



Australian Government
Productivity Commission

Murray-Darling Basin Plan: Five-year assessment

Productivity Commission
Inquiry Report
Overview

No. 90, 19 December 2018

© Commonwealth of Australia 2018

ISSN 1447-1337 (online)

ISSN 1447-1329 (print)

ISBN 978-1-74037-666-2 (PDF)

ISBN 978-1-74037-665-5 (print)



Except for the Commonwealth Coat of Arms and content supplied by third parties, this copyright work is licensed under a Creative Commons Attribution 3.0 Australia licence. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/3.0/au>. In essence, you are free to copy, communicate and adapt the work, as long as you attribute the work to the Productivity Commission (but not in any way that suggests the Commission endorses you or your use) and abide by the other licence terms.

Use of the Commonwealth Coat of Arms

Terms of use for the Coat of Arms are available from the Department of the Prime Minister and Cabinet's website: <https://www.pmc.gov.au/government/commonwealth-coat-arms>

Third party copyright

Wherever a third party holds copyright in this material, the copyright remains with that party. Their permission may be required to use the material, please contact them directly.

Attribution

This work should be attributed as follows, *Source: Productivity Commission, Murray-Darling Basin Plan: Five-year assessment, Inquiry Report.*

If you have adapted, modified or transformed this work in anyway, please use the following, *Source: based on Productivity Commission, Murray-Darling Basin Plan: Five-year assessment, Inquiry Report.*

An appropriate reference for this publication is:

Productivity Commission 2018, *Murray-Darling Basin Plan: Five-year assessment*, Final Report no. 90, Canberra

Publications enquiries

Media, Publications and Web, phone: (03) 9653 2244 or email: mpw@pc.gov.au

The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).



Australian Government
Productivity Commission

Canberra Office

4 National Circuit
Barton ACT 2600
GPO Box 1428
Canberra City ACT 2600
Telephone 02 6240 3200

Melbourne Office

Telephone 03 9653 2100
www.pc.gov.au

19 December 2018

The Hon Josh Frydenberg MP
Treasurer
Parliament House
CANBERRA ACT 2600

Dear Treasurer

In accordance with section 11 of the *Productivity Commission Act 1998*, we have pleasure in submitting to you the Commission's final report into *Murray-Darling Basin Plan: Five-year assessment*.

The Commission is to report on the matter of the effectiveness of the implementation of the Basin Plan and the water resource plans for the five-year period ending 31 December 2018, in accordance with Part 3 of the *Water Act 2007*.

We note that, on Friday 14 December 2018, the Murray-Darling Basin Ministerial Council made a number of decisions, including those relating to:

- allowing for delays in the accreditation of Water Resource Plans
- funding arrangements for stage one of supply measures projects
- progressing a work program for constraints easing projects
- funding for project feasibility assessments for the Northern Basin Toolkit
- developing efficiency measures projects, including criteria for a socioeconomic neutrality test that would apply to all projects
- addressing water deliverability challenges in the River Murray
- appointing a standing Aboriginal member of the Murray-Darling Basin Authority.

These decisions were taken after the Commission had finalised its report. They are related to many of the key issues for the next phase of the implementation of the Plan that are the subject of recommendations in the Commission's Final Report.

After consideration of the Ministerial Council's communique, the recommendations set out in this report remain pertinent to the successful implementation of the Basin Plan.

Yours sincerely

Dr Jane Doolan
Commissioner

John Madden
Associate Commissioner

Terms of reference

I, Scott Morrison, Treasurer, pursuant to Parts 2 and 3 of the *Productivity Commission Act 1998*, hereby request that the Productivity Commission (the Commission) undertake an Inquiry into the effectiveness of the implementation of the Basin Plan and water resource plans.

Background

The Basin Plan provides for the integrated management of water resources of the Murray-Darling Basin in ways that promote the objects of the *Water Act 2007 (Cth)* (Water Act), including the objective of optimising social, economic and environmental outcomes.

Under section 87 of the Water Act the Commission is required to undertake five-yearly assessments of the effectiveness of the implementation of the Basin Plan and water resource plans. This inquiry is the first such assessment.

Scope of the inquiry

In accordance with the provisions of Part 3 of the Water Act, the Commission is to report on the matter of the effectiveness of the implementation of the Basin Plan and the water resource plans for the five year period ending 31 December 2018.

In undertaking the Inquiry, the Commission should assess:

- progress towards implementing the actions required under the Plan within legislated timeframes, including:
 - the extent to which stated water recovery and other targets are on track to be delivered within statutory timeframes; and
 - the likelihood that activities and arrangements now in place will ensure that these targets and timeframes will be met.
- the extent to which the current framework for implementing the Basin Plan, including the framework for monitoring, compliance, reporting and evaluation, is likely to be sufficient:
 - to support delivery of the objectives and outcomes identified in Chapter 5 of the Basin Plan, acknowledging that the Basin Plan is not yet fully implemented and that many of the outcomes will only be observable over a longer timeframe;
 - to enable assessment of risks and risk mitigation requirements and provisions associated with Basin Plan implementation; and
 - to enable an assessment of progress in meeting the Plan's objectives and outcomes under the next scheduled review of the Basin Plan in 2026.

In assessing progress towards Basin Plan implementation, the Commission should report on progress towards milestones agreed in the Murray-Darling Basin Ministerial Council's report to

the Council of Australian Governments, *Implementing the Basin Plan*. Specifically, the Commission should focus on progress towards a pathway for three key priorities including:

- supply measures to offset the Basin Plan water recovery target of 2,750 GL by 2019, using the Sustainable Diversion Limit (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.

In undertaking this assessment, the Commission should have regard to the *Intergovernmental Agreement on Implementing Water Reform in the Murray Darling Basin (2013)*, and the *Basin Plan Implementation Agreement* between the Murray-Darling Basin Authority (MDBA), Basin states and the Commonwealth Environmental Water Holder (CEWH).

In undertaking this assessment, the Commission should also have regard to reviews and audits that have recently been completed or are ongoing, including those relating to compliance and Basin Plan implementation.

The Commission should also have regard to the differing responsibilities of the Basin states and the Australian Capital Territory, the Department of Agriculture and Water Resources (DAWR), the CEWH and the MDBA.

The Commission should assess progress towards full implementation in the context of the differing timeframes applicable to each key component of the Basin Plan. This includes an assessment of the extent to which Commonwealth and state-led water recovery efforts and state water resource plans are on track for when SDLs take effect from 1 July 2019.

The Commission should make findings on progress to date and recommendations on any actions required by the Commonwealth or Basin state or territory to ensure the timely implementation of Basin Plan requirements and the effective achievement of Basin Plan outcomes.

Process

In undertaking the inquiry, the Commission should consult widely including establishing a stakeholder working group in accordance with section 89 of the Water Act, inviting public submissions, holding public hearings, and releasing a draft report to the public. The Commission should consult with relevant Australian Government, Basin state and territory government agencies, key interest groups and affected parties. These consultations should include, but not be limited to, parties with interests in agriculture, industry and the environment, and Aboriginal groups. The Government has asked Basin jurisdictions to co-operate with this Inquiry, including by providing the Commission with the information it considers necessary in undertaking its Inquiry.

The final report is to be provided to the Government by 31 December 2018.

Scott Morrison
Treasurer

[Received 7 March 2018]

Disclosure of interests

The *Productivity Commission Act 1998* specifies that where Commissioners have or acquire interests, pecuniary or otherwise, that could conflict with the proper performance of their functions during an inquiry they must disclose the interests.

Dr Jane Doolan has advised the Commission that she is:

- Deputy Chair, Western Water
- Independent Chair, Yarra Consultative Committee.

Acknowledgments

The Commission has used a range of information sources in preparing this report. The Commission is grateful for the contributions made by stakeholders through their submissions and comments, and their participation in public forums, meetings and hearings. The Commission also thanks the Stakeholder Working Group (members are listed in appendix A) for their participation.

