditions are met – such as the failure of past open tenders, or where unique and exceptionally advantageous conditions have arisen in the short term.

As with all procurements where contracts are awarded (at or above the specified threshold), the Department is required to publish information on the Australian Government's procurement website (AusTender). In addition, the Department publishes information about contracts awarded under a limited tender on its website.

Appendix 2

Roles and responsibilities in Basin Plan implementation

Key government entities	Major functions
Commonwealth Minister for Water	• Chair of the Murray-Darling Basin Ministerial Council • Makes Basin Plan amendments • Accredits State Water Resource Plans (WRPs) • Approves Commonwealth program funding • Approves Commonwealth water recovery strategy
Murray-Darling Basin Authority	• Oversees implementation of the Basin Plan, including the sustainable diversion limits (SDLs) • Conducts Basin Plan reviews and proposes amendments for consultation and adoption • Assesses State WRPs and advises Commonwealth Minister on their accreditation • Ensures compliance with Basin Plan including through annual assessment of State SDL compliance and compliance with water trading rules • Sets long-term outcomes for environmental watering and annual environmental watering priorities, and supports coordination of environmental watering • Monitors and reports progress with water recovery • Monitors and evaluates Basin Plan social, economic and environmental outcomes
State and Territory governments	• Responsible for implementing the Basin Plan in their jurisdictions, including by preparing WRPs that are compliant with Basin Plan requirements • Provide views on any proposed amendments to the Basin Plan • Develop and implement SDL adjustment and toolkit measures • Manage State-administered environmental water • Deliver State-led water recovery programs in accordance with Commonwealth funding agreements • Deliver State-led efficiency measures projects and cooperate with Commonwealth initiatives to recover efficiency measures with neutral or improved social and economic outcomes • Report annually on SDL compliance post 2019
Department of Agriculture and Water Resources	• Chair of the BOC • Administer Commonwealth investment in water recovery • Administer Commonwealth investment in SDL adjustment and toolkit measures • Implement efficiency measures programs with neutral or improved social and economic outcomes • Administers the *Water Act 2007* (Cth) (Water Act)
Commonwealth Environmental Water Holder	• Manages the use of Commonwealth environmental water consistent with the Water Act and Basin Plan to achieve the best possible environmental outcomes • Monitoring, evaluation and reporting of CEWO watering activities

Appendix 2

Roles and responsibilities in Basin Plan implementation

Key committees	Major functions
Murray-Darling Basin Ministerial Council *Composed of Ministers from each of the Basin states and the Commonwealth*	• Reviews and comments on proposed amendments to the Basin Plan (s.47A Water Act) • Consider and determine outcomes and objectives on major policy issues of common interest relating to the management of water and other natural resources of the Murray-Darling Basin (Murray-Darling Basin Agreement) • Determine matters specified in the Murray-Darling Basin Agreement • Approve the annual work plan, budget and asset management plan prepared by the Authority relating to the Murray-Darling Basin Agreement joint programs • Agree to amendments to the Murray-Darling Basin Agreement
Basin Officials Committee (BOC) *Composed of a Commonwealth-appointed Chair and five members representing each of the Basin States*	• Advise the Authority about the performance of the Authority's functions, including on engaging the Basin states in preparing the Basin Plan and proposed amendments • Advise the Ministerial Council in relation to outcomes and objectives on major policy issues on the management of water and other natural resources of the Basin • Facilitate cooperation and coordination between the Commonwealth, the Authority and the Basin States in managing the Basin water resources.
Basin Community Committee (BCC) *Includes one Authority member, at least eight water user representatives and an Indigenous representative*	• Provides a community perspective on water resource, environmental, cultural and socioeconomic matters. • Advises on community matters relating to the Basin water resources and matters referred by the Authority. • Advises Authority on Basin Plan reviews and amendments
Basin Plan Implementation Committee (BPIC) *Composed of an MDBA chair and six members representing each Basin State and CEWO as signatories to the Basin Plan Implementation Agreement. DAWR also attends as an observing member.*	• The Basin Plan (s.1.12) provides for the MDBA to enter into an agreement with a Basin State with respect to Basin Plan implementation obligations. All Basin States, the ACT and the CEWH are signatories to the Basin Plan Implementation Agreement with the MDBA. • BPIC is a forum for signatory governments to monitor, review, and make decisions about implementing the Murray-Darling Basin Plan Implementation Agreement, including ways of working with communities. • Forum to consult with Basin States and the Commonwealth Environmental Water Office (CEWO) on all aspects of Basin Plan implementation.
Sustainable Diversion Limit Adjustment Assessment committee (SDLAAC)	• Assess proposed constraint, supply and efficiency measures in accordance with the Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin • Provide advice on these matters to BOC