Report by the Murray-Darling Basin Ministerial Council to the Council of Australian Governments

Implementing the Basin Plan

Version as at 17 March 2017

Contents

1. Executive summary

On 9 December 2016, the Council of Australian Governments (COAG) reaffirmed its commitment to deliver the Murray-Darling Basin Plan (Basin Plan), agreeing that it is 'critical that the Basin Plan is implemented on time and in full'. COAG asked the Murray-Darling Basin Ministerial Council (Ministerial Council) to provide a plan to COAG, by April 2017, that provides 'a credible and balanced pathway to implement the Basin Plan package agreed in 2012, including:

- supply measures to offset the Basin Plan water recovery target of 2,750 GL by 2019, using the SDL adjustment mechanism;
- constraints measures to address impediments to delivering environmental water; and
- efficiency measures to recover an additional 450 GL by 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes.'

Through this COAG plan, all Basin governments reconfirm their ongoing support for the Basin Plan package agreed in 2012 and their commitment to continued cooperation implementing the Basin Plan.

All Basin governments are working together to deliver the Basin Plan outcomes, however meeting the desired outcomes of a healthy and working Murray-Darling Basin requires the careful balancing of the complementary but sometimes competing interests of the community, industry and the environment. This is a long-term and complex task, requiring difficult decisions involving trade-offs and balancing risks. Ministerial Council and Basin government officials have worked collaboratively to implement the Basin Plan to date and are committed to continuing to work together to ensure Basin Plan objectives are achieved.

Basin governments and the Murray-Darling Basin Authority (MDBA) reinforce their commitment to a collaborative approach to working with the community and engaging local communities in the management of their parts of the Basin. This collaboration will continue as a key element of the implementation of this COAG plan.

1.1. The Murray-Darling Basin Plan – a joint project of all Basin governments

The Basin Plan was made in 2012 with bipartisan support in the Australian Parliament and the support of Basin State and Territory governments. The outcome for the Plan 'is a healthy and working Murray-Darling Basin that includes: (a) communities with sufficient and reliable water supplies that are fit for a range of intended purposes, including domestic, recreational and cultural use; (b) productive and resilient water-dependent industries, and communities with confidence in their long-term future; and (c) healthy and resilient ecosystems with rivers and creeks regularly connected to their floodplains and, ultimately, the ocean.'

In order to deliver on these outcomes, the Basin Plan determines the amount of water that can be extracted each year from the Basin for urban, industrial and agricultural use – these are known as sustainable diversion limits (SDLs). The Basin-wide SDL for surface water represents a reduction of 2,750 gigalitres (GL) from pre-existing levels of diversion, with this SDL formally commencing from

1 July 2019. The Australian Government's water recovery strategy ensures that individual water users are protected from any resultant impact to the value or reliability of their water entitlements.

In response to concerns raised by Basin Ministers and communities, the Basin Plan also made provision for:

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

The SDL adjustment mechanism was incorporated into the Basin Plan as a way to further improve on the triple bottom line outcomes of the Basin Plan and to allow greater flexibility in setting the final water recovery figure, including:

- reducing the Southern Basin water recovery target by up to 650 GL through supply measure 'offsets', such as environmental works on floodplains and changes to river operations rules;
- allowing the recovery of an additional 450 GL to achieve enhanced environmental outcomes with neutral or improved socio-economic outcomes through efficiency measures, such as on- and off-farm efficiency upgrades; and
- constraints measures that support better environmental outcomes by easing or removing constraints on the capacity to deliver environmental water.

Recognising that the information base to inform the Basin Plan was stronger in the Southern Basin than in the north, the MDBA has undertaken a review of the Basin Plan in the Northern Basin drawing on research and investigations relevant to SDL settings.

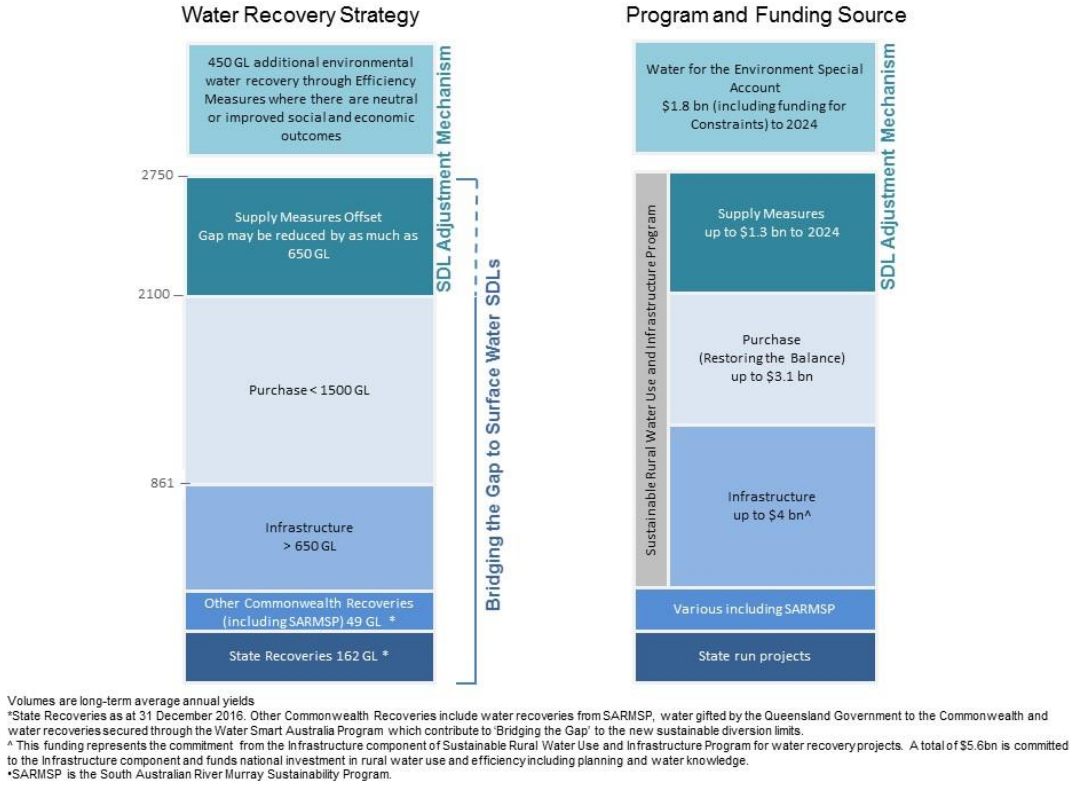
Over $13 billion in Australian Government funding is being provided for implementation of the Basin Plan and associated activities including $10 billion water recovery and to 'bridge the gap' to the SDLs (see Figure 1). As at 28 February 2017, more than $7 billion of the $13 billion investment in the Basin has been spent.

1.2. Much has been achieved

Since its commencement in 2012, Basin governments have made significant progress in implementing the Basin Plan, including:

- the recovery of more than 2,000 GL in water for the environment largely through on- and off-farm infrastructure investment and water purchase, with water purchase constrained to within a legislated 1,500 GL cap (see Table 1);
- investments in projects that deliver more efficient irrigation delivery infrastructure and on-farm irrigation systems in collaboration with communities and industries across the Basin;
- notification of 36 supply measure projects to the MDBA under the SDL adjustment mechanism;
- preparation of a proposed amendment to the Basin Plan in light of the NBR;
- coordination and delivery of environmental water consistent with annual watering priorities; and
- progress towards developing water resource plans (WRPs) that give effect to the Basin Plan.

Figure 1: Key steps in implementation of the SDL adjustment mechanism



Volumes are long-term average annual yields
*State Recoveries as at 31 December 2016. Other Commonwealth Recoveries include water recoveries from SARMSP, water gifted by the Queensland Government to the Commonwealth and water recoveries secured through the Water Smart Australia Program which contribute to 'Bridging the Gap' to the new sustainable diversion limits.
^ This funding represents the commitment from the Infrastructure component of Sustainable Rural Water Use and Infrastructure Program for water recovery projects. A total of $5.6bn is committed to the Infrastructure component and funds national investment in rural water use and efficiency including planning and water knowledge.
•SARMSP is the South Australian River Murray Sustainability Program.

Table 1: Progress of water recovery towards the SDLs[1]

	As at 28 February 2017 (GL)
Water recovery through infrastructure investment	692.0
Water purchase	1,174.0
State government environmental water	161.9
Transfers from Queensland Government	10.6
Total Water Recovery towards bridging the gap to the Surface Water SDLs	2038.5
Total Water Recovery towards bridging the gap to the Groundwater SDLs	2.7

[1] Water recovery figures reported by the Australian Government.

1.3. The remaining task

Progress in water recovered to date totals 2,038 GL, including contracted recoveries and additional recoveries forecast but not yet contracted under various programs. Noting that the outcomes of the SDL adjustment and NBR are not yet settled, the current remaining water recovery task is summarised at Table 2.

Table 2: Remaining water recovery task[2]

Southern Basin:		**Northern Basin:**	
NSW:	304.8 GL	Queensland:	85.0 GL
Vic:	251.8 GL		
SA:	39.9 GL	NSW:	29.6 GL
ACT:	0.0 GL[3]		
Sub-total:	**596.5 GL**	**Sub-total:**	**114.6 GL**

In addition, there is a target of 40.4 GL of groundwater to be recovered in Queensland with a remaining recovery of 37.7 GL.

Through an agreed package of supply measures that achieve equivalent environmental outcomes, Basin governments are ultimately seeking to offset the full remaining water recovery gap in the Southern Basin. The Australian Government advises that, as at 28 February 2017, this will require state-led supply and constraint measure projects capable of delivering an SDL offset of around 570 to 600 GL.[4]

Governments believe that a potential pathway to achieving this aim is well within reach, but it will require careful consideration of associated risks and benefits and final decision-making. The Australian Government has made funds available for the implementation of the final package of measures.

As part of the agreed package of measures, governments are working to progress constraints measures and other projects as is necessary to realise this SDL offset target. Basin governments have agreed to participate in a coordinated, cross-jurisdictional process for progressing constraints projects that enable strong community involvement.

Basin governments are also committed to working collaboratively on the best pathway for efficiency measures to recover an additional 450 GL by 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes. The Ministerial Council has commissioned

[2] Water recovery figures reported by the Australian Government.
[3] The Australian Capital Territory has met its water recovery task.
[4] This figure assumes that the supply contribution is apportioned in a way that minimises the risk of over-recovery in any one jurisdiction. A final decision on apportionment is due to be made later in 2017. The final recovery required in each zone will also depend on all currently contracted water recoveries being achieved and any future water recovery including from unallocated State Priority Project (SPP) funding in South Australia and New South Wales.

an independent expert analysis on how best to design, target and resource efficiency measure programs to recover 450 GL by 30 June 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes. The study will take into account information arising from the Murray–Darling Basin Authority's evaluation of Basin Plan impacts and any other relevant information. This will provide Ministers with a comprehensive set of information on the cumulative socio-economic impacts of the Basin Plan, including the recovery of the 450 GL through efficiency measures. This evaluation, supported by other relevant analysis such as studies by State governments, will form the basis of knowledge to inform the expert advice on design of efficiency measure projects to mitigate such impact.

This will inform development of a specific work plan for implementation of efficiency measures, with annual water recovery targets, which will recover sufficient water through efficiency measures to maximise the SDL offset within the five per cent limit. Progress and program funding will be reviewed by 30 September 2019 to ensure that there is sufficient funding to deliver the efficiency measures program. The Australian Government will roll out the Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) program after the independent analysis is finalised and the SDL adjustment mechanism operates.

Governments are committed to considering the need for further support for regional development for communities across the Basin.

As a result of the NBR, in November 2016 the MDBA announced its proposal to recommend a reduction in the Northern Basin water recovery target from 390 GL to 320 GL, in conjunction with a package of Australian Government-funded toolkit measures for implementation by New South Wales and Queensland. In recognising the importance of this SDL outcome to communities in the Northern Basin, New South Wales, Queensland and the Australian government officials have agreed to the collaborative development of toolkit measures for consideration by Ministers. Basin governments will need to agree to project development, implementation and funding arrangements for these measures before final amendments are proposed to the Australian Parliament.

All Basin States are working towards completing their WRPs in a timely fashion to enable all plans to be accredited by 30 June 2019 when Basin Plan SDLs take effect. The MDBA is committed to working closely with Basin governments to ensure this accreditation process is as streamlined as possible. Basin States also commit to implement pre-requisite policy measures (PPMs) to credit environmental return flows for downstream environmental use and to allow the call of held environmental water from storage during unregulated flow events by 30 June 2019 consistent with implementation plans and Basin Plan requirements.