The Commission requested information from the Murray-Darling Basin Authority, the Australian Department of Agriculture and Water Resources, and the Basin States. The Commission thanks them for providing this information and for their broader participation in the inquiry.

The Commissioners express their appreciation to the staff who worked on the inquiry report and underlying analysis.

The Inquiry team was led by Dr John Salerian. The Inquiry team included Jack Knowles, Paul Loke, Lisa Leong, Mark Bryant, Matthew Hyde, Bronwyn Fisher, Sally Harvey, Lisa Tarzia, David Marshall, Timothy Hewett and Josh Lipp.

Contents

Terms of reference	iv
Disclosure of interests	vi
Acknowledgments	vi
Abbreviations	viii
Key points	2
Overview	3
1 The Basin Plan and the Commission's approach to assessing implementation	3
2 Key elements to implementing the Basin Plan	5
3 Is implementation on track?	9
4 The way forward	15
5 Implementation of adjustment measures needs to be improved	16
6 Three other elements require urgent improvement	25
7 Institutional and governance arrangements need reform	27
8 The potential costs of inaction are massive	31
Findings and recommendations	35

The full report is available from www.pc.gov.au

Abbreviations

ACCC	Australian Competition and Consumer Commission
ANAO	Australian National Audit Office
ANZECC	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
BDL	Baseline Diversion Limit
BOC	Basin Officials Committee
BPIA	Basin Plan Implementation Agreement
BWEWS	Basin-wide environmental watering strategy
CEWH	Commonwealth Environmental Water Holder
CEWO	Commonwealth Environmental Water Office
CHWN	Critical human water needs
COAG	Council of Australian Governments
COFFIE	Commonwealth On-Farm Further Irrigation Efficiency
DAWR	Department of Agriculture and Water Resources (Australian Government)
DEE	Department of the Environment and Energy (Australian Government)
FTE	full-time equivalent
GL	Gigalitre
GMID	Goulburn-Murray Irrigation District
IAC	Independent Assurance Committee
IGA	Intergovernmental Agreement
LTAAY	Long-term average annual yield
LTIM	Long-term intervention monitoring
LTWP	Long-term watering plan
MDB	Murray-Darling Basin
MDBA	Murray-Darling Basin Authority
ML	Megalitre
MLDRIN	Murray Lower Darling Rivers Indigenous Nations
NBAN	Northern Basin Aboriginal Nations

NBR	Northern Basin Review
NPA	National Partnership Agreement
NRAR	Natural Resources Access Regulator (New South Wales)
NRM	Natural resource management
NWI	National Water Initiative
OECD	Organisation of Economic Co-operation and Development
OEH	Office of Environment and Heritage (New South Wales)
PC	Productivity Commission
PPM	Pre-requisite policy measure
SARMS	South Australia River Murray Sustainability
SCBEWC	Southern Connected Basin Environmental Watering Committee
SDL	Sustainable Diversion Limit
TLM	The Living Murray
TDL	Transitional Diversion Limit
WESA	Water for the Environment Special Account
WQM plan	Water Quality Management Plan
WRP	Water Resource Plan

OVERVIEW

Key points

- The 2012 Basin Plan is a \$13 billion reform to reset the balance between environmental and consumptive use of water and to establish a new sustainable water management system.
- Significant progress has been made.
 - About 20 percent of the water that was available for consumptive users a decade ago is now dedicated to the environment. About \$6.7 billion has been spent to recover about 2000 gigalitres (GL). Water recovery is within five per cent of the July 2019 target.
 - The arrangements for managing environmental water are working well, with evidence of improved ecological outcomes at the local and system scale.
- There is still \$4.5 billion to be spent and the next phase is challenging.
- The package of supply measures to achieve equivalent environmental outcomes using 605 GL less water recovery is highly ambitious. Failure of key projects would delay environmental benefits and could cost taxpayers about half a billion dollars for further water recovery.
 - To manage the risks, Basin Governments need sound governance arrangements for integrated delivery. Before implementation, projects need to be independently reviewed to give confidence that they will deliver the predicted environmental outcomes and offer value for money. For some key projects, realistic implementation timeframes are likely to extend beyond 2024.
- The Australian Government's program to achieve enhanced environmental outcomes with an extra 450 GL of water recovery through efficiency measures needs to be adaptive to new information. These outcomes are at risk as key program assumptions have changed.
 - The Murray-Darling Basin Authority (MDBA) should update its modelling to reflect current information. The Australian Government should recover water in line with the ability to use it effectively. The 2021 legislated review of the budget appropriation for efficiency measures should be used to check the likely environmental benefits and the cost of achieving them.
- The development and accreditation of Water Resource Plans is behind schedule. Basin Governments should agree to extend the 2019 deadline for those plans where complex changes are required and there is a material risk to the quality of the plans.
- The MDBA should substantially revise the Basin Plan Evaluation Framework and Governments should develop a monitoring strategy. This will enable the impacts of the Plan to be effectively evaluated in 2020 and 2025, and provide information for the review of the Plan in 2026.
- The complex challenges ahead have been made more difficult because of the way Basin Governments have approached the implementation of the Plan.
 - The process has lacked transparency and candour with stakeholders.
 - It has been unclear who is responsible and accountable for leading implementation.
- In the Commission's view, the significant risks to implementation cannot be managed effectively under current institutional and governance arrangements. Reform is required.
- Basin Governments (not the MDBA) should take responsibility for leading implementation.
 - The Basin Officials Committee should be assigned responsibility for managing the significant risks to successful implementation, including the supply measures.
 - The MDBA has conflicting roles. It supports Basin Governments (as their agent) to implement the Plan and is also required to ensure compliance with the Plan. These conflicts will intensify in the next five years. The MDBA should be split into two separate institutions — the Murray-Darling Basin Agency and the Basin Plan Regulator.
- With negotiations largely settled, Basin Governments must make important changes now to ensure effective implementation. Failing to act will be costly for the environment and taxpayers, and undermine confidence that the Basin Plan has been worthwhile.

Overview

1 The Basin Plan and the Commission's approach to assessing implementation

The Basin Plan is a step change in the management of the Murray-Darling Basin (the Basin) (box 1). It is part of a comprehensive effort by the Australian and Basin State Governments¹ to reset the balance between environmental and consumptive use of water across the Basin and to establish a long-term sustainable water management system.

The development of the Basin Plan was a lengthy and contested process, involving negotiation and compromise before it was finalised and became law in November 2012. Making the Plan involved a series of substantial trade-offs between balancing the environmental benefits across the Basin and the socioeconomic impacts on industries and regional communities of a permanent reduction in water available for irrigation.

Basin Governments² are to have largely established the new management arrangements required by the Plan by 30 June 2019. The activities to reset the balance between the environment and consumptive uses are to be fully implemented by 30 June 2024.

The Productivity Commission has responsibility for assessing the effectiveness of the implementation of the Basin Plan and associated Water Resource Plans (WRPs) every five years. This function was included in the *Water Act 2007* (Cwlth) to ensure there was a regular independent review. This type of comprehensive review is critical to ensure public confidence in the implementation of the Basin Plan.

The Commission's approach to assessing implementation

The recurring nature of the Productivity Commission's role for assessing the implementation of the Basin Plan and associated WRPs means that this review is different from the typical Productivity Commission inquiry.

For this assessment, the Commission has looked at:

- how the actions of Governments to implement the Basin Plan are tracking against the set timeframes
- the extent to which management arrangements will deliver on the objectives of the Plan and enable its impacts and outcomes to be evaluated

¹ The Basin States are New South Wales, Victoria, Queensland, South Australia, and the Australian Capital Territory.

² Basin Governments are the Australian Government and the Governments of each Basin State.

-
- whether actions to implement the Plan have been effective and efficient
 - the institutional and governance arrangements for implementation.

Box 1 **The Murray-Darling Basin and the Basin Plan**

The Murray-Darling Basin

The Basin covers over 1 million square kilometres, including large areas of New South Wales and Victoria, the whole of the ACT, and parts of Queensland and South Australia. The Basin and its water resources support:

- the cultural, social, environmental, spiritual and economic needs of more than 40 Indigenous Nations whose traditional lands fall within the Basin
- over 30 000 wetlands, 100 of which are recognised as nationally important due to environmental, heritage or cultural significance
- about 41 per cent of the total gross value of Australia's agricultural production, including 46 per cent (\$7 billion) of the gross value of national irrigated agriculture
- the supply of drinking water for approximately 2.1 million people who reside within it, as well as a further 1.3 million people outside of the Basin.

The Basin Plan

The 2012 Basin Plan is the legal framework to reset the balance of water use in the Basin. It sets environmental and other objectives for the Basin and establishes new, lower sustainable extraction limits to achieve them. It also outlines the key actions, processes and timeframes that Governments are to adopt to implement the Plan. The Plan has several elements (section 2).

Funding

The Australian Government earmarked \$13 billion to implement the Plan, including:

- \$3.1 billion to purchase water entitlements for the environment. \$2.7 billion of this has been spent to recover 1227 gigalitres (GL).
- \$4.8 billion for investment in modernised water infrastructure, with \$3.9 billion spent. Of this, \$2.8 billion has been invested in projects that delivered 677 GL of water savings to the environment.
- \$1.3 billion for supply measures, of which \$34 million has been spent on developing projects.
- \$1.8 billion to recover an additional 450 GL to pursue enhanced environmental outcomes, of which \$14 million has been spent.
- \$2.0 billion for other programs and activities, with \$1.9 billion spent.

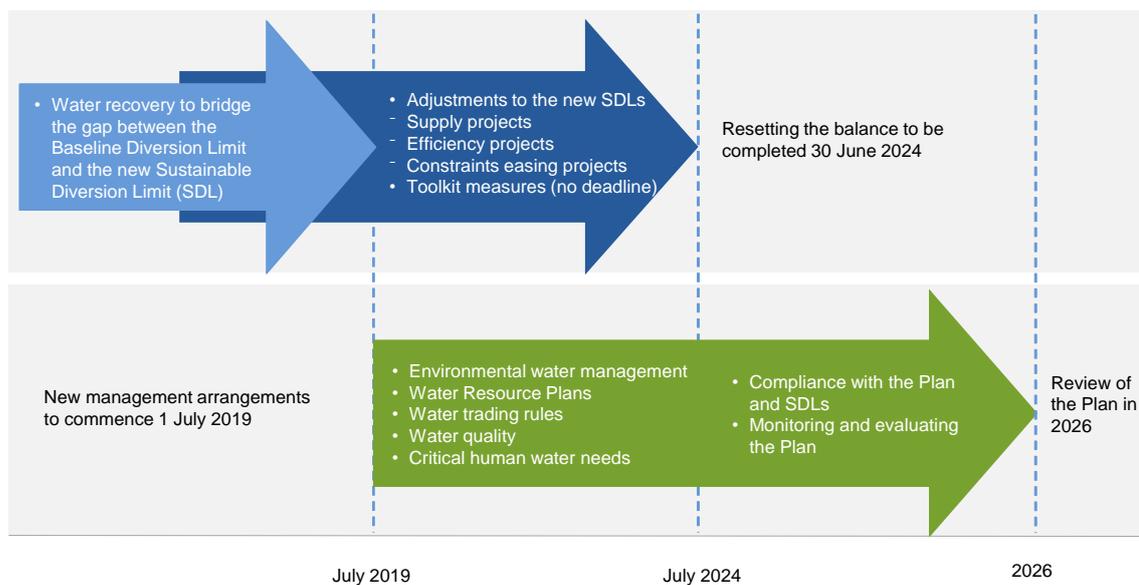
Almost \$8.5 billion has been spent, and \$4.5 billion is still to be spent by 2024.

The Commission's task in this review does not extend to examining the processes for setting the sustainable balance and associated targets in the Plan or measuring the impacts and outcomes of the Plan. However, it does examine the preparedness of Basin Governments and their institutions to effectively undertake these activities in the future.

2 Key elements to implementing the Basin Plan

The Basin Plan sets out a number of key elements that are required for implementation. Other elements, while not specified in the Plan (such as water recovery programs) are also necessary for successful implementation. The key elements of the Plan and their timing are outlined in figure 1.

Figure 1 Elements to implement the Basin Plan



Resetting the balance by 2024

Sustainable Diversion Limits (SDLs) are a core element of the Plan. They define how much water can be taken from rivers and groundwater for urban water supply, irrigation and other economic activities, and household use (consumptive uses). The remainder is dedicated to the environment to achieve the environmental outcomes outlined in the Plan. To bridge the gap between the historical extraction (baseline diversion limits) and the new SDLs, water is being recovered from consumptive use.

The initial SDLs in the Basin Plan required recovery of 2750 gigalitres (GL) from consumptive use by 30 June 2019. To achieve this, the Australian Government committed \$8 billion to purchasing water entitlements directly and to investing in irrigation infrastructure.

The Plan allows for SDLs (and water recovery targets) to be adjusted under certain circumstances, prior to them taking effect on 1 July 2019. In the northern Basin, these adjustments are to account for new information. In the southern Basin, SDLs can be changed by projects that achieve equivalent environmental outcomes with less water (supply and constraints easing measures) and through projects that aim to achieve enhanced

environmental outcomes through the recovery of additional water for the environment (efficiency and constraints easing measures) (box 2).

Box 2 **Adjustments to Sustainable Diversion Limits (SDLs)**

SDL adjustment mechanism

In the southern Basin, the Plan allows for adjustments to surface water SDLs through:

- **supply measures**, which allow for achievement of equivalent environmental outcomes with a lesser volume of water. Examples include using pumping stations, regulators and levees to deliver water to lakes and floodplains without creating overbank flooding
- **constraints easing**, to overcome some of the impediments to delivery of water down the system. They can include changes to physical features such as crossings and bridges, as well as negotiating easements where private land is flooded
- **efficiency measures**, to achieve enhanced environmental outcomes above those achievable with 2750 GL by recovering an additional 450 GL for the environment with neutral or improved socioeconomic outcomes. Examples of these projects include works to reduce on-farm water losses from irrigation, with a share of the water savings provided to the Australian Government as entitlements. The enhanced environmental outcomes are in the southern Basin, and are achieved by watering larger areas of floodplains, higher stream flows, and meeting specific objectives for the Coorong, Lower Lakes and Murray Mouth in South Australia. Delivering all these enhanced environmental outcomes is also dependent on easing water delivery constraints.

The Basin Plan limits the total amount by which SDLs can be adjusted. The Basin-wide long-term average SDL can be adjusted up or down by a maximum of five per cent of the 2012 SDL (approximately 543 GL). As the supply measures (605 GL) exceed this limit, further water recovery through efficiency measures is required (62 GL).

Northern Basin Review

When the Plan was developed, the Murray-Darling Basin Authority (MDBA) recognised that it required additional information to inform the setting of the SDLs in the northern Basin. As a result, Governments agreed that the MDBA would undertake a review into the northern Basin, which was completed in November 2016.

The key recommendation arising from this review was to reduce the water recovery target in the northern Basin from 390 GL to 320 GL on the provision that the Australian, Queensland and New South Wales Governments implement Toolkit measures to ensure effective management of environmental water in the north. These measures aim to target water recovery, protect environmental flows, improve the coordination and delivery of environmental water, ease constraints to environmental water delivery in the Gwydir River and construct works to improve fish passage.