1.4. Next steps

Ministerial Council will meet again in June 2017 to consider the progress of the package of supply, efficiency and constraints measures and make key decisions to allow the MDBA to determine the SDL adjustment by 15 December 2017. Implementation of the Basin Plan will be a standing item for consideration through a regular COAG side meeting of First Ministers of Basin jurisdictions.

Other ongoing checkpoints will allow Basin governments to monitor the implementation and operation of the *Water Act 2007* (Water Act) and Basin Plan, including an interim evaluation of the

social, economic and environmental outcomes in 2017/2018, the review of the Water Act in 2024, the review of the Basin Plan in 2026 and ongoing five-yearly evaluations of socio-economic and environmental outcomes, next due in 2020.

1.5. Key milestones

Basin governments will work towards the milestones for implementation of the Basin Plan set out in Chapter 3. A summary of the key milestones is set out below.

Key date	Activity
Supply and constraints measures (refer section 4.2.2)	
By 30 June 2017	Ministerial Council agree and the Basin Officials Committee (BOC) notify the MDBA of any second notification SDL adjustment projects and any final amendments to projects.
By November 2017	Develop a work plan for constraints measures for a coordinated, cross-jurisdictional process for addressing constraints that enables strong community involvement in development and planning to ensure a staged implementation approach. Note that some Basin governments are considering actions for early works.
By November 2017	Basin governments agree new a schedule to the *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin* (IGA) implement the SDL adjustment mechanism.
15 December 2017	MDBA provides the proposed SDL adjustment amendment to the Commonwealth Water Minister.
30 June 2024	All supply and constraints measures are in operation.
Efficiency measures (refer section 4.3.1)	
December 2017	Complete independent and expert analysis of how to design, target and resource efficiency measures, which is informed by the MDBA's evaluation of the social, economic and environmental outcomes of the implementation of the Basin Plan and other relevant analysis such as studies by State governments.
Early 2018	Develop and implement an approach to achieve efficiency measures with neutral or improved socio-economic outcomes, informed by the results of the independent expert analysis.
30 June 2019	Sufficient quantum of efficiency measures achieved to ensure the net SDL adjustment is within the five per cent limit.
By 30 September 2019	Complete first statutory review of progress and funding.
By 30 September 2021	Complete second statutory review of progress and funding.
By 30 June 2024	All efficiency measures are in operation.
Northern Basin Review (refer section 4.5.1)	
Mid-2017	Agreement by relevant jurisdictions on the funding and implementation of toolkit measures (in a draft IGA schedule).
Second half of 2017	MDBA provides Basin Plan amendments to implement the NBR outcomes to the Commonwealth Water Minister.
Water Resource Plans (refer section 4.6.1)	
30 June 2019	All WRPs considered and accredited by the Commonwealth Water Minister.

Evaluation of Basin Plan outcomes (refer section 4.7.4)	
2017	MDBA conducts an interim evaluation of social, economic and environmental outcomes from the Basin Plan.
2020	MDBA completes first major five-year statutory Basin Plan implementation and effectiveness report.
2026	First ten-yearly review of the Basin Plan.

2. Water reform in the Murray-Darling Basin

2.1. Development of the Murray-Darling Basin Plan

2.1.1. Origins and purpose of the Basin Plan

The Basin Plan was passed by the Australian Parliament in 2012 with bipartisan support 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 public consultation and consultation with Basin governments.

The origins of the Basin Plan date back much further, with collaborative and cooperative management of water between Basin State and Australian governments dating back over a century.

By the end of the twentieth century, Basin jurisdictions had come to acknowledge that the environmental health of the Basin's rivers and wetlands was in decline, despite more than a decade of water reforms including the 1995 decision by Basin governments to establish a 'cap' on surface water diversions.

In 2003, Basin governments agreed to The Living Murray initiative as a 'first step' to restoring the balance by returning 500 GL of water to the environment and building water management structures to help deliver this water to over 37,000 hectares of forests, wetlands and lakes along the Murray River.[5]

The extended millennium drought further highlighted the scale of environmental stress affecting the Basin's rivers and wetlands, and the vulnerability of Basin communities and industries to Australia's variable climate.

In 2007, in response to these pressures, the Australian Government announced new funding and governance arrangements for the Murray-Darling Basin as part of its National Plan for Water Security. The Water Act was enacted with bipartisan support in the Australian Parliament.

While recognising the benefits of past arrangements, Basin governments agreed in 2008 that a new approach to achieving Basin reform was warranted. This new approach included further refinements to Basin institutional and governance arrangements, and a suite of water management partnerships between the Australian Government and each Basin State.[6] The MDBA was established in 2008 and charged with developing the Basin Plan, which was eventually agreed in 2012.

The objectives of the Basin Plan are '(a) to give effect to relevant international agreements through the integrated management of Basin water resources; (b) to establish a sustainable and long-term adaptive management framework for the Basin water resources, that takes into account the broader management of natural resources in the Murray-Darling Basin; (c) to optimise social, economic and

[5] The Living Murray story – one of Australia's largest river restoration projects, MDBA, 2011.
[6] Intergovernmental Agreement on Murray-Darling Basin Reform, 2008.

environmental outcomes arising from the use of Basin water resources in the national interest; and (d) to improve water security for all uses of Basin water resources.'[7]

The outcome for the Basin Plan 'is a healthy and working Murray-Darling Basin that includes: (a) communities with sufficient and reliable water supplies that are fit for a range of intended purposes, including domestic, recreational and cultural use; (b) productive and resilient water-dependent industries, and communities with confidence in their long-term future; and (c) healthy and resilient ecosystems with rivers and creeks regularly connected to their floodplains and, ultimately, the ocean.'[8]

2.1.2. Scope and key components of the Basin Plan

A key feature of the Basin Plan is that it determines SDLs on the amount of water that can be extracted each year from the Basin for urban, industrial and agricultural use. The Basin-wide SDL for surface water is set at 10,873 GL a year, which represents a reduction of 2,750 GL from the pre-Basin Plan level of 13,623 GL a year. The SDLs take effect from 1 July 2019 and will be implemented through accredited State WRPs.

More broadly, the Basin Plan is also designed to:

- ensure a more consistent, Basin-wide approach to water planning under accredited State WRPs;
- provide an environmental watering plan to optimise the environmental outcomes for the Basin;
- incorporate the water quality and salinity management framework into the Basin Plan;
- include a mechanism to manage critical human water needs during drought;
- include rules for water trading; and
- include an approach to monitoring and evaluating the effectiveness of the Basin Plan in meeting its objectives.

The Basin Plan requires the recovery of water entitlements that deliver a long-term average annual yield (LTAAY)[9] of 2,750 GL by 30 June 2019 to achieve the Basin Plan environmental outcomes. In recognising the potential to achieve and build on these outcomes, the Basin Plan also provides for:

- a review of SDLs in the Northern Basin (the NBR);
- flexibility to adjust the SDLs through the operation of the SDL adjustment mechanism.

The SDL adjustment mechanism was incorporated into the Basin Plan at the request of the Ministerial Council to allow flexibility in setting the final water recovery figure, including reducing the Southern Basin water recovery target by up to 650 GL, and to allow the recovery of an additional 450 GL to achieve enhanced environmental outcomes with neutral or improved socio-economic outcomes. Ministerial Council also requested work be undertaken to support initiatives that ease or remove constraints on the delivery of environmental water.

[7] s.5.02(1) of the Basin Plan.
[8] s.5.02(2) of the Basin Plan.
[9] The LTAAY is the annual volume of water allocated to water entitlements over the longer term. The average annual yield for Murray-Darling Basin resource units is calculated using the current long-term diversion limit equivalent factors (v2.05) agreed by the Ministerial Council in November 2011, or in the absence of a factor, is modelled by the MDBA in consultation with the States. Following accreditation of the WRPs for an area, the planning assumptions used within will determine the LTAAY.

These arrangements are reflected in the IGA, signed by all Basin governments, and in the Basin Plan and the Water Act.

2.2. Framework for implementation

2.2.1. The role of water recovery in bridging the gap and avoiding adverse impacts on water entitlement reliability

The Australian Government has committed to recover water to bridge the gap to achieve the 2,750 GL reduction in the SDLs by 30 June 2019, as amended through the SDL adjustment mechanism and the NBR. This is being done through a combination of infrastructure efficiency investments and water purchase. The purpose of the Australian Government policy to bridge the gap in these ways is to protect individual water users, by ensuring there is no change to the reliability of any water access entitlements and rights as a result of the Basin Plan, as well as increasing the water efficiency of irrigated agriculture across the Basin and other associated benefits.

All water recovered by the Australian Government becomes part of the Commonwealth environmental water holdings.

2.2.2. Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin

The IGA was signed by all Basin governments in 2013 and 2014. The IGA sets out an agreed way of implementing the Basin Plan and associated reforms, including cooperative arrangements to support water recovery, collaboration on the management of environmental water and arrangements to support the successful operation of the SDL adjustment mechanism. To this end, the IGA sets out the processes for development and assessment of projects and the responsibilities of all Basin governments.

2.2.3. Review of the Water Act

An independent review of the Water Act was undertaken in 2014. The review assessed the operation of the Act, the extent to which its objects have been achieved and opportunities to minimise regulatory burden imposed on irrigation infrastructure operators, water managers and irrigators. The review was undertaken by an independent Expert Panel comprising Mr Eamonn Moran PSM QC (Chair), Mr Peter Anderson, Mr Gavin McMahon and Dr Steve Morton.

The Review report made 23 recommendations and 30 conclusions, and was tabled in the Australian Parliament out of session on 19 December 2014. On 3 December 2015, the Minister for Agriculture and Water Resources tabled the Australian Government's response to the review report, accepting all 23 of the expert panel's recommendations in full or in part.

The review recommendations were incorporated into the Water Act through the *Water Amendment (Review Implementation and Other Measures) Act 2016*, which was passed by the Australian Parliament on 2 May 2016. The amendments to the Water Act:

- allow for greater flexibility in the use of the proceeds of water trading by the Commonwealth Environmental Water Holder (CEWH);
- require five-yearly reviews of the socio-economic impacts of the Basin Plan;
- ensure a further review of the Water Act in 2024;
- allow for the CEWH to sell water in circumstances where allocation would otherwise be foregone;
- reduce regulatory burden on the irrigation sector and State government agencies; and
- ensure the Water Act more effectively supports the delivery of the Basin Plan.

There will be ongoing checkpoints that allow Basin governments to monitor the implementation and operation of the Water Act and Basin Plan, including the review of the Water Act in 2024, the review of the Basin Plan in 2026 and ongoing five-yearly evaluations of socio-economic and environmental outcomes.

2.3. Communication and consultation

Implementation of the Basin Plan and associated reforms is a cooperative endeavour, involving the Australian Government (including the MDBA) and Basin State governments in consultation with the Basin community. The MDBA, CEWH and Basin State governments have committed in the Basin Plan Implementation Agreement to a collaborative approach to working with the community. This includes efficient, coordinated processes that build on existing Basin arrangements and recognise long-standing consultative structures and mechanisms. On 22 April 2016, the Ministerial Council agreed to principles which reinforce the shared commitment to transparency, effective communication and community engagement.

Basin governments and the MDBA are committed to ensuring that local communities are engaged in the management of the river system. Such opportunities include the development of WRPs, input to the NBR, the SDL adjustment mechanism, the development of constraints management projects, the development of Basin annual watering priorities, and future reviews of the Basin Plan.

Governments acknowledge the role of advisory groups at local, regional and Basin-wide scales in strengthening relationships between governments and ensuring that local knowledge can play an effective role. Such groups include the Basin Community Committee, the Northern Basin Advisory Committee, the Advisory Committee on Social Economic and Environmental Sciences, the Northern Basin Aboriginal Nations and the Murray Lower Darling Rivers Indigenous Nations. The MDBA is also working to strengthen connections with communities across the Basin through Regional Engagement Officers who will be hosted by local government, regional development and natural resource organisations.

In addition, State governments and the Commonwealth Environmental Water Office (CEWO) have their own advisory groups to guide their water management activities. The CEWO has located six local engagement officers across the Basin to work alongside State and local land and water management officers, to provide outreach to local communities throughout the Basin.

Basin governments will continually adapt and improve engagement and communications alongside the progressive implementation of the Basin Plan.