The aim of supply measures was to test whether environmental outcomes could be achieved with less water, thereby reducing the socioeconomic impacts of water recovery on communities in the Basin. The inclusion of efficiency measures in the southern Basin reflects the opportunity to improve environmental outcomes (particularly in the Lower Murray) by recovering additional water for the environment.

A package of supply measures (including measures to ease constraints) equivalent to 605 GL in water recovery has been approved and Governments are required to implement these by 30 June 2024. If this is not achieved, Governments will most likely need to make up the shortfall with further water recovery.

Basin Governments are required to notify the Murray-Darling Basin Authority (MDBA) of the volume of water recovered through efficiency measures by the end of 2023. All recovered water is to be transferred to the Commonwealth Environmental Water Holder (CEWH) by 30 June 2024.

Following the Northern Basin Review, the MDBA recommended decreasing the water recovery target by 70 GL on the proviso that Basin Governments agree to implement Toolkit measures. However, unlike supply measures, Governments are not subject to the same checks and balances to incentivise them to implement the Toolkit.

In 2018, the Australian Government (with the agreement of the Australian Parliament) made two amendments to the Basin Plan that incorporated the adjustments to SDLs from the agreed supply measures and the Northern Basin Review. These adjustments reduced the surface water recovery target from 2750 GL to 2075 GL. The net adjustment to SDLs from supply and efficiency measures cannot be more than plus or minus 5 per cent. This means 62 GL must also be recovered through efficiency measures to give full effect to the supply measure adjustment (box 2).

New management arrangements are to be in place by 1 July 2019

Implementing the Basin Plan also involves establishing a new and ongoing management framework, which includes the following:

- **environmental water management** activities, whereby environmental water holders work together to deploy water to achieve the environmental objectives
- Basin States embedding the Plan (in particular SDLs) into their normal water planning and management processes through **WRPs**, which are assessed by the MDBA and accredited by the Australian Minister for Water. WRPs also include specific provisions relating to **water quality** and **critical human water needs**
- measures to establish consistent Basin-wide **water trading rules** for the trading and transfer of surface water and groundwater access rights, irrigation rights and water delivery rights, as well as consideration of third party impacts of trading and provision of information to improve the operation of the market

-
- a role for the MDBA to enforce **compliance** with the Basin Plan, noting that Basin States are to enforce compliance with their water take laws
 - a whole-of-Basin framework for **monitoring and evaluating** the impact and effectiveness of the Basin Plan, which includes public reporting requirements.

Institutional arrangements for implementing the Plan

The Basin Plan is an instrument of the Australian Parliament, and Basin Governments have committed to implement the Plan through intergovernmental agreements.

The Australian Government has responsibility for water recovery programs and the management of this water (by the CEWH) for environmental purposes.

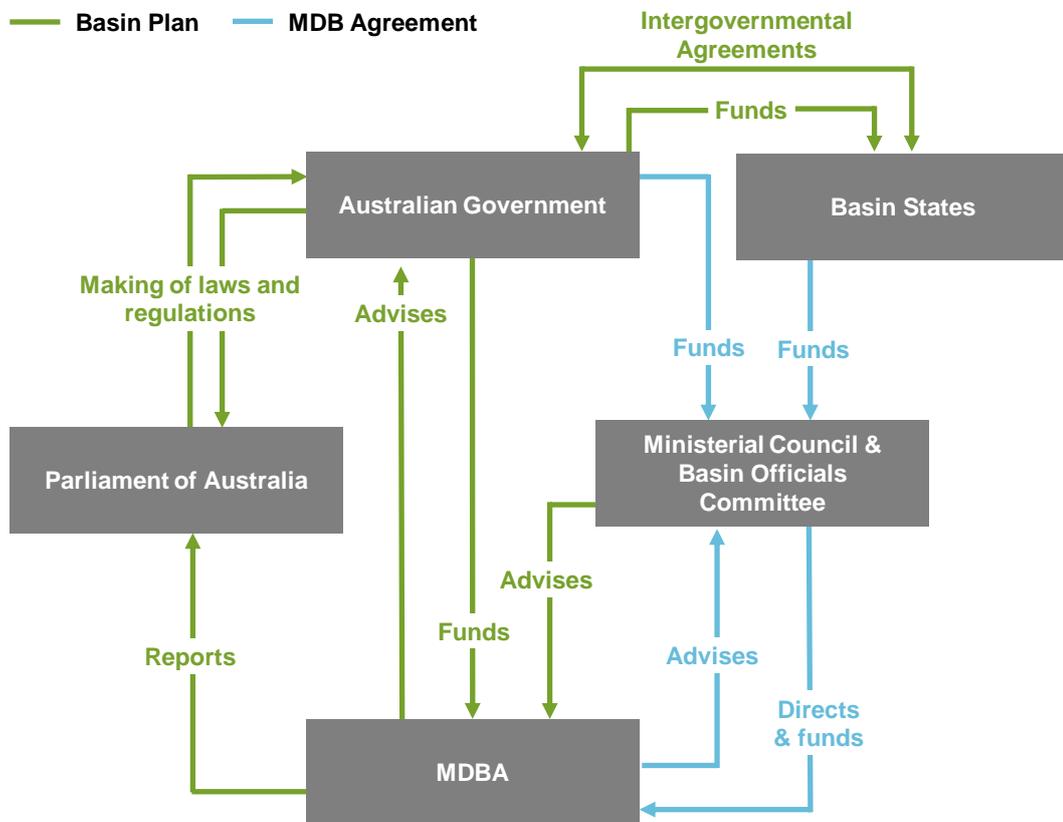
Constitutional responsibility for water resource management in the Basin resides with the Basin States. It is their role to ensure that their own State-based arrangements reflect and are consistent with the Basin Plan.

Basin Governments agreed that the MDBA (an independent Australian Government Corporate Commonwealth Entity) would be responsible for preparing and implementing the Plan, enforcing compliance with it, and monitoring and evaluating the outcomes.

The institutional arrangements agreed by Basin Governments for the Basin Plan were superimposed on long-standing settings, including those of the Murray-Darling Basin (MDB) Agreement (figure 2).

This means that the MDBA has roles in addition to those set out in the Basin Plan. In shared and highly connected systems (such as the River Murray) the MDBA is an agent of Basin Governments. It delivers State-based responsibilities on their behalf — such as those for resource management and river operations. For these functions, it is funded and directed by Basin Governments (through the Basin Officials Committee (BOC)).

Figure 2 **Current institutional settings and relationships**



Sources: Basin Plan 2012 (Cwlth); *Water Act 2007* (Cwlth).

3 Is implementation on track?

Significant progress has been made

Basin Governments have made significant practical progress in implementing key elements of the Plan. Almost 20 per cent of the water that was available a decade ago for consumptive uses such as irrigated agriculture is now dedicated to the environment and arrangements for managing this water are in place.

Water recovery to meet the SDLs is largely complete

Basin Governments have delivered about 2000 GL of water to environmental water holders.

By 1 July 2019, the Australian Government needs to recover 2137 GL of surface water, comprising:

- 2075 GL, the adjusted Basin-wide surface water target³
- 62 GL through efficiency measures, to ensure adjustments to the SDLs comply with the 5 per cent limit.⁴

The Basin-wide water recovery target comprises local targets and shared targets (for connected water resources). Some local targets have not yet been met. The outstanding recovery tasks to meet the July 2019 target include:

- about 30 GL to finish recovery against local water recovery targets
- about 60 GL of water that still needs to be recovered through the efficiency measures program.⁵

For surface water, the 90 GL outstanding gap is less than five per cent of the July 2019 target of 2137 GL.

The Department of Agriculture and Water Resources (DAWR) expects that a further 120 GL will be *delivered by 30 June 2019. At the headline level, the 2019 water recovery task appears* all but complete, even though more still needs to be done.

When completed, it is possible that water recovery may exceed the targets established by SDLs, with over-recovery in some surface water areas. Although this cannot be determined until key technical work is finalised, there is not yet a process in place to calculate and address any over-recovery.

For groundwater, 40.4 GL needs to be recovered to meet the targets. While a further 37.7 GL needs to be delivered to finalise this task, arrangements are in place to meet this target by July 2019.

New management arrangements have been established for a number of elements

Basin Governments have put in place the key foundations of the Basin Plan's new management arrangements. Some are working well.

- For communities that rely on the River Murray, new rules for providing critical human water needs (including drinking water for cities and towns and stock water) have been established, with stakeholders expressing confidence that these rules will ensure these needs can be met in extremely dry times.

³ The original 2750 GL water recovery target to bridge the gap is now 2075 GL, after the target was revised down by 605 GL (following the notification of a supply measure offset) and by 70 GL (following the Northern Basin Review).

⁴ The Basin Plan limits the total change in the SDLs from the SDL adjustment mechanism to 5 per cent of the Basin-wide SDL (in 2012) of 10 873 GL (about 543 GL). As the 605 GL increase in the SDLs from supply measures exceeds that limit, 62 GL must also be recovered through efficiency measures to decrease the SDL and keep the net change within the 5 per cent limit when the SDLs enter into force on 1 July 2019.

⁵ About 1.9 GL of efficiency measures is currently under contract.

-
- Basin Plan salinity targets are integrated into the Basin salinity management framework and have been consistently met for most areas.
 - Basin States have improved their formal processes for engagement with Traditional Owners as part of WRP development; in particular, they are taking a nation-by-nation approach to consultation. Government efforts to support effective local-level consultation processes are likely to generate ongoing benefits where this consultation leads to long-term partnerships between Traditional Owners and local water managers.

New requirements to improve water market information and market confidence (such as protocols to manage market sensitive information) are in place. The Basin Plan trading rules also include a mechanism to validate or remove restrictions on trade. Although this mechanism has not yet been extensively applied, it has the potential to improve the efficiency of water markets.

The MDBA's role for ensuring **compliance with the Basin Plan** (including compliance with SDLs and WRPs) comes into full effect once WRPs are accredited. In 2017, major reviews of compliance were triggered by media reports of compliance and enforcement failures. Basin States have committed to strengthening water take compliance regimes. The MDBA has also reformed its regulatory approach, including establishing an Office of Compliance. This is a step forward in establishing its capability as a regulator.

There has been substantial progress to establish the arrangements to plan for and manage environmental water under the Environmental Management Framework set out in the Basin Plan. These arrangements have widespread support. Over 750 environmental watering events have occurred over the past five years, targeted at specific environmental outcomes linked to the long-term objectives of the Plan. There is already some evidence of improved ecological outcomes at the local and system scale. Key foundations for enabling this progress have been:

- Basin Government institutions that are focused, and have clear roles and responsibilities
- effective partnerships between Commonwealth and Basin State environmental water holders and environmental asset managers, based on shared objectives, with agreed principles for how governments will work together to achieve on-ground outcomes
- collaborative planning processes that result in clearly articulated targets and priorities, which provide strategic direction for implementation.

But for other elements there is still significant work to do

Resetting the balance through supply, efficiency and Toolkit measures

Resetting the balance between consumptive uses and the environment will only be finalised once **supply measures** are fully operational (these are scheduled to be completed in 2024) and the volume of water recovered through efficiency measures is known.

The supply package relies heavily on some projects that are still in the early stage of development. The 2024 timeframe for these projects is ambitious, and most likely

unrealistic. History has shown that these types of projects are complex, interdependent, require extensive consultation and take many years to implement. The timeframe for implementation has been compressed due to delays in developing and agreeing to the projects. At this stage, Basin Governments have not yet settled key governance arrangements for these projects, including the allocation of responsibilities, risk sharing and funding. Projects cannot commence until these issues are resolved, placing further pressure on the timeline. DAWR has provided little public information about how its funding approval processes will ensure that fully scoped projects will deliver the predicted environmental benefits and offer value for money.

There has been limited progress in implementing **efficiency measures**. Pilot water recovery programs have so far delivered less than 0.5 GL to the CEWH, and the current program risks recovering water in the northern Basin that is unlikely to be useful for achieving the enhanced environmental outcomes in the southern Basin. Key assumptions made in 2012 about the expected environmental improvements from recovering more water (and the costs of doing so) have changed. There is also ongoing debate about the requirement that these measures achieve neutral or improved socioeconomic outcomes, and this has further delayed progress.

The adjustment to SDLs arising from the MDBA's Northern Basin Review was on the provision that the Australian, Queensland and New South Wales Governments implement **Toolkit measures** to ensure effective management of environmental water in the north. Basin Governments are still to settle the details for implementation, including key milestones, funding arrangements and program governance.

Settling the remaining new management arrangements

The development and accreditation of **WRPs** is well behind schedule. Of the 33 WRPs that must undergo accreditation, 12 are in the early stages, 17 are in draft form, three are in the accreditation process and one has accreditation. Given the remaining workload, there is a significant risk that some WRPs will either not be accredited by 30 June 2019 or rushed through, compromising quality. This risk is greatest for WRPs in New South Wales.

The objectives of the Basin Plan are based on an assumption that Basin States will implement river operation and water accounting policies (known as **pre-requisite policy measures** (PPMs)) to enable the efficient use of environmental water in the southern Basin. The MDBA has accredited PPM implementation plans, and Basin States and the MDBA have conducted PPM pilot projects and trials. However, some of these arrangements are yet to be formalised and the pathway for doing so is not clear.

The MDBA is responsible for **evaluating** the outcomes of the Plan. More work needs to be done to improve the Basin-wide evaluation framework and provide clear direction for the collection of information required to monitor outcomes. While some work to revise the existing framework has commenced, the process for this (including how the views of stakeholders will be considered) is not yet clear. There is little evidence that any preparatory work for the 2026 Review of the Plan has commenced.

... and the community is concerned about the road ahead

Deficiencies in the way that Governments have approached implementation of the Plan have caused considerable concern in many Basin communities. This has left a legacy of community distrust, which the Commission considers is a risk to effectively implementing the next phase of the Plan.

In some WRP Areas, significant rule changes may be needed to meet Basin Plan requirements. Stakeholders are justifiably concerned that if WRPs are rushed to meet the accreditation deadline, changes could affect the reliability of their entitlements or not sufficiently protect environmental water. They are concerned that there is not enough time left to properly examine and test the proposed changes before they become law.

Many communities are increasingly sensitive to the socioeconomic impacts of the Plan. They are concerned about the impacts of water recovery observed to date and are increasingly apprehensive about the potential impacts of further water recovery, including the additional 450 GL to be acquired through efficiency measures.

There is considerable support for the agreed package of supply measures because it avoids the need for more water recovery. However, the community is increasingly divided about the approach to implementing these projects. Some stakeholders are concerned that implementation will impinge on their land or water property rights. And some are concerned that the equivalent environmental outcomes envisaged from these projects cannot be achieved, or that their local environmental values will be compromised to achieve broader Basin Plan objectives.

An overwhelming number of participants in the inquiry indicated that stakeholder confidence has been further diminished by concerns that some Basin States had substantial deficiencies in enforcement of their water take laws. An unwillingness to demonstrate that water acquired for the environment can be protected from extraction further downstream, and allegations of fraud in water recovery programs have compounded these concerns and left stakeholders sceptical of the motivations of Basin Governments.

There is a widely held view in the community that Governments have failed to provide clear and decisive direction-setting leadership. Communities are uncertain about who is responsible, and this has made it difficult for them to navigate the institutional landscape for implementing the Plan. Much of the community concern is driven by the way Basin Governments have sought to negotiate and navigate their way through issues. Consultation has been inconsistent and inadequate, and the community has often had little sense that decision makers have listened to their concerns. Governments' approach has regularly lacked transparency and candour.