3. Progress to date in implementing the Basin Plan

Basin jurisdictions have been working in partnership since 2012 to implement the Basin Plan. Significant progress has been made with implementation of the Plan, including:

- investments in projects that deliver more efficient irrigation delivery infrastructure and on-farm irrigation systems in collaboration with communities and industries across the Basin;
- agreement by the Ministerial Council to 38 supply and constraints projects and two efficiency measures under the SDL adjustment mechanism;
- preparation of a proposed amendment to the Basin Plan in light of the NBR;
- coordination and delivery of environmental water consistent with annual watering priorities;
- progress towards developing WRPs that give effect to the Basin Plan; and
- water recovery through on- and off-farm infrastructure investment and water purchase.

3.1. Basin water recovery

3.1.1. The roles of the Australian and Basin State governments in water recovery (including groundwater)

The Australian Government is recovering water to bridge the gap to the SDLs in the Basin Plan, consistent with its *Water Recovery Strategy for the Murray-Darling Basin* (Water Recovery Strategy) released in June 2014. Under the Water Recovery Strategy, the Australian Government has stated that it is prioritising water recovery through infrastructure investment over water purchase. In this context, water purchase will continue to be limited to strategic opportunities and take into account social and economic factors. The Water Recovery Strategy will be reviewed after the operation of the SDL adjustment mechanism.

The Australian Government has made very few water purchases since 2013. Instead, the Government continues to prioritise investment in infrastructure projects which provide social and economic benefits to business and communities. The prioritisation of investment in infrastructure projects is supported by State governments.

3.1.2. 1,500 GL cap legislation and priority focus on irrigation infrastructure

In April 2015, the Australian Government legislated a 1,500 GL cap on surface water purchases, to address community and industry stakeholder concerns over the potential adverse social and economic impacts on irrigation dependent communities that may arise from water purchases. The cap applies at the Basin-wide scale and applies to all purchases, with the exception of purchases from State governments or those integrated with infrastructure rationalisation or reconfigurations following the release of the Water Recovery Strategy. In total, the Australian Government has purchased 1,171.1 GL LTAAY that falls under the 1,500 GL cap.

3.1.3. Anticipated reduction to 2,750 GL water recovery target

The Basin Plan's 2,750 GL water recovery target is expected to be reduced through both the operation of the SDL adjustment mechanism and the outcomes of the NBR.

Under the SDL adjustment mechanism, supply measures are expected to achieve equivalent environmental outcomes with considerably less environmental water, allowing a reduction in the 2,750 GL water recovery target.

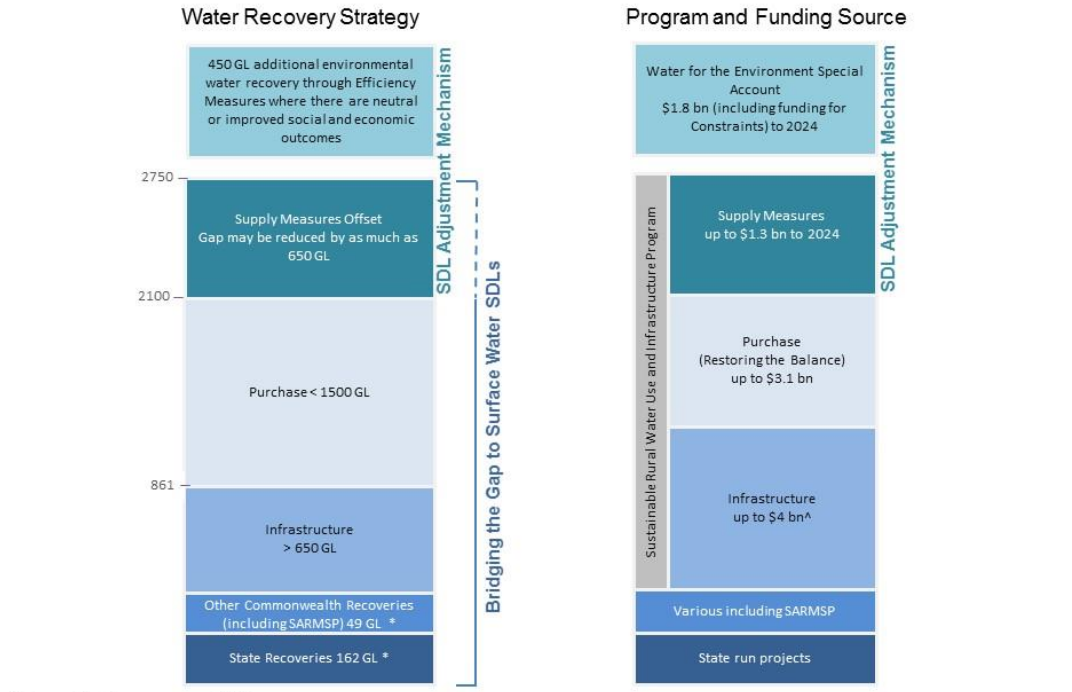
As a result of the NBR, the MDBA has proposed a reduction in the water recovery target for the Northern Basin, subject to a range of associated toolkit measures (including the protection of environmental flows) for implementation by relevant Basin governments. The MDBA is currently consulting with communities on its proposal that the 390 GL Northern Basin water recovery target be revised to 320 GL (i.e. reducing the Basin-wide 2,750 GL water recovery target to 2,680 GL).

Ministerial Council and the MDBA are committed to ensuring that any changes arising from the NBR will have no negative impacts on triple bottom line outcomes in the Southern Basin.

3.1.4. Australian Government investment

Over $13 billion in Australian Government funding is being provided for implementation of the Basin Plan and associated activities including $10 billion water recovery and to bridge the gap to the SDLs (see Figure 2). As at 28 February 2017, more than $7 billion of the $13 billion investment in the Basin has been spent.

Figure 2. Key steps in implementation of the SDL adjustment mechanism



Volumes are long-term average annual yields
*State Recoveries as at 31 December 2016. Other Commonwealth Recoveries include water recoveries from SARMSP, water gifted by the Queensland Government to the Commonwealth and water recoveries secured through the Water Smart Australia Program which contribute to 'Bridging the Gap' to the new sustainable diversion limits.
^ This funding represents the commitment from the Infrastructure component of Sustainable Rural Water Use and Infrastructure Program for water recovery projects. A total of $5.6bn is committed to the Infrastructure component and funds national investment in rural water use and efficiency including planning and water knowledge.
•SARMSP is the South Australian River Murray Sustainability Program.

Key Australian Government Basin-wide programs include the $10 billion Sustainable Rural Water Use and Infrastructure Program, $1.775 billion to recover 450 GL of water for environmental use and to address constraints on environmental water delivery through the Water for the Environment Special Account (WESA), and $100 million for the Murray-Darling Basin Regional Economic Diversification Program. Australian Government funding was also provided for a range of other activities, including for The Living Murray programme, which is now nearing completion.

3.1.5. Irrigation infrastructure investment – on- and off-farm

The majority (more than $8 billion) of Australian Government funding is for on-farm and off-farm water infrastructure upgrades across the Murray-Darling Basin. This includes funding that was provided to Basin States as part of the *Intergovernmental Agreement on Murray-Darling Basin Reform* in 2008 for them to implement a range of priority projects, such as the Goulburn-Murray Water Connections Stage 2 project in Victoria, the Sustaining the Basin program in New South Wales and the Healthy Head Waters Water Use Efficiency Project in Queensland.

In addition to funding provided to States, the Australian Government also administers water recovery programs, including the On-Farm Irrigation Efficiency Program and the New South Wales Private Irrigation Infrastructure Operators Program.

Across the Basin, more than 10,000 individual irrigators will benefit from improvements to off-farm water delivery systems. More than 2,000 on-farm irrigation efficiency projects are resulting in a range of benefits in addition to water efficiency, including greater productivity, crop diversification and improved quality, integration of new technologies and improvements to work-life balance.

It is expected that more than 800 GL will be recovered through these and future Australian Government investments in more efficient infrastructure, including the water that was purchased as a result of infrastructure savings from the Goulburn Murray Water Connections Stage 2 project that would otherwise have been retained by the Victorian Government, and through State Government-led infrastructure activities.

3.1.6. Water recovery to date

The Australian Government reports that, as at 28 February 2017, 2,038.5 GL of surface water had been recovered or was contracted to be recovered towards reaching the SDLs under the Basin Plan. Of the 2,038.5 GL of water recovery to date, the volume of water actually held for environmental use is 1825.1 GL, of which the CEWH currently holds 1663.2 GL and the States hold a further 161.9 GL (see Table 3).[10]

[10] Australian Government water recovery is reported at the point at which the water savings or purchase has been agreed or estimated in signed contracts. Water is transferred to the CEWH as per the contract or the milestones agreed within that contract. For the majority of water purchased this will be a one off transfer, for on-farm irrigation projects, the water is transferred early in the works, whereas with larger scale off-farm projects, there are usually multiple water transfers spread across the life of the project.

Water recovery to 28 February 2017 for Queensland groundwater is 2.7 GL, requiring a further 37.7 GL of water recovery to reach the 40.4 GL target (see Table 3). Water recovery numbers for groundwater and surface water are expressed in LTAAY and are subject to rounding.

Table 3: Progress of water recovery towards the SDLs[11]

	As at 28 February 2017 (GL)
Water recovery through infrastructure investment	692.0
Water purchase	1174.0
State government environmental water	161.9
Transfers from Queensland Government	10.6
Total Water Recovery towards bridging the gap to the Surface Water SDLs	2038.5
Total Water Recovery towards bridging the gap to the Groundwater SDLs	2.7

3.2. The SDL adjustment mechanism

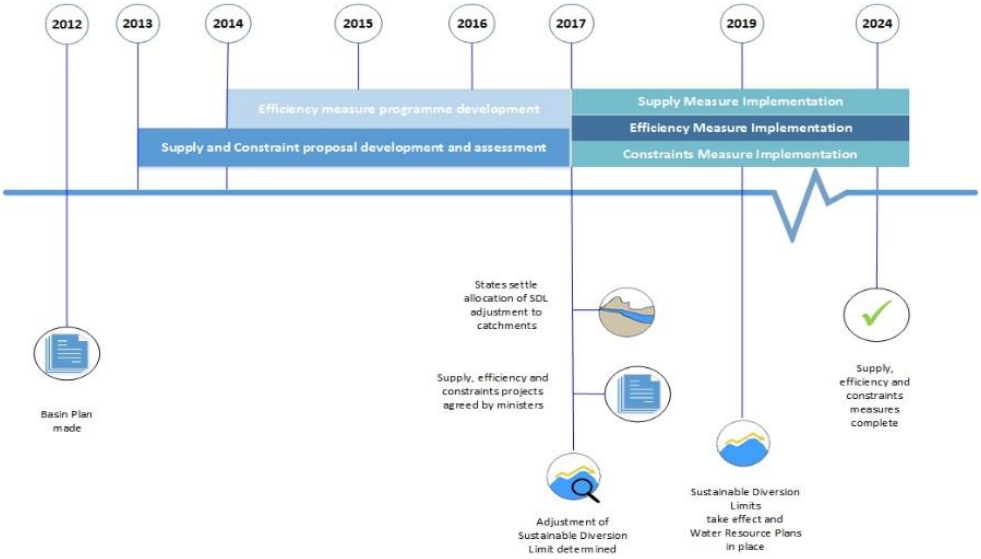
3.2.1. Supply, efficiency and constraints measures

The SDL adjustment mechanism provides for a net adjustment of the Basin-wide surface water SDL by as much as a net five per cent or 544 GL. The mechanism can increase the SDL through 'supply measures', for which an up-front adjustment will be made, and decrease the SDL through 'efficiency measures', for which a progressive adjustment will be made up until 2024 as water entitlements are transferred (see Figure 3). Responsibility for developing supply and constraints measure projects rests with the Basin States. Under the IGA, all decisions relating to the SDL adjustment mechanism are made through consensus of all Basin jurisdictions.

Since the IGA came into effect, Basin governments have been working together to ensure the successful development of supply, efficiency and constraints measures.

[11] Water recovery figures reported by the Australian Government.

Figure 3. Key steps in implementation of the SDL adjustment mechanism



Supply measures

Basin States are able to propose works or river operations changes as supply measures. These measures will enable equivalent environmental outcomes to be achieved with less held environmental water, allowing SDLs to increase without compromising the Basin Plan environmental outcomes. Some Basin governments anticipate that notified measures could deliver an SDL increase of up to 650 GL. Given water recoveries to date and forecast water recoveries, the Australian Government advises that as at 28 February 2017, an adjustment of around 570 to 600 GL[12] would be required to avoid further water recovery in the Southern Basin.