Summary of progress

A summary of progress is in table 1.

Table 1 Summary of progress in implementing the Basin Plan

<i>Element</i>	<i>On schedule</i>	<i>Risk to meeting its objectives</i>	<i>Nature of risks</i>
Resetting the balance			
Water recovery	x	Low	The 2019 target is unlikely to be met. However the consequences are minor as the gap is less than five per cent of the target.
Supply measures	x	High	Compressed timelines for implementation, with a range of issues to resolve. 2024 deadline is highly ambitious, if not unrealistic for some projects. As individual projects are further developed there is no transparent process for assessing whether the project is worthwhile and provides value for money. Risk to budget is hundreds of millions of dollars.
Efficiency measures	x	High	The design of the efficiency measures program is contested. Enhanced environmental outcomes from additional water recovery are unknown as key assumptions (including dependence on easing constraints) have changed. Material risk that costs are significantly larger than anticipated.
Northern Basin Toolkit	n/a	Medium	No firm deadlines for implementation. Not subject to the same checks and balances as supply measures (such as oversight by the MDBA).
New management arrangements			
Water Resource Plans (WRPs)	x	Medium	Behind schedule. Complex issues in some WRPs yet to be resolved.
Critical human water needs	x	Low	River Murray arrangements robust. WRP provisions for other areas behind schedule.
Water quality	x	Low	Salinity targets largely being met. WRP provisions behind schedule.
Water trading rules	✓	Low	
Environmental water planning and management (including pre-requisite policy measures)	✓	Medium	Failure to implement pre-requisite policy measures is a low likelihood, but high consequence risk. Other risks associated with environmental water planning and management are low.
Reporting, monitoring, evaluation	x	Medium	There is scope to improve the evaluation framework and there is no clear monitoring strategy to give effect to the evaluation framework for the Plan.
Compliance	ongoing	Low	

Note: A tick for 'on schedule' means the element is progressing in line with agreed timelines. The level of risk assigned reflects the risk to achieving the objectives of the element, after taking into account actions to manage the risk. For example, while water take compliance is fundamental to achieving the outcomes of the Plan, Basin Governments have agreed on substantial changes that, when implemented, will provide greater confidence and assurance of compliance with water take rules.

4 The way forward

Basin Governments are transitioning to a complex phase of implementation as they finalise the task of resetting the balance through supply and efficiency measures, integrate the Plan into their normal water resource management (including shared resources) through WRPs and substantially improve the arrangements for evaluating the impacts of the Plan.

The task ahead is challenging in its own right, and made more difficult by the degree of community concern about the next phase of implementation.

Of the \$13 billion earmarked for reform, \$4.5 billion remains. It is critical that it is spent effectively.

To rebuild confidence, Basin Governments need to focus on the fundamentals of good governance

The settings of the Plan are now largely settled. Key amendments to the Plan have been passed and Basin Governments have agreed to address compliance concerns. Now is the time for Basin Governments to shift their approach, openly acknowledge the issues for the next phase of implementation, and work together to implement the agreed Plan.

The best way for Basin Governments to successfully navigate the challenges ahead and to help rebuild confidence in the Plan, is to ensure the fundamentals of good governance and management are in place. This means:

- there is clarity about roles and responsibilities, with responsibility given to institutions that can best achieve the outcomes in the long term
- there are effective processes for collaboration on implementation, with all parties having a genuine commitment to shared goals and co-operative working arrangements
- there is transparency and clear accountability for decisions and actions, and the costs and benefits of decisions are clearly articulated
- there are community engagement processes that provide stakeholders with information, analysis and time to enable them to meaningfully contribute, and sufficient time to enable their issues and concerns to be understood and properly considered by decision makers
- there are adequate reporting, monitoring, evaluation and review processes in place for individual programs and the Plan as a whole, to provide the information and opportunity to review decisions in the light of experience.

These are the principles the Commission has used when making its recommendations.

Action is required for successful implementation

To finalise the task of achieving the adjusted SDLs, Governments need to take steps to:

- ensure that supply measures (including lifting constraints) deliver the expected equivalent environmental outcomes and offer the Australian taxpayer value for money
- recover water through efficiency measures in a way that delivers the enhanced environmental outcomes set out in Schedule 5 of the Plan
- implement the **Northern Basin Toolkit** to support effective management of environmental water in the northern Basin.

Given approaching deadlines, priority attention is required to finalise the establishment of new management arrangements. Basin Governments need to:

- finalise **WRPs**, which in some cases will take more time to resolve complex changes to State water resource planning instruments
- complete the implementation of **pre-requisite policy measures** to support the efficient use of environmental water in the southern Basin
- address shortcomings in the framework for evaluating the impacts of the Plan, to enable informed judgements to be made about the extent to which the Plan is meeting its objectives and to provide information for the review of the Plan in 2026.

Governance and leadership are important across all elements of Basin Plan implementation and the arrangements need reform for successful implementation. The Plan is a joint responsibility of Basin Governments and they need to work together to implement it. Collaboration is a key issue for delivery of the supply, efficiency and Toolkit measures. A priority for Basin Governments should be to establish clear roles and responsibilities and transparent processes for implementation. Clear roles and responsibilities support accountability for decision making. Accountability is further enhanced when a strong and independent regulator calls out Governments when they fall short.

Going forward, it is important that the adaptive management ethos in the Plan is translated into a genuine focus on continuous improvement across all elements. Effective arrangements for reporting, monitoring and evaluation are required to underpin this focus.

5 Implementation of adjustment measures needs to be improved

Supply measures require integrated management and a robust review process

The package of agreed supply measures is potentially more cost-effective than recovering 605 GL of water entitlements to achieve the environmental outcomes. Successful

implementation could save Basin Governments and taxpayers large sums of money by avoiding further water recovery, which is a concern for many communities. These measures could also provide additional benefits to improve the long-term health of the Basin, such as the ability to provide additional delivery capacity, greater flexibility for river operations and capacity to water new areas of floodplain.

Key projects are complex

Up to half of the 605 GL offset relies on six highly complex and interdependent projects that are still in the concept design stage of development (box 3). Past experience with similar projects shows that they will require detailed consultation and take many years to plan and implement. There is a degree of dissatisfaction and mistrust in parts of the community that are directly affected by these projects, including Traditional Owners. This sentiment is the result of a lack of transparency, consultation and candour in the process of developing these projects.

Stakeholders are aware of the magnitude of issues to be resolved to implement supply measures and are concerned about likely impacts on cultural assets, the reliability of water entitlements, and land use. The apparent reluctance of Basin Governments to recognise the reality of these issues and to plan to undertake the projects with full consultation and appropriate issue resolution is further eroding community confidence.

There are clear interdependencies between projects in the planning, construction and operation stages. Many projects will ultimately need to be integrated into the operation of shared water resources, including the River Murray. A number of them will require common approaches across State borders. The current approach to implementation does not enable these interdependencies to be managed effectively.

Basin Governments should develop an integrated plan for delivering supply measures

To address these issues, as soon as practicable Basin Governments should develop an integrated plan for delivering supply projects to enable:

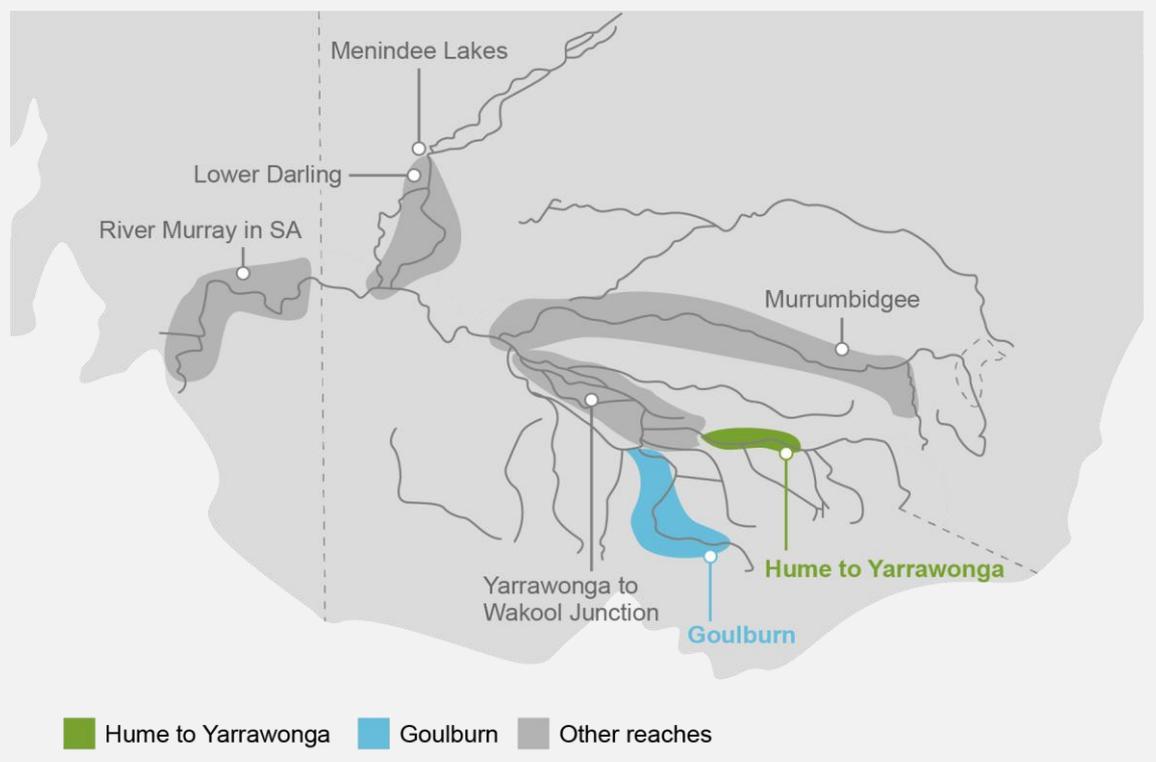
- management of interdependencies within the package of supply projects
- clear roles and responsibilities for implementation
- the development of common policy principles and consistent approaches where required
- logical sequencing of projects
- coordinated community and stakeholder engagement including with Traditional Owners
- integration into ongoing river operations and management.

Box 3 Challenging components of the supply package

Basin States are responsible for implementing the agreed supply package. The package relies heavily on six highly complex and interdependent projects, which could account for between one-third and half of the 605 GL expected water recovery offset. These projects are still in the concept design phase, and the preliminary cost estimate for them is in the order of \$583-765 million.

- **Menindee Lakes** — a project that aims to improve the operation of the Lakes to reduce evaporative losses. It involves changes to infrastructure and operational arrangements and easing constraints in the Lower Darling.
- **Constraints** — four projects that aim to increase the size of flows that can be delivered down the river system. This involves removing physical barriers (such as increasing the height of bridges), building levees to protect land from inundation and negotiating and signing agreements with landholders whose land is flooded by the higher flows.
- **Hydro-cues** — a project that aims to increase the ability of environmental water holders to coordinate environmental water delivery with increases in natural flows. It involves operational rules changes and system enhancements to achieve in-channel, floodplain and wetland environmental outcomes. It is dependent on easing constraints.

Easing constraints in the supply package will involve negotiations with over 3000 landholders across five reaches (shaded grey and green in the figure below). In the early 2000s, negotiations to secure easements for the right to release 25 000 ML/day from Hume Dam took almost eight years and involved negotiations with 103 landholders from Hume to Yarrowonga (green in map below). Easing constraints in the Goulburn (blue in map below) is not required for supply measures, but is for efficiency measures.



Adopting an integrated plan for implementing supply measures is an important step in establishing meaningful engagement with communities. It will provide a clear process for them to understand when and how decisions will be made. It will also support the provision of consistent and coordinated information, so that stakeholders can understand likely impacts on them and how these could be addressed.

There is an important role for the MDBA (as the agent of governments) to assist in the implementation of this integrated plan. Governments will rely on the MDBA's technical advice to understand the potential impacts of projects and to ensure they can be successfully incorporated into the operation of shared water resources.

Governments need to confront the reality that some projects may require more time

Failure to successfully implement these projects by 2024 would mean that either Basin States or the Australian Government will most likely need to make good any shortfall in the offset, which could include further water recovery. The 2024 deadline for a number of these projects (particularly the constraints projects) is highly ambitious, if not unrealistic.

The timeframe for implementation (which is already delayed) will continue to be compressed until Governments resolve significant policy issues including funding arrangements, responsibility for making good if projects fail and ongoing costs associated with assets. Agreement on these issues is urgent, as works cannot commence until they are resolved.

Strictly enforcing the 2024 deadline could lead to the abandonment of worthwhile projects.

To enable worthwhile projects to be implemented in realistic timeframes, Basin Governments should be open to the possibility of extending the 30 June 2024 deadline and make this clear to project proponents prior to detailed business cases being completed. This should not be interpreted as scope for a blanket extension for all projects or a reason for Basin States to procrastinate. Nor is it a reason to avoid making good if projects fall short. But being open to legitimate extensions of time avoids rejecting worthwhile projects or progressing projects with milestones that just cannot be met. Projects with unrealistic milestones will likely further erode community confidence that projects are achievable and worth doing.

Independent advice should inform whether specific supply projects have credible timelines and are worthwhile

Basin States are currently preparing detailed business cases for supply measures. Past experience in building environmental works projects has shown that the costs and benefits of projects can diverge substantially from original estimates. However, there is currently little public information about how DAWR plans to assess whether projects are still delivering environmental benefits and are value for money.

To ensure prudent use of public funds, it is vital that the process for funding supply projects is capable of removing projects if and when it becomes apparent that there has been a material decrease in the anticipated net benefits of that project. This includes instances where ongoing monitoring of a project reveals insufficient progress (particularly if extensions are granted). Because of the funding and community implications, there needs to be a high level of transparency about the process.

To this end, DAWR should appoint an **Independent Advisory Panel** on supply measures (independent panel) to provide it with expert advice to inform a gateway review process that determines whether supply measures proceed to implementation. The independent panel should consider any material decrease in the anticipated net benefits of projects since their initial business case (to ensure the projects represent a prudent and effective use of public money). It should also consider whether proposed milestones are credible and recommend where an extension to the 2024 deadline is warranted to allow worthwhile projects to be retained.

Based on the above assessment, the panel would make a recommendation on whether projects should proceed to implementation or be removed from the agreed package. DAWR should publicly respond to the advice of the independent panel, including justifying instances where it elects not to accept that advice.

Clear milestones for project implementation are required to keep Governments accountable for implementing projects. If the independent panel finds that a project owner has repeatedly failed to demonstrate credible progress against milestones, DAWR should cease project funding, and the project should be removed from the package.

Governments should not delay making good (through water recovery) until after the final reconciliation if it becomes apparent beforehand that the package of projects will fall short in achieving the estimated offset.

The cost of failure is considerable

The changes recommended by the Commission would maximise the likelihood of supply measures succeeding in meeting their objectives and could potentially reduce the cost to taxpayers of meeting SDLs by hundreds of millions of dollars. If Governments have to make good any shortfall through infrastructure modernisation (which is their current preferred approach), this will involve substantial expenditure. Failure to implement the constraints, Hydro-cues and Menindee Lakes projects could increase costs to Governments in the order of \$564 million.⁶ The additional costs to the taxpayer would be higher again if the

⁶ This estimate compares the average cost of implementing the key projects (based on their business cases) and the potential cost of recovering 250 GL through infrastructure works (the middle estimate of their water offset). Details of this estimate are in appendix B.2 of the main report.

Government had already invested money in a supply project, but then had to abandon the project and make good.⁷

There are also potential environmental losses from implementing poor projects. The changes recommended by the Commission would enable proper consideration of the risks to the environment arising from implementing the projects (including any trade-offs between local environmental assets and system-wide outcomes that may not emerge from environmental impact assessments), before a decision to proceed with implementation is made.

The efficiency measures program may not achieve all the enhanced environmental outcomes

The purpose of efficiency measures is to achieve enhanced environmental outcomes while maintaining or improving socioeconomic outcomes. The enhanced environmental outcomes (set out in Schedule 5 of the Plan) are located in the southern Basin. Delivering these enhanced environmental outcomes (particularly those for floodplains) is dependent on easing constraints to water delivery.

Since the efficiency program was initially negotiated in 2012, new information indicates that key assumptions underpinning the program (such as those relating to constraints easing proposals) have changed. Basin Governments and the MDBA need to do more work to provide greater confidence that the enhanced environmental outcomes can be achieved.

Key assumptions underpinning the efficiency measures program have changed

Anticipated environmental benefits

The 2012 Basin Plan modelling that underpinned the development of the Schedule 5 outcomes and the efficiency measures package made a number of assumptions that have since changed. In particular, the modelling suggested that without easing constraints to allow higher flow rates, additional environmental water would have few additional benefits. Since then, Basin States have developed proposals for constraints projects that will allow lower flow rates than those included in the 2012 modelling.

Environmental outcomes are likely to be improved by providing more base flows down the lower Murray towards sites in the Coorong, Lower Lakes and Murray Mouth, regardless of whether constraints are eased or removed. But it is not yet clear what environmental improvement can be expected, or how much water is required to realise those benefits.

⁷ The cost of making good through direct water purchases would be much less than infrastructure works and potentially comparable to the cost of the supply measures (though this ignores any additional operational benefits from supply measures). As such, direct purchase is an option Governments could consider in the event of a reconciliation to limit the cost to taxpayers.

The Australian Government also appears reluctant to countenance that at least some of the measures to ease or remove constraints may not be operational by 2024. If constraints projects are not implemented as expected, rushing to recover the full 450 GL by 2024 would risk the Australian Government spending hundreds of millions of dollars for an asset that (potentially) cannot be used for some time. Aligning water recovery with progress in lifting constraints could potentially save the Australian Government up to \$203 million.⁸

Program budgets are inadequate

There is a material risk that recovering an additional 450 GL through efficiency measures could be substantially more expensive than was anticipated in 2012 and will require further funding. Water entitlement prices in the southern Basin have increased by more than 150 per cent since the Basin Plan was made. To encourage participation, the program offers a premium of 75 per cent on market prices for entitlements recovered through efficiency projects. Based on current market prices, recovering 450 GL with this premium could exceed the funding available in the Water for the Environment Special Account (WESA) by \$660 million.⁹

Water recovery has commenced in the absence of a clear strategy

Enhanced environmental outcomes

Recovering water through efficiency measures has become increasingly divorced from the environmental outcomes it is meant to achieve. The current focus of the program is on meeting the legislated target of recovering an additional 450 GL by 2024. There is little evidence that it has been designed to recover water in the places needed to effectively achieve the enhanced environmental outcomes. For example, the Australian Government is soliciting proposals for water recovery projects in the northern Basin, and in systems that are considered disconnected from the southern Basin. Sizeable water recovery in the northern Basin would mean an effective portfolio of less than 450 GL would be available to pursue the Schedule 5 outcomes, which are in the southern Basin.

⁸ The estimate compares the net present cost of recovering water through efficiency measures by 2024 and increasing the time over which water is recovered to 2030. It does not consider other benefits and costs of recovering water, such as possible interim benefits before constraints are eased. Future costs are discounted at a rate of 5 per cent per year for this estimate (appendix B.4).

⁹ The estimate assumes that water is recovered by acquiring a portfolio of southern Basin entitlements in proportion to those on issue and held by non-environmental users, and excluding entitlements for which reliable price data were unavailable. A 75 per cent premium is applied to the volume-weighted average price for each entitlement for 12 months to June 2018 (appendix B.4).

Addressing adverse socioeconomic impacts

The recovery of 450 GL through efficiency measures is required to result in neutral or improved socioeconomic outcomes. The test for this, to date, has been voluntary participation of water users in infrastructure projects. However, this does not fully address stakeholder concerns about impacts of additional water recovery on regional communities. As a result, there is significant debate within the community and between Governments on additional criteria to assess socioeconomic neutrality, and whether such criteria should ensure no negative impacts at a local scale in any timeframe.

There is always the potential for an individual to be negatively affected by a project, for example, through a change in water prices or changing patterns of water trade — even if the net impacts of a project are overwhelmingly positive. Requiring a project to demonstrate no negative impacts would, in effect, block any additional water recovery. This debate has distracted Basin Governments from developing an effective and efficient strategy for addressing any substantial adverse socioeconomic impacts, and from developing community-supported projects that may recover environmental water cost-effectively and with relatively limited impact (at both a local and Basin-wide scale).

A structured pathway to deliver efficiency measures is required

With almost \$1.8 billion available in the WESA, the implementation of the efficiency measures program needs to be put on a sound footing prior to the Australian Government spending large sums of money.

A sequenced process would help the Australian Government address information gaps, review program parameters, and implement an effective and efficient program to recover water in line with the ability to deliver it to environmental sites to achieve Schedule 5 outcomes.

First, and as a matter of priority, the MDBA should update Basin modelling to establish the environmental benefits of additional water recovery within current operating conditions (including existing constraints), and the expected benefits arising from the agreed constraints proposals. This would identify those constraints projects that are most important for achieving the Schedule 5 outcomes and the entitlement types that should be prioritised in water recovery programs.

Second, DAWR should publish a water recovery strategy to define the environmental objectives of the program, to step out how those objectives will be pursued over time and to show how adverse socioeconomic impacts will be considered through program design.

To ensure that the recovery of the 450 GL is effective and efficient, this strategy should:

- prioritise recovering water that can usefully contribute towards achieving Schedule 5 outcomes
- plan for a range of scenarios for constraints easing

-
- phase water recovery to ensure that, as new information becomes available, it aligns with both revised constraint proposals and progress in easing constraints, and contributes towards specific Schedule 5 outcomes
 - consider all available options for recovering water in the development and assessment of projects, including community-designed initiatives
 - clearly outline how it will address adverse socioeconomic impacts through the design of its program
 - be transparent, and regularly publish information on successful projects, prices paid and overall progress against program objectives
 - outline clear processes to ensure engagement with local communities and industries for the duration of the program
 - include a regional-scale monitoring and evaluation program to determine what the impact of the program is on regional communities.

Within this strategy, addressing socioeconomic impacts should be undertaken through consideration of the likely benefits and impacts of individual project proposals coupled with an assessment of any potential cumulative effects to inform decisions on funding (recommendation 5.3).

Third, the 2021 independent review of the WESA should be a comprehensive review of the benefits, costs and impacts of additional water recovery given that, at this time, new and updated information will be available to inform decision making. This information will include final decisions on the level of constraint easing, updated modelling by the MDBA, adjusted cost estimates and any new information on watering requirements and environmental priorities for the environmental sites in Schedule 5.

This review needs to be supported by modelling provided by the MDBA and any additional information from Basin States.

Following this review, the Australian Government should determine whether there is a need to amend the Schedule 5 outcomes based on what is achievable, or adjust the water recovery strategy to pursue those agreed outcomes efficiently and effectively.

Governments should be held accountable for implementing the Northern Basin Toolkit

The MDBA's recommendation to increase SDLs in the northern Basin was on the provision that Toolkit measures were implemented. However, key milestones for implementation