Basin governments have agreed that the SDL adjustment needs to be evidence-based and underpinned by best available science. Using the method set out in the Basin Plan, the MDBA, with the assistance of CSIRO and in consultation with Basin States and Australian Government, has developed an assessment framework between 2013 and 2015 to determine the adjustment from supply measures.

Efficiency measures

Efficiency measures are projects aimed at recovering an additional 450 GL by 2024 to support enhanced environmental outcomes and which are consistent with the Basin Plan legal requirement of achieving neutral or improved socio-economic outcomes. In requesting the SDL adjustment mechanism be included in the Basin Plan, the Ministerial Council requested that efficiency measures 'increase the recovery of consumptive water for environmental use (reduce the SDL) where improved environmental outcomes can be achieved without worsening socio-economic outcomes as

[12] Figure correct as at 28 February 2017. This figure assumes that the supply contribution is apportioned in a way that minimises the risk of over-recovery in any one jurisdiction. A final decision on apportionment is due to be made later in 2017. The final recovery required in each zone will also depend on all currently contracted water recoveries being achieved and any future water recovery including from unallocated SPP funding in South Australia and New South Wales.

a result'.[13] In the IGA, the Australian Government has committed to close consultation with Basin States on the design, delivery and implementation of efficiency measures, with particular respect to arrangements to secure farm-level participation and the achievement of socio-economically neutral or beneficial outcomes.

The Australian Government has commenced implementation of efficiency measures through the COFFIE program. The COFFIE program provides funding for irrigation infrastructure upgrades and other on-farm water efficiency activities. The first phase of the COFFIE program's development involves the delivery of pilots to test the program design before the launch of the full program in late 2017, with up to $35 million available for pilot projects. The first of these is a $15 million pilot now underway in South Australia.

Participation in the COFFIE program is voluntary, with water entitlement holders transferring the water savings they are confident of achieving from the project to the Australian Government. Additional water savings are retained by the water user. The Australian Government will roll out the COFFIE program after the independent analysis is finalised and the SDL adjustment mechanism operates, complementary to existing on-farm programs until they finish in 2019.

In addition to progressing the COFFIE program, the Australian Government is working on designs for off-farm irrigation infrastructure, urban water use efficiency and stock and domestic water use efficiency programs. State governments can also propose projects.

A number of concerns have been raised about the potential for adverse socio-economic impacts to arise as a consequence of efficiency measure projects. For example, a project could lead to reductions in volumes of water conveyed through irrigation delivery systems, leading to higher fixed charges for all system irrigators.

Constraints measures

Constraints measures are activities that ease or remove constraints on the capacity to deliver environmental water (e.g. by constructing levees, increasing the height of low-lying bridges or by purchasing easements). While easing or removing constraints will not in itself lead to the recovery of more water, previous work by MDBA has shown that it will enable better ecological outcomes to be achieved from the use of environmental water, including any additional water recovered for the environment through efficiency measures. Works to address constraints can also provide benefits to landholders during natural high flow events. Measures to ease or remove constraints could also qualify as supply measures.

Basin States are responsible for developing constraints projects, in consultation with local communities. New South Wales, Victoria and South Australia are working actively to progress constraint measures individually and ensuring better coordination and integration of constraint projects through the Constraints Measures Working Group. Community engagement is critical to the success of these projects.

[13] Notice by the Ministerial Council under s.43A(4) of the Water Act 2007 on 9 July 2012.

The significance of implementing pre-requisite policy measures

When the Basin Plan was first made, the setting of SDLs made certain assumptions, known as PPMs.[14] These were needed to facilitate the efficient use of environmental water. These assumptions underpin both the SDL settings in the Basin Plan and the Plan's anticipated environmental outcomes. PPMs include arrangements to re-credit environmental return flows from floodplains for downstream environmental uses, and measures that enable environmental water to be released from dams to complement natural flow events in ways that deliver more environmental benefits. Prior to the operation of the SDL adjustment, the MDBA is required to assess the adequacy of State PPM implementation plans, noting that the outcomes of these assessments are material to the size of the SDL offset adjustment.

Given the highly inter-connected nature of rivers in the Southern Basin, achieving greater consistency between jurisdictions on these arrangements is crucial to the success of the Basin Plan and the SDL adjustment mechanism.

3.2.2. Australian Government funding

Australian Government funding has been set aside to implement supply, efficiency and constraint measures.

Funding for supply measures

In the IGA, the Australian Government committed to fund up to 650 GL of supply measures using funds originally allocated to water purchase, with the total funding limited to the cost of recovering the same amount of water through purchase. Up to $1.3 billion in water purchase funds has been earmarked for supply measures. The final funding envelope for supply measures is dependent on the volume of the SDL adjustment determined from supply measures and will therefore be uncertain until Basin jurisdictions finalise the details of the package of supply proposals, which can then be used by the MDBA to determine the SDL adjustment in late 2017.

Funding for efficiency and constraints measures

The Water Act provides for the $1.775 billion WESA from which $1.575 billion is committed to recovering 450 GL through efficiency measures, and $200 million for addressing constraints that limit the delivery of environmental water.

The funds in the WESA may be used for purposes such as infrastructure projects that enable the more efficient use of irrigation water with some of the saved water being returned to the environment for enhancing the environmental outcomes that can be achieved by the Basin Plan. The WESA may also provide for payments to address any detrimental social or economic impacts associated with such a project on the wellbeing of a community.

The total volume of water that can be recovered with $1.575 billion will be dependent on a range of factors, including the location and types of water recovered. The Water Act provides for progress in water recovery under the WESA to be independently reviewed in 2019 and 2021. These reviews will

[14] These measures are referred to as 'unimplemented policy measures' in the Basin Plan.

assess progress that has been made towards recovering environmental water and whether the funding in the account is sufficient to meet its objectives.

3.2.3. 2015 SDL adjustment mechanism stocktake

On 29 May 2015, the Ministerial Council agreed to commission an independent stocktake of the supply, constraints, and efficiency measures within the SDL adjustment mechanism. The stocktake recommended that the Ministerial Council endorse a finalisation plan and roadmap to 30 June 2016, which introduced proactive mechanisms to bring all SDL adjustment projects to business case submission.

In response to the stocktake report, Ministerial Council agreed a finalisation plan in November 2015. Recommendations were also reflected in amendments to the IGA which provided more flexibility in the processes and timeframes for development and assessment of projects. The finalisation plan and the IGA have since been revised to reflect changing timeframes and processes.

3.2.4. Assessment of and agreement to first package of supply, efficiency and constraints measure projects

As proposals for supply and constraints measures are developed, all jurisdictions have a role to play in assessing proposals through the SDL Adjustment Assessment Committee (SDLAAC) and approving projects through the BOC in three phases:

1. Feasibility (Phase 1) – Assess whether identified projects are feasible and achieve the stated outcome.
2. Business case (Phase 2) – Jurisdictions prepare and assess business cases for each proposal.
3. Confirmation (Phase 3) – Proponent confirms that conditional funding approval has been obtained from the Australian Government and that the process for necessary approvals and other matters have been secured.

Jurisdictions' assessment of projects includes consideration of anticipated ecological outcomes and impacts; technical feasibility and fitness for purpose; interdependencies with other projects; and the adequacy of stakeholder consultation.

On 22 April 2016, the Ministerial Council agreed a package of supply, constraint and efficiency measures. At the same time, the Ministerial Council agreed to a set of principles for a new IGA schedule to implement the SDL adjustment mechanism. The package agreed by the Ministerial Council incorporated:

- 37 supply measure projects, including six constraints projects put forward as supply measure projects;
- seven constraints measure projects; and
- two efficiency measures, allowing for a wide range of on-farm, off-farm, urban, industrial and mining projects.

The BOC notified these agreed supply and efficiency measures to the MDBA on 5 May 2016. This initial package of measures is identified as the 'first notification'. Basin jurisdictions are currently

working to settle some remaining business case issues with a number of these projects over coming weeks and possible amendments to the first notification.

3.2.5. Legislative amendment for a second notification

On 22 April 2016, the Ministerial Council also requested the Australian Government amend the Basin Plan to provide for a second SDL adjustment step by 30 June 2017 to maximise the benefits of the SDL adjustment mechanism and to meet stakeholder expectations. This amendment passed the Australian Parliament on 9 November 2016 and received Royal Assent on 23 November 2016. The Basin Plan now provides for:

- a second notification of supply and efficiency measures by 30 June 2017; and
- the requirement that the MDBA presents a single determination of the proposed SDL adjustment to the Commonwealth Water Minister by 15 December 2017.

Consideration is now being given to projects to include in a possible second notification.

3.3. The Northern Basin Review

3.3.1. Rationale for and approach to the Northern Basin Review

The NBR was included in the Basin Plan at the request of the Ministerial Council in settling the Basin Plan in 2012. The information base used to set the SDL in the Northern Basin was not as well developed as that used for the Southern Basin and, consequently, the NBR entailed further research and investigations in the Northern Basin to see if there was a case for changing the 3,468 GL SDL on water that can be extracted across the Northern Basin on average each year. This existing SDL represents a recovery target of 390 GL or around ten per cent less than the average amount of water that was taken before the Basin Plan.

The MDBA's three year review involved substantial new research into socio-economic, hydrology and environmental aspects of the Northern Basin and consultation with Northern Basin communities, including industries and Aboriginal nations in the north. The broad phases of the review included:

- research and investigations – completion of the environmental science, hydrological modelling and social and economic impacts (mid-2016);
- integration of results – results of research and investigations integrated for several water recovery scenarios (mid-2015 to mid-2016);
- consideration of results and decision making – research and investigations results analysed and consideration of setting of the Northern Basin extraction limits (late 2015 to late 2016); and
- statutory – process for amending the Basin Plan, set out in legislation, including inviting submissions, considering submissions and proposing any Basin Plan amendments to the Commonwealth Water Minister (2016 and throughout 2017).

3.3.2. Status of review and proposed Basin Plan amendments

On 22 November 2016, the MDBA announced that, based on the NBR, it proposes to recommend a reduction in the water recovery target in the Northern Basin from 390 GL to 320 GL. This proposed reduction is dependent on commitments from the Australian, Queensland and New South Wales governments to implement the toolkit measures, which are aimed at improved water management in the north.

The MDBA recommended that the Australian, New South Wales and Queensland governments consider the following measures:

- the protection of environmental flows through State water management arrangements;
- targeted water recovery to mitigate against further social and economic impacts;
- active management of environmental flows through a range of event-based mechanisms to improve the use and assist with coordination of environmental water flows;
- work to address current physical restrictions to achieving desired flows to the Gwydir wetlands;
- works to improve fish habitats, such as fishways and mitigate cold water pollution;
- support for measures to address the concerns of Aboriginal people in the Northern Basin:
    - ensuring Aboriginal access to waterways;
    - replacing or refurbishing weir pools at certain locations, such as Wilcannia and Cunnamulla;
    - continuing to improve the capacity of Aboriginal people to engage in water planning and decision-making, in order to factor in their social and cultural imperatives; and
- support for those communities highlighted in the NBR as being significantly impacted by water recovery.

Further findings of the NBR can be found at http://www.mdba.gov.au/publications/mdba-reports/northern-basin-review-report.

3.4. Managing environmental water

3.4.1. Basin-wide environmental watering strategy and long-term environmental watering plans

Long-term planning for environmental watering in the Murray–Darling Basin operates at two geographical scales: the basin scale and the regional scale. Three long term planning instruments (the Basin-wide environmental watering strategy, WRPs and long term watering plans) coordinate environmental watering across the Basin.

The Basin-wide environmental watering strategy has been prepared by the MDBA in consultation with stakeholders and will be reviewed no later than 2019. The CEWH must manage its water consistent with this strategy. The strategy describes:

- the environmental outcomes to be achieved;
- strategies for the management and use of water;
- how various partners will work together; and
- how to determine the Basin annual environmental watering priorities.

Basin States are responsible for preparing long-term watering plans for each WRP area. These plans will include regional watering requirements and priorities, identify the watering requirements of priority environmental assets and environmental functions, and identify possible cooperative arrangements.

Basin States must ensure there is consistency between their WRPs and their long-term watering plans. The States' long-term watering plans will be developed in consultation and collaboration with holders and managers of environmental water, State and Australian government agencies, river operators and local communities.

The Basin-wide environmental watering strategy and long-term watering plans inform the development of annual priorities at a state and Basin-wide scale which guide annual environmental watering actions.

3.4.2. Basin States' roles in managing environmental water

The management of environmental water in the Basin is coordinated between local agencies, States and the Australian Government. Basin States are responsible for:

- identifying long-term and annual environmental outcomes, priorities and watering needs for environmental assets and functions in each catchment;
- managing State environmental water, including planned environmental water and/or held water entitlements and allocations;
- determining the best ways to use available water in the interests of achieving environmental outcomes at local catchment and Basin scales;
- working with environmental water holders to facilitate watering actions; and
- collaborating with all parties associated with environmental water management at State and local levels, and the MBDA and the CEWH.

3.4.3. Role of the Commonwealth Environmental Water Holder

The CEWH has a legislative responsibility to manage the Australian Government's environmental water holdings to protect and restore environmental assets in the Murray-Darling Basin. Commonwealth environmental water is delivered in partnership with State environmental water holders and managers and local delivery partners, to restore the health of rivers, floodplains and the Basin's vast estate of wetlands (particularly those listed as internationally important under the Ramsar Convention).

Trade of environmental water is an important management tool which allows the CEWH to ensure resources can be moved to the best place and time to achieve maximum environmental outcomes. Recent changes to the Water Act will now allow the investment of the revenue from water allocation trade on environmental activities that will improve environmental watering outcomes.

3.4.4. Benefits to date from environmental watering

The management of water resources under the Basin Plan aims to protect and restore water-dependent ecosystems and functions of the Basin and ensure they continue to be resilient under a changing and variable climate.

Addressing environmental and ecosystem outcomes through environmental watering better supports communities and industries through:

- improving water quality for drinking and irrigation purposes including flushing salt out to sea;
- allowing wetlands to naturally filter water, improving quality for drinking and irrigation purposes;
- increasing native fish and bird populations that will better control invasive insects; and
- increasing the number of native birds and bees that pollinate agricultural plants.

A range of co-benefits are also generated including improved fishing, swimming and boating opportunities and other tourism-related activities.

Improvements in the environment of the Basin will continue to occur through reinstating flow components essential for key ecosystem processes and functions, including natural variability and more seasonally appropriate flow patterns.

Improving the health of the Basin is a long-term process. Early monitoring is showing that Australian Government environmental water is already being used effectively to achieve positive environmental outcomes and contribute to the mandated objectives and outcomes in the Basin Plan and the Basin-wide environmental watering strategy.

Example outcomes from delivery of Australian Government and other environmental water

<u>Supported native fish survival, breeding and migration</u>

- The largest golden perch breeding event in the Goulburn River since the floods in 2010 (2014).
- Record numbers (over ten times the number recorded in recent history) of the threatened Murray hardyhead were found in the South Australian Riverland (2015).

<u>Supported native waterbird breeding and feeding habitat</u>

- Environmental watering supported the completion of colonial waterbird breeding events in the Macquarie Marshes Ramsar site (2010–11), the Gwydir Wetlands Ramsar site (2012) and Yanga National Park (2014).

<u>Improved the condition of vegetation such as river red gum forests and woodlands</u>

- The Lachlan River was reconnected to lakes, creeks and wetlands throughout the catchment, providing benefits to 60,000 hectares of floodplain wetlands and inundating river red gums, black box, lignum and other wetland vegetation communities (2013).
- In 2013–14, watering of the Mallowa Wetlands in the Gwydir catchment saw the native vegetation biomass 25 times higher than in areas that had not been watered.

Improved water quality through the flushing of salt, sediments and excess nutrients out of the Basin through the Murray Mouth

- It has been calculated that, on average, two million tonnes of salt needs to be flushed from the Basin each year. Commonwealth environmental water contributed to flushing approximately 18 per cent of this required salt in 2011–12 and 30 per cent in 2012–13.

Use of environmental water to meet Australia's international obligations

The Coorong and Lakes Alexandrina and Albert Wetlands Ramsar site

- In 2014–15, environmental flows helped maintain water quality in the Coorong, support native fish movement and improve the health of the vegetation fringing the Lower Lakes.

Barmah Forest and New South Wales Central Murray Forest Ramsar sites

- In 2013–14 and 2015–16, water directed to the Barmah and Millewa Forests contributed to the growth of Moira grass and supported important waterbird breeding of species such as spoonbills, eastern great egrets, nankeen night herons, darters and little pied cormorants.

Hattah-Kulkyne Lakes Ramsar site

- A decline in the health of the river red gums fringing the Hattah Lakes was evident during the millennium drought. To help secure a sustainable future in the long term, a $32 million infrastructure project was designed to enable water to be delivered higher onto the floodplain to reach wetlands that had been dry for more than 20 years. In 2013 and 2014, there were two environmental water deliveries to the Hattah Lakes which improved the health of black box trees higher up on the floodplain, increased the occurrence of aquatic plants and improved the condition of wetland plant communities – supporting ecological resilience in the site for future flood or drought conditions.

3.5. State Water Resource Plans

The WRPs developed under States' existing water planning frameworks are a key mechanism by which each State and Territory jurisdiction will implement the Basin Plan. These WRPs will set out how water will be managed in each of the surface and groundwater resources in the Murray-Darling Basin. WRPs will underpin State jurisdictions' implementation of the SDLs established under the Basin Plan.

These WRPs in turn are required to be assessed and accredited by the Commonwealth Water Minister ahead of full Basin Plan implementation on 1 July 2019. The proposed WRP Completion Plan sets out a program to achieve the timely development and accreditation of WRPs. The program recognises that there are many aspects of WRPs that require development and clarification prior to accreditation. All States are submitting an early WRP to help test and improve the process for development and accreditation. One WRP, the Warrego-Paroo-Nebine WRP, has been submitted by Queensland for accreditation.

4. The way forward

4.1. Preamble

On 9 December 2016, COAG agreed that 'the Murray-Darling Basin is of vital economic and environmental significance to a large part of Australia and it is critical that the Basin Plan is implemented on time and in full'. COAG asked that 'the Murray-Darling Basin Ministerial Council provide a plan to COAG by April 2017 that provides a credible and balanced pathway to implement the Basin Plan package agreed in 2012, including:

- supply measures to offset the Basin Plan water recovery target of 2,750 GL by 2019, using the SDL Adjustment Mechanism;
- constraints measures to address impediments to delivering environmental water; and
- efficiency measures to recover an additional 450 GL by 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes.'

Through this COAG Plan, all Basin governments reconfirm their ongoing support for the Basin Plan package agreed in 2012 and their commitment to continued cooperation in implementing the Basin Plan. Basin governments also reinforce their shared commitment to transparency, effective communication and community engagement.

All Basin governments are working together to deliver the Basin Plan outcomes, however meeting the desired outcome of a healthy and working Murray-Darling Basin requires the careful balancing of the complementary, but sometimes competing interests of the community, industry and the environment. This is a long-term and complex task, requiring difficult decisions involving trade-offs and balancing risks, as well as responding to new information.

The Ministerial Council and its officials have worked collaboratively to implement the Plan to date and are committed to continuing to work together to ensure Basin Plan objectives are achieved. Basin governments and the MDBA are also committed to working with the community and engaging local communities in the management of the Basin. This collaboration will continue as a key element of the implementation of the Basin Plan and is critical to its success.

In regards to implementation, Basin governments are cognisant of the remaining challenges with delivering the Basin Plan on time and in full, particularly in relation to delivering environmental outcomes in a way that minimises socio-economic impacts. The Ministerial Council is the forum through which all Basin governments work to resolve such challenges to achieve the Basin Plan's ecological, economic and social objectives. Basin governments have a strong legacy and track record of working through Basin management challenges collaboratively.

The pathway for implementing the Basin Plan package agreed in 2012 entails:

- delivering an SDL offset adjustment in the Southern Basin through supply, constraints and efficiency measures under the SDL adjustment mechanism;
- adjusting the required water recovery volumes in the Northern Basin through the NBR and agreeing to implement the toolkit measures;
- implementing SDL adjustment and constraints measures in the period to 30 June 2024;

- recovering any remaining water required to bridge the gap to the SDLs after accounting for the outcomes of the SDL adjustment mechanism and NBR;
- implementing the SDLs from 1 July 2019 through accredited State WRPs; and
- monitoring and evaluating the implementation and impacts of the Basin Plan.

In 2012 the SDLs for surface water established by the Basin Plan set a water recovery target of 2,750 GL. Progress in water recovered to date totals 2,038 GL, including contracted recoveries and additional recoveries forecast but not yet contracted under various programs. Noting that the outcomes of the SDL adjustment and NBR are not yet settled, the current remaining water recovery task is summarised at Table 4.

Table 4: Remaining water recovery task[15]

Southern Basin:		**Northern Basin:**	
NSW:	304.8 GL	Queensland:	85.0 GL
Vic:	251.8 GL		
SA:	39.9 GL	NSW:	29.6 GL
ACT:	0.0 GL[16]		
Sub-total:	**596.5 GL**	**Sub-total:**	**114.6 GL**

In addition to this there is a target of 40.4 GL of groundwater to be recovered in Queensland with a remaining recovery of 37.7 GL.

As set out in section 4.2, Basin governments are seeking to offset, as far as possible, the full remaining water recovery gap in the Southern Basin through an agreed package of supply measures.

Clause 3.2 of the IGA provides that if a residual water recovery shortfall exists in any jurisdiction after the operation of the SDL adjustment mechanism, that shortfall can be recovered by the Australian Government. Should this need arise, the Australian Government will review its Water Recovery Strategy, noting its preference to recover water through infrastructure investment where possible. Any necessary water purchase will be strategic in nature, and will only be considered within the legislated 1,500 GL water purchase cap.

The Basin Plan enables environmental outcomes to be enhanced through the recovery of 450 GL by 2024 through efficiency measures, where projects that improve water efficiency provide more water for the environment. Section 4.3 sets out a way forward on efficiency measures that will deliver neutral or improved socio-economic outcomes.

The Basin Plan limits the SDL adjustment to a net change of five per cent of the Basin-wide SDL (equivalent to 544 GL). This means that a supply adjustment greater than 544 GL will require the

[15] Water recovery figures reported by the Australian Government.
[16] The Australian Capital Territory has met its water recovery task.

recovery of some water through efficiency measures for the full supply adjustment to be realised from 1 July 2019.

As a result of its review of Basin Plan settings in the Northern Basin, the MDBA is proposing to reduce the current 2,750 GL water recovery target from 2,750 GL to 2,680 GL. The MDBA is yet to finalise its proposed amendment to the Basin Plan.

4.2. Maximising the SDL adjustment from supply and constraints measures

4.2.1. The preferred approach

All Basin governments are committed to getting the biggest possible SDL adjustment through State-led supply measure projects, acknowledging that the greater the supply contribution from the SDL adjustment mechanism, the smaller the remaining water recovery task. Ideally, Basin governments seek an outcome that eliminates the need for further water purchase in the Southern Basin after the operation of the SDL adjustment mechanism.

In April 2016, the Ministerial Council agreed a list of 37 supply measure projects, including six constraints projects, to be developed further for consideration under the SDL adjustment mechanism.

Ministerial Council also agreed seven projects aimed at relaxing constraints that limit the environmental outcomes attainable from environmental water in the Murray, Murrumbidgee, Goulburn, Gwydir and Lower Darling rivers. The works and measures under consideration include upgrading bridges, roads, jetties and culvert, building levees and securing easements. Works to address constraints can also provide benefits to landholders during natural high flow events as well as providing more flexibility in moving environmental water through the river at critical times for environmental outcomes.

A number of constraints notified as supply measures in the Southern Basin can contribute to the SDL adjustment. Options to maximise the supply potential of constraints management measures are currently being explored by Basin governments. Some governments are considering options for early works to commence and will work with communities on these.

Significant further work on constraints measures will be required, and this will be done in a staged approach with continuing engagement by State government proponents with landholders and local communities to respond to community concerns. The sequencing of the implementation of the constraints management strategy is also under consideration.

The Australian Government advises that at 28 February 2017, an adjustment of around 570 to 600 GL would be required to avoid further water recovery in the Southern Basin.[17] At this point, governments believe that a potential pathway to achieving this aim is achievable, if a critical suite of

[17] Figure correct as at 28 February 2017. This figure assumes that the supply contribution is apportioned in a way that minimises the risk of over-recovery in any one jurisdiction. The final recovery required in each zone will also depend on all currently contracted water recoveries being achieved and any future water recovery including from unallocated SPP funding in South Australia and New South Wales.

enhanced SDL adjustment projects, incorporating new knowledge and information, are assessed as feasible and agreed by Basin governments, in addition to projects already agreed. This will require careful consideration of associated risks and benefits and final decision-making.

The timely operation of the SDL adjustment mechanism in 2017 requires a focussed effort by the New South Wales, Victorian, South Australian and Australian governments, including the MDBA, to finalise an agreed package of adjustment projects, resolve remaining project and modelling issues, incorporate the projects into the assessment framework, and resolve arrangements for their funding and implementation. Once the outcome of the SDL adjustment has been determined, an amendment to the Basin Plan will then be provided to the Commonwealth Water Minister for consideration, adoption and tabling in the Australian Parliament.

Based on the principles at Attachment A, a draft of a new IGA schedule for implementing the SDL adjustment mechanism will need to be agreed in-principle by Basin Water Ministers later in 2017 prior to consideration by First Ministers.

Technical issues in progress

Sharing the benefits (Apportionment of supply contribution)

There are a range of ways the supply contribution could be shared between jurisdictions.

Clause 7 of Schedule 1 to the IGA provides that as a default, the total off-sets capacity available under the SDL adjustment mechanism will be apportioned in accordance with the funding ratio for supply measures between jurisdictions. This is based on the application of percentage portions of the Southern Basin shared reduction amount outlined in s.6.05 of the Basin Plan and amended to distribute the Australian Capital Territory's share between New South Wales, Victoria and South Australia on an equal basis.

The Australian Government and the governments of New South Wales, Victoria and South Australia intend to formalise apportionment arrangements in mid-2017.

Pre-requisite policy measures

The MDBA must assess the adequacy of State PPM implementation plans before the SDL adjustment mechanism can operate in the second half of 2017.

PPM implementation plans for all PPMs, including individual State PPM implementation plans from New South Wales, Victoria and South Australia and the joint implementation plan for the River Murray PPM, will need to be finalised by jurisdictions and assessed by the MDBA by 30 June 2017.

4.2.2. Key milestones

Key date	Activity
Supply and constraint measures	
By 30 April 2017	Basin jurisdictions resolve all outstanding supply and constraints measure business case issues and any necessary amendments to the first notification. Complete modelling information (including both major and minor amendments) for all first and second notification projects submitted to the MDBA.
By 30 June 2017	**Ministerial Council agree and BOC notify the MDBA of any second notification SDL adjustment projects and any final subsequent amendments to projects.**
By 30 June 2017	Australian Government and States communicate to the MDBA the interim arrangements for apportioning the supply contribution.
September 2017	BOC and Ministerial Council settle the final apportionment of the supply contribution and communicate this to the MDBA.
October 2017	MDBA undertake public consultation on the proposed SDL adjustment.
By November 2017	**Develop a work plan for constraints measures for a coordinated, cross-jurisdictional process for addressing constraints that enables strong community involvement in development and planning to ensure a staged implementation approach.** **Note that some Basin governments are considering actions for early works.**
By November 2017	**Basin governments agree new IGA schedule to implement the SDL adjustment mechanism.**
15 December 2017	**MDBA provides the proposed SDL adjustment amendment to the Commonwealth Water Minister.**
Early 2018	Commence implementation of early actions.
30 June 2024	**All SDL adjustment measures are in operation.**
2024	MDBA considers the need to undertake a reconciliation of SDL adjustment measures that may require further amendment to Basin Plan SDLs.

4.3. Enhancing environmental outcomes through efficiency measures under the SDL Adjustment Mechanism

The Water Act and Basin Plan provide the statutory framework to pursue further enhancements to Basin Plan environmental outcomes by enabling the recovery, by 2024, of 450 GL in additional environmental water through efficiency measures which achieve neutral or improved social and economic outcomes.

On 22 April 2016, Ministerial Council agreed that efficiency measures would complement current state-led activities to close their remaining water recovery obligations under the Basin Plan.
In May 2016, Basin governments notified two efficiency measures as part of the agreed package of SDL adjustment measures.

The Australian Government leads the implementation of efficiency measures in consultation with the Basin states.

Basin governments are committed to working collaboratively on the best pathway for efficiency measures to recover an additional 450 GL by 2024, consistent with the Basin Plan legal requirement to achieve neutral or improved socio-economic outcomes.

In addition to progressing the COFFIE program, the Australian Government is working on designs for off-farm irrigation infrastructure, urban water use efficiency and stock and domestic water use efficiency programs. State governments can also propose projects.

Critical to the success of this initiative is finding a way to provide Basin governments and communities with the necessary confidence that enhanced environmental outcomes nominated in the Basin Plan can be achieved in ways that have a neutral or positive socio-economic impact on Basin communities.

The Ministerial Council recently agreed to commission an independent expert analysis on how best to design, target and resource efficiency measure programs to recover 450 GL by 30 June 2024 in ways that result in neutral or improved socio-economic outcomes. The study will take into account information arising from the MDBA's evaluation of Basin Plan impacts and any other relevant information. This will provide Ministers with a comprehensive set of information on the cumulative socio-economic impacts of the Basin Plan, including the recovery of the 450 GL through efficiency measures. This evaluation, supported by other relevant analysis such as studies by State governments, will form the basis of knowledge to inform the expert advice on design of efficiency measure project to mitigate such impact. The advice must also consider the extent of concerns about adverse socio-economic impacts that go beyond the specific legal requirements of the Basin Plan. Attachment B sets out the terms of reference for this work, the results of which will be considered by the Ministerial Council in December 2017.

The Water Act provides for independent reviews to assess whether the funding available under the WESA is sufficient to achieve the 450 GL and address constraints on environmental water delivery. There are two reviews, the first by September 2019 and the second by September 2021.

Governments are committed to considering the need for further support for regional development for communities across the Basin.

The five per cent limit on an SDL adjustment

The Basin Plan limits the net SDL adjustment (i.e. the supply measure contribution minus the efficiency contribution) to five per cent of the Basin-wide SDL (i.e. a five per cent net adjustment equals a maximum 544 GL net increase in the SDL). If the MDBA's proposed 70 GL increase of surface water SDLs arising from the NBR is implemented, the five per cent net adjustment will change to 547 GL. This means that, once SDLs take effect from July 2019, some efficiency measures may need to have been recovered to allow the full benefits of the supply measure SDL offset.

Should the volume of efficiency measures required to offset the operation the five per cent limit not be recovered by 1 July 2019, then the size of the supply measure will be constrained to within this five per cent limit. In other words, for every gigalitre in supply measure offsets exceeding 544 GL, one gigalitre in efficiency measures will need to have been recovered by 30 June 2019, if the full SDL benefit of the supply measure offset can be realised.

4.3.1. Key milestones

Key date	Activity
Efficiency measures	
December 2017	**Complete independent and expert analysis of how to design, target and resource efficiency measures, which is informed by the MDBA's evaluation of the social, economic and environmental outcomes of the implementation of the Basin Plan and other relevant analysis such as studies by State governments.**
Early 2018	**Develop and implement an approach to achieve efficiency measures with neutral or improved socio-economic outcomes, informed by the results of the independent expert analysis.**
30 June 2019	**Sufficient quantum of efficiency measures achieved to ensure the net SDL adjustment is within the five per cent limit.**
By 30 September 2019	**Complete first statutory review of progress and funding.**
By 30 September 2021	**Complete second statutory review of progress and funding.**
By 30 June 2024	**All efficiency measures are in operation.**

4.4. Complementary measures – work in progress

Ministers agreed on 11 March 2016 that officials would 'advise on opportunities and a process to enable a wider range of environmental projects, such as measures to control carp, to provide triple bottom line benefits under the Basin Plan post 30 June 2016'. Basin governments are continuing to consider the scope for complementary measures in delivering these triple bottom line outcomes. The scope for an SDL offset is undecided.

The MDBA has commissioned CSIRO to develop a method to assess the relative environmental benefits of potential complementary measure projects.

4.5. Northern Basin Review

The outcome of the NBR is a proposed amendment to the Basin Plan, which was released for public consultation in November 2016. This comprises a reduction in the Northern Basin water recovery target from 390 GL to 320 GL on the basis that the Australian, Queensland and New South Wales governments agree to implement a number of Australian Government-funded toolkit measures designed to improve water management to enhance the use of environmental water while reducing the social and economic implications of the Basin Plan.

After considering public input to its proposed NBR amendment, the MDBA will proceed to seek comments from the Ministerial Council before finalising the amendment for adoption by the Commonwealth Water Minister.

In recognising the importance of this SDL outcome to communities in the Northern Basin, the New South Wales, Queensland and the Australian government officials have agreed to the collaborative development of toolkit measures for consideration by Ministers. The measures proposed by the MDBA are set out in section 3.3. Ministerial Council and the MDBA are committed to ensuring that any changes arising from the NBR will have no negative impacts on triple bottom line outcomes in the Southern Basin

Basin governments will need to consider their response to these recommendations, including funding arrangements, prior to finalisation of the proposed amendments to the Basin Plan by the MDBA.

To assist in this process, the Commonwealth Water Minister has established a taskforce in the Department of Agriculture and Water Resources (the Northern Basin Programmes Taskforce). The taskforce is preparing advice on how best to minimise the impact on local communities through identified toolkit measures and the development of an achievable water recovery strategy.

To date the taskforce has undertaken extensive consultation with key industry and community stakeholders on these matters. This consultation will inform the recommendations expected to be provided to the Commonwealth Water Minister for consideration by 30 June 2017.

4.5.1. Key milestones

Key date	Activity
Northern Basin Review	
First half of 2017	MDBA release report on community consultation outcomes.
First half of 2017	MDBA consult the Ministerial Council on proposed Basin Plan amendments to implement the NBR outcomes.
Mid-2017	**Agreement by relevant jurisdictions on the funding and implementation of toolkit measures, to be included in a draft IGA schedule.**
Second half of 2017	Australian Government to release advice on how to achieve remaining recovery in the Northern Basin.
Second half of 2017	**MDBA to finalise Basin Plan amendments to implement the NBR outcomes and provide to the Commonwealth Water Minister.**
Second half of 2017	Commonwealth Water Minister to table Basin Plan amendments in the Australian Parliament.

4.6. Water Resource Plans

Basin jurisdictions are responsible for developing WRPs that comply with Basin Plan requirements. As summarised in Table 5 below, a total of 36 WRPs will need to be developed by States and accredited by the Commonwealth to cover 20 surface water and 22 groundwater water resource plan areas, noting that some WRPs will cover multiple water resources areas. This is a significant area of work in order to implement the SDLs in catchments across the Basin by 1 July 2019.

Table 5: WRPs by State

Basin State	Number of WRPs
Australian Capital Territory	2
New South Wales	22
Victoria	5
Queensland	4
South Australia	3
TOTAL	**36**

Each WRP must meet a number of requirements that are set out in the Water Act and the Basin Plan. In this regard the Basin Plan Implementation Committee, which comprises officials from each Basin State, MDBA and the CEWH, meets regularly to share information and monitor progress.

In the finalisation of WRPs, States are working on settling planning assumptions, which will provide a basis upon which it is possible to establish whether the SDL will be met under a WRP.

Case Study – the Warrego-Paroo-Nebine WRP

The development of the Warrego-Paroo-Nebine WRP by Queensland provided the first exposure to the process and requirements for preparing a WRP for accreditation. Below is a list of some of the documents that Queensland developed to meet the requirements of a WRP and highlights the complexity and resource intensive nature of WRP development. The documents developed included:

- Consultation reports – summary of issues on water allocation and management raised during consultation on the draft plans and how these issues were considered in finalising the plans;
- Aboriginal values and uses report;
- Cultural assessment report;
- Socio-economic assessment reports;
- Sustainable extraction limits derived from recharge risk assessment report;
- Water accounting methods report;
- Implementation review report;
- River model results for each river;
- Risk assessment and threat prioritisation;
- Environmental risk assessment for selected ecological assets; and
- Responses to independent science review.

Once States have completed their WRPs, each WRP is then submitted to the MDBA for assessment and accreditation by the Commonwealth Water Minister. Acknowledging that all Basin State WRPs should be accredited by 30 June 2019, when Basin Plan SDLs take effect, all Basin governments are working towards completing their planning processes in a timely fashion. The MDBA is committed to working closely with governments to ensure this accreditation process is as streamlined as possible.

4.6.1. Key milestones

Key date	Activity
Water Resource Plans	
Quarterly reporting	State reports on WRP progress.
To December 2018	MDBA engages with the States to provide timely guidance and enable streamlined and efficient WRP development.
Late 2018 / early 2019	States submit all WRPs to MDBA for accreditation.
30 June 2019	**All WRPs considered and accredited by the Commonwealth Water Minister.**
30 June 2019	States implement PPMs to credit environmental return flows for downstream environmental use and to allow the call of held environmental water from storage during unregulated flow events consistent with Basin Plan requirements.

4.7. Evaluation of Basin Plan outcomes

The Basin Plan is subject to a series of monitoring, evaluation and reporting requirements to provide transparency and accountability throughout its implementation. This framework of assessment and review also supports continuous improvement through adaptive management.

4.7.1. Monitoring and evaluation framework

The Water Act and Basin Plan require regular reporting on implementation and environmental, social and economic outcomes. The framework also includes periodic review of the Basin Plan itself to identify areas for improvement, including:

- Annual reporting – Each year, the Basin governments and the MDBA report on a range of Basin Plan implementation activities and the MDBA produces a report on the effectiveness of the Basin Plan.
- Five-yearly reporting – Every five years, Basin governments and the MDBA must conduct an evaluation of Basin Plan outcomes (social, economic and environmental). There is also a requirement to regularly review the Environmental Watering Plan, and water quality and salinity targets.
- Ten year reviews of the Basin Plan – At ten-yearly intervals, the Basin Plan itself is reviewed to assess the appropriateness of the instrument to continue to deliver its agreed outcomes.
- Productivity Commission inquiries – The Water Act also requires the Productivity Commission to conduct inquiries into the effectiveness of the implementation of the Basin Plan and associated WRPs every five years, the first of which will be undertaken in 2018.

4.7.2. Interim 2017/2018 MDBA evaluation

Currently amendments to the monitoring and evaluation framework are before the Australian Parliament.[18] If passed, these changes will improve alignment and efficiency of reporting. However, there is also recognition of the high stakeholder expectation for evaluations to occur as soon as possible, particularly assessments of socio-economic outcomes from the Basin Plan.

To address this need, in 2017 and 2018, the MDBA is conducting an interim evaluation of the social, economic and environmental outcomes of the first five years of Basin Plan implementation. The evaluation will look at whether implementation is on track, and whether the outcomes to date are consistent with those that were expected when the Basin Plan was finalised. It will also assess how the approach to future implementation might be refined in order to get the best possible outcomes from the Basin Plan.

The socio-economic evaluation will build a more complete picture of the changes occurring in communities and industries across the Basin, both as a result of the Basin Plan and the many other factors that are driving change in regional communities.

It will also look at the environmental outcomes achieved to date, recognising that water recovery is not yet complete, and consider the transparency and effectiveness of the management of Basin water resources.

The 2017/2018 evaluation will draw on data and information from a wide range of sources, including:

- the MDBA, the Australian Government's water recovery programs, a range of Basin State agencies, and the CEWH;
- the 2016 Population and Agricultural censuses;
- ABARES farm surveys and commodity market reports;
- industry groups;
- Australian, State and local governments; and
- insights from consultations with stakeholders.

While much of this data and information has already been collected, some critical census data on population, employment and agricultural production will not be available until late 2017. As a result, the final evaluation report will likely be available early in 2018.

The MDBA has committed to engage with Basin governments, and industry and community stakeholders through the course of the evaluation. Through this stakeholder engagement, there will be a focus on sharing and validating the data which will inform the evaluation, and discussing preliminary findings.

[18] The independent Water Act review recommended some consequential amendments to reporting timeframes in the Basin Plan that are currently part of the proposed Basin Plan amendment package.

4.7.3. Monitoring and evaluation of environmental water

The Basin Plan outlines reporting obligations and principles for undertaking environmental monitoring and evaluation for State and Australian Government agencies. When viewed together, these provisions broadly confer the following responsibilities:

- The MDBA is responsible for reporting on the achievement of the environmental objectives of the Basin Plan at a Basin scale. As reflected in the Basin Plan principles, this means that the MDBA has a key role in coordinating monitoring and evaluation activities across the Basin.
- Basin States are responsible for reporting on the achievement of environmental objectives of the Basin Plan at an asset scale (via long-term environmental watering plans). Together with regional natural resource management agencies, the States have valuable on-ground knowledge and experience of particular ecosystem characteristics as well as the capacity to deliver, monitor and evaluate watering events efficiently and effectively.
- The CEWH is responsible for reporting on the contribution of Commonwealth environmental water to the environmental objectives of the Basin Plan.

The CEWH provides an annual report on the management of Commonwealth environmental water be provided to the Commonwealth Water Minister for tabling in the Australian Parliament.[19]

The CEWH also reports annually to the MDBA on the identification of environmental water and the monitoring of its use and every five years to the MDBA on the achievement of environmental outcomes at a Basin scale, by reference to the Basin Plan targets to measure progress towards environmental objectives.[20]

4.7.4. Key milestones

Key date	Activity
Evaluation of Basin Plan outcomes	
2017	**MDBA conduct an interim evaluation of social, economic and environmental outcomes from the Basin Plan, including stakeholder consultation on preliminary findings.**
Early 2018	MDBA complete interim evaluation report on Basin Plan implementation.
2018	Productivity Commission inquiry into the effectiveness of implementation of the Basin Plan and associated WRPs.
2020	**MDBA completes first major five-year statutory Basin Plan implementation and effectiveness report.**
2026	**First ten-yearly review of the Basin Plan.**

[19] s.114 of the Water Act.
[20] Schedule 12 of the Basin Plan.

Principles for new IGA Schedule for implementing the SDL adjustment mechanism (agreed by the Ministerial Council on 22 April 2016)

Objectives

1. The objective of the new IGA Schedule is that all Parties are working together to implement supply, efficiency, constraints and unimplemented policy measures and to maximise the benefits of the SDL adjustment mechanism.
   a. Acknowledging that many Basin Plan obligations are delivered through state water management frameworks.
   b. Acknowledging that meeting social, economic and environmental outcomes requires a balanced approach.
   c. Acknowledging the importance of the SDL adjustment mechanism operating in a transparent and legally sound basis using the best available science.

Implementation of measures

2. To achieve the best outcomes, Parties will need to cooperate and assist each other in the implementation of measures for which they are responsible:
   a. Implementation, operation and maintenance of supply, constraints and unimplemented policy measures is the responsibility of proponent states, except where otherwise agreed.
   b. Implementation of efficiency measures may be the responsibility of the Commonwealth or of any Basin State. The Parties will cooperate to support timely implementation of Commonwealth efficiency measures in each state. The Commonwealth will ensure its program complements current state-led activities to close their remaining water recovery obligations under the Basin Plan. This contemplates that efficiency measures and other state-led water recovery measures can operate in parallel.
   c. The Parties agree to work together to finalise projects and expedite funding commitments under the IGA as soon as possible.
   d. The Parties recognise that supporting work is needed to clarify the Framework for River Murray Operations amendments to allow for agreed supply, constraints and unimplemented policy measures to take effect.
3. In implementing these projects to achieve their intended outcomes it is acknowledged that adaptive management approaches may be employed.
4. The Parties acknowledge that implementation arrangements that manage and minimise any potential implications of the Northern Basin Review will need to be clarified.

Accountabilities and risk management

5. Responsibility for risks associated with the implementation of measures will be assigned to the proponents unless otherwise agreed to be located with another Party that is better placed to manage and control those risks**:**
   a. 'Bridging the gap' by 30 June 2019 is the responsibility of the Commonwealth, in cooperation with each State.
   b. The Commonwealth will consult with the states on its water recovery strategy in each state, and until the final outcome of the SDL adjustment mechanism is known, will ensure that any recoveries are strategic and minimise the risk of over recovery.
   c. Bridging any residual SDL gap in the event that material changes to agreed supply, constraints or unimplemented policy measures result in a smaller supply contribution at reconciliation in 2024 is the responsibility of the proponent state unless otherwise agreed.
   d. While the Commonwealth and state jurisdictions have specific roles for implementing the Basin Plan, it is important that in cases where levels of risk are uncertain and cannot be quantified, that each party is able to propose ways to limit their exposure to risk for agreement with other Parties.
6. Where relevant, Basin states will incorporate supply measures into their long-term watering plans and annual environmental watering priorities. Noting this, the Parties will encourage all environmental water holders to make effective use of supply measures, noting the need for any environmental watering decisions to be consistent with their statutory obligations.

Stakeholder engagement

7. The Parties value effective community engagement, aiming to make their processes and decisions as transparent as possible and to collaborate on public communication.
8. Responsibility for community engagement in the implementation of measures rests with the proponent jurisdiction. In the case of Murray River projects in NSW, Victoria and South Australia, it is particularly important that information provided to the public by these states and the MDBA is consistent.

Terms of Reference for Analysis of Efficiency Measures

Purpose

To provide advice to the Murray-Darling Basin Ministerial Council on the recovery of 450 GL in additional environmental water through efficiency measures, with neutral or beneficial socio-economic outcomes, to enhance the environmental outcomes that can be achieved by the Basin Plan, consistent with the Basin Plan, Part 2AA of the Water Act (2007) (the Act), and the terms of the 2013 *Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin*.

This advice is to be considered in the context of the implementation of the Basin Plan to date.

As far as is practical the economic analysis should incorporate case studies with examples from previous programs, identifying other factors impacting on communities.

Scope

The Ministerial Council seeks advice on how to recover 450 GL of water from efficiency measures by 2024 with neutral or improved socio-economic outcomes within the legal framework of the Basin Plan and Water for the Environment Special Account. Specific advice is sought on:

1. How to design, target and resource efficiency measures to recover 450 GL of water by 2024, with neutral or improved socio-economic outcomes, including:
    a. scope and timing for efficiency measures to be administered in ways that do not impede current efforts to bridge the SDL gap under the Basin Plan by 30 June 2019.
    b. whether the funding multiple provided to program participants is sufficient to attract genuine interest (noting provisions for reviews of progress under section 86AJ of the Act) and what the multiple should be;
    c. whether the design of the program is robust to ensure that participants are not able to gain an unfair advantage through subsequent market participation;
    d. opportunities for greater flexibility for the types of measures eligible to receive funding in return for water savings;
    e. opportunities for an increased focus on urban water efficiencies;
    f. opportunities for integrated program design to better align assistance for irrigation infrastructure operators with the delivery of efficiency measures on-farm and reduce the cost of supply;
    g. opportunities for off-farm infrastructure works
    h. how notified efficiency measures may be improved;
    i. the anticipated cost of recovering 450 GL of water through efficiency measures, consistent with statutory requirements; and
    j. any other activities that have not been investigated that could provide an efficiency contribution.
2. The potential socio-economic impacts arising from efficiency measures at a range of scales, including socio-economic concerns that go beyond the specific legal requirements of the Basin Plan, and on strategies that may be required to ensure neutral or improved socio-economic outcomes. The impacts and concerns associated with the recovery of 450 GL may include:
    a. the net impact of on-farm efficiency measures on the viability and productivity of irrigation districts;
    b. the impact of efficiency measures on employment opportunities in basin communities;
    c. the impact of efficiency measures on the temporary and permanent water markets; and
    d. consideration of any other information to ensure a comprehensive analysis of cumulative socio-economic impacts.
3. The extent to which adverse socio-economic impacts could be negated through:
    a. further refinements to efficiency measures program design to maximise socio-economic benefits;

b. existing Commonwealth programs; and

c. any further opportunities for Commonwealth-funded activities in support of broader regional development.

4. The advice must take into account information arising from the Murray-Darling Basin Authority's evaluation of the social, economic and environmental outcomes of the implementation of the Basin Plan and any other relevant analysis such as studies by State governments.

State progress reports

Victoria

Victoria has a strong history of investing to restore and protect the River Murray and the Basin. Floodplain works commenced in the late 1990s were a precursor to the highly successful The Living Murray program, which has resulted in critical works at Gunbower Forest, Mulcra Island and Lindsay Island, and the award winning work at Hattah Lakes.

During the millennium drought, Victoria recognised action was needed to protect the Murray ecosystem and established a redgum watering program. By pumping water from the river to supply key ecological areas, Victoria established refuges which kept trees alive until the drought ended.

This was followed by the establishment of the Victorian Environmental Water Holder to better manage environmental water for delivery of environmental outcomes.

Just adding water is not enough to achieve the best environmental outcomes. In addition, the Victorian Government has a long track record of investing in waterway health programs, restoring riparian vegetation, managing pests and improving water management. These actions complement and maximise the benefits of water recovery.

Since 2012, Victoria has worked hard to implement the Basin Plan in a way that balances social, economic and environmental outcomes. Recovering water for the environment has been a key part of this, and Victoria has already transferred 711 GL to the environmental water holders and has a further 112 GL planned, with a large portion being high reliability entitlement. The $2 billion Connections project is the largest upgrade in the history of the Goulburn-Murray Irrigation District, and will recover 429 GL of water.

Victoria recently released a report on the socio-economic impacts of the Basin Plan which showed that water recovery under the Basin Plan (buybacks) assisted struggling irrigators to exit the market or to adjust to prevailing market conditions. Other irrigators benefited from being able to reduce debt from the millennium drought.

However Victorian irrigators who participated in buybacks are now more reliant on purchasing allocations, with dairy the most exposed sector. While the Goulburn-Murray Irrigation District is the most affected, impacts are being felt across the whole southern connected Basin. It is essential that all future water recovery is based on robust evidence and can be done with neutral or positive social and economic impacts.

Victoria has notified 19 project proposals for the SDL adjustment mechanism. These projects will deliver strong environmental benefits, in particular Victoria's nine environmental works projects. These target sites of high ecological value including Ramsar listed wetlands. Constructing works like pipes and pumps make it possible to enhance and extend natural flood events, to optimise conditions for birds, fish, plants and the rest of the ecological community. The projects will also create refugia during dry periods, by keeping targeted sites watered.

To further support decision making by Basin States, Victoria with New South Wales have recently appointed an independent expert panel to examine the SDL adjustment mechanism. This information will be shared with all jurisdictions.

Victoria is committed to achieving the outcomes of the Basin Plan, and working with the other governments to ensure we have a Basin plan that is deliverable, adaptable and works for all users.

Queensland

Queensland is making good progress on implementing the Basin Plan by reviewing and updating its state water plans with new science and in consultation with local communities, water users, environmental stakeholders and traditional owners. This work also includes:

- preparing long term watering plans to guide annual decisions about environmental watering;
- preparing a plan to address water quality and salinity management; and
- establishing monitoring arrangements to ensure that the Basin Plan has been effectively implemented.

The Warrego-Paroo-Nebine WRP was finalised under Queensland legislation in February 2016. It was submitted for accreditation under the Water Act in November 2016. It is anticipated that this will be the first WRP to be accredited as meeting Basin Plan requirements.

As the pilot planning process, Queensland developed new templates and procedures. We worked with the MDBA to apply the Basin Plan requirements in a fit-for-purpose way in the context of the unregulated western Queensland river systems. After submitting the WRP, Queensland undertook an evaluation of the process. This has resulted in more efficient processes to liaise with the MDBA in the development of the WRPs and will also assist Queensland and the other Basin states to develop their WRPs on time by 2019.

The review of the remaining Queensland statutory water plans, that is the Condamine–Balonne and Border Rivers and Moonie, formally commenced in July 2016. This was followed by public consultations and submissions. Key proposals include expanding the water market in key groundwater areas, and reviewing the current water management arrangements to ensure that the taking of surface water and groundwater can be managed consistent with Basin Plan requirements.

Assessments on risk to water use, environmental water and water quality have been completed. Work is progressing on assessments of key ecological assets, technical assessments and targeted consultation with water users.

Queensland is undertaking targeted consultation with each Aboriginal Nation in the Queensland part of the Murray–Darling Basin to identify values, uses, objectives and outcomes. The working group established with the Northern Basin Aboriginal Nations (NBAN), New South Wales and the MDBA provides guidance for how we should consult with the Traditional Owners and Aboriginal people in the Nations.

Draft Queensland statutory plans are expected to be released for public comment in early 2018 and finalised by late 2018. The WRPs comprising the statutory plans and other texts are due to be submitted to the MDBA for accreditation in early 2019.

Over the last few years, Queensland has also collaborated with New South Wales and the MDBA on the NBR which re-examined the ecological science and socio-economic assessments underpinning the SDLs in the Northern Basin. The MDBA completed the review in late 2016 and is now conducting the statutory process phase.

In regard to the Commonwealth's recovery of water for the environment, the main focus of recovery in Queensland has been around St George and Dirranbandi in the Lower Balonne area, and to a lesser degree in the around Goondiwindi in the Border Rivers catchment.

Queensland supports the Commonwealth's priority to invest in voluntary, infrastructure-based water use efficiency through the Healthy HeadWaters Water Use Efficiency (HHWUE) project. HHWUE invests in on-farm irrigation infrastructure improvements and is delivered by the Department of Natural Resources and Mines on behalf of the Commonwealth under a Water Management Partnership Agreement. Over time, Queensland has worked with irrigators and the Commonwealth to introduce a more flexible process suited to the Queensland context and to encourage voluntary participation. The project is scheduled to run from 2010 to 2018, although a potential extension to the project is currently being negotiated.

Under HHWUE, irrigators are provided up to 90 per cent of the cost to improve their irrigation infrastructure; in return they permanently forego at least 50 per cent of the water they save to the Commonwealth for environmental purposes.

To date, 99 projects have been approved for funding under HHWUE, of which 86 are in progress or completed. These 86 projects will save a projected 47.9 GL of water, of which around half will be transferred to the Commonwealth. Approximately $115 million of Commonwealth funds is committed to these projects.

HHWUE has been well-subscribed in the Border Rivers catchment; less so in the Condamine-Balonne where most of the few substantial water entitlement holders have already participated in HHWUE or Commonwealth buyback tenders.

Despite the progress made so far by HHWUE, it is very unlikely that infrastructure investment alone can achieve the remaining water recovery target. This is because the uncommitted funds in the HHWUE project are significantly less than what is required and the current level of uptake under HHWUE is too low to complete the projects by the deadline of June 2019. Queensland is working with the Commonwealth to develop an appropriate strategy that seeks to achieve full recovery by 2019 for the Queensland catchments where significant volumes remain to be recovered.

South Australia

The Basin Plan is being fully integrated into South Australia's ongoing water management arrangements and significant progress has been made.

South Australia is on track to develop its three WRPs for accreditation by the MDBA. A draft of the South Australian Murray Region WRP was submitted to the MDBA in November 2016. The other two WRPs are under development with the first stage being an assessment of risks to water resources in the region.

Over three-quarters of the State's Basin Plan water recovery target of 183.8 GL has been recovered and the remainder will be addressed by current and planned projects and offsets through the SDL adjustment mechanism. South Australia has submitted six project business cases for consideration as measures to offset water recovery and is co-proponent on another five projects. This includes a business case on how to address constraints on environmental water deliver in South Australia.

South Australia is the only State to have commenced a pilot for the 450 GL efficiency measures programme. The pilot will help ensure that the efficiency programme is well designed – to meet the interests of our irrigators and their communities. Any further irrigation efficiency projects would be developed by working with South Australia's irrigation stakeholders, just as the Government has done to date.

The South Australian Government has also been working with irrigators to deliver the $265 million South Australian River Murray Sustainability Programme to boost regional productivity and water use efficiency. The programme involves irrigation industry improvement initiatives and a complementary regional economic development programme. South Australia's experience from this programme shows what a well targeted efficiency programme can do to support irrigation farming enterprises optimise water use, achieve greater business resilience and productivity and create jobs in the region.

Long term planning for environmental watering is well progressed. The Long Term Environmental Watering Plan for the South Australian River Murray Water Resource Plan Area was completed in November 2015 and the Long Term Environmental Watering Plan for the Eastern Mount Lofty Ranges is expected to be completed by June 2017.

Environmental water is being actively managed and delivered across the Basin including in South Australia. For example, in 2015–16 a volume of approximately 800 GL of environmental water helped to, among other things, raise several weir pools to water floodplains (including Chowilla), and to maintain flows for native fish breeding and migration, water bird breeding and improving water quality at the Lower Lakes, Coorong and Murray Mouth.

On-ground infrastructure projects, such as the South Australian Riverland Floodplains Integrated Infrastructure Program, are being delivered, in consultation with the local community, to more efficiently deliver water to key River Murray floodplains in South Australia's Riverland. These projects, together with environmental water under the Basin Plan, will help protect and restore these important environmental assets.

The South Australian Government continues to invest in active management, research and investigations to complement environmental watering actions and to deliver Basin Plan and State environmental objectives. For example, work is underway to optimise the management of water in the Lower Lakes and Coorong, and to investigate further works and measures to assist in managing the Coorong ecosystem.

New South Wales

The New South Wales Government remains committed to managing the Basin sustainably and balancing the water requirements of industry, communities and the environment, in accordance with the triple bottom line objectives of the Water Act. As a State, New South Wales has recognised the importance of its role in managing the water resources in the Murray-Darling Basin and, as such, has been a leader in water reform for the past 30 years.

Over the 25 years prior to the commencement of the Basin Plan, New South Wales water users returned significant volumes of water to the environment, including:

- 860 000 megalitres (ML) of surface water returned to the environment through Water Sharing Plans, Riverbank and The Living Murray and Snowy Initiatives;
- 942 000 ML reduction in groundwater entitlements in six major alluvial aquifers; and
- 67 000 ML recovered in the Great Artesian Basin.

New South Wales was also the first state to provide specific flows for the environment, to separate land and water rights, and to provide for Aboriginal commercial and cultural licences.

In recognition of the need to ensure a sustainable working basin and strong communities, the New South Wales Government has had a strong focus on delivering environmental benefits through efficiency and infrastructure programs to ensure positive outcomes for its Basin communities and the environment. This includes the rollout of a number of New South Wales led water recovery and efficiency programs:

- Nimmie-Caira System Enhanced Environmental Water Delivery Project: $180 million for the purchase land and water entitlements in the Nimmie-Caira area and to undertake infrastructure works to enhance environmental water delivery;
- Basin Pipe: $137 million replaces replenishment systems, open drains, channels and dams with pipeline schemes to provide landholders with more efficient supplies of stock and domestic water;
- Healthy Floodplains: $49 million reform the management of water on floodplains through the modification of floodplain structures and extraction control;
- Integrated Farm Modernisation: $111 million investing in management, information and technological farm infrastructure to improve water use efficiency, water savings, and increase water related productivity in irrigated farming systems; and
- Metering (Completed): $31.5 million to install or upgrade meters on regulated, unregulated and groundwater irrigation extractions across the Basin. All meters are connected to a centrally controlled telemetry system that provides real time information on water extraction throughout the Basin.

Australian Capital Territory

As the largest urban centre in the Murray-Darling Basin, the ACT is committed to the full implementation of the Basin Plan and acknowledges the importance of an approach that balances the various economic, social and environmental factors to achieve a healthy and productive Basin. Canberra aspires to be an exemplar water sensitive city with an increased focus on green infrastructure, sustainable urban water management and water sensitive urban design.

The ACT supports the vision and framework of the Basin Plan, and has been working hard to meet its requirements in implementing the Basin Plan. The ACT has been one of the first jurisdictions in developing its new WRP for surface water and groundwater for submission to the MDBA. A draft ACT WRP was released for public consultation in June 2016 and includes SDLs for surface and groundwater, Indigenous water values and uses, a water quality management plan and environmental watering plan. The ACT is now working to finalise the new plan for submission in 2018.

The ACT sits entirely within the Murrumbidgee River Catchment, which is one of the largest tributaries of the Murray-Darling Basin river system. As such coordination of water resource planning and management in the ACT with New South Wales Murrumbidgee approaches is critical. The ACT is seeking to formally establish interstate water trading with New South Wales, which is a requirement under the Basin Plan and other National Water Reform commitments. There has been slow progress on this matter despite the ACT's efforts to pursue interstate trading with New South Wales in various forums. It is also necessary that interstate water trade arrangements be in place for the finalisation of the ACT's water resource plan.

The ACT has provided its share of environmental flow contributions including The Living Murray Initiative contribution and was the first jurisdiction to provide its shared reduction amount. This water is held on the New South Wales register and requires the establishment of interstate trade to fully account for these contributions. Because of its location, hydro-geography and water use, the ACT has not been involved to date in putting forward SDL adjustment measures and similarly projects with regard to constraints measures.

ACT Healthy Waterways is a $93.5 million joint initiative of the Australian and ACT governments to protect and improve long term water quality in the ACT and Murrumbidgee River System. The project will reduce the level of nutrients and pollutants entering ACT and region lakes and waterways that, in turn, have a significant impact on the Murrumbidgee and broader Murray-Darling Basin. The first phase of the five-year project was completed in February 2016. Detailed information and community feedback about ACT waterways was gathered and assessed and a wide range of potential water management options developed. The second implementation phase has now commenced and will see 25 new infrastructure and water management projects, as well as programs to raise awareness about water quality issues and how residents, business and visitors can help look after ACT and region waterways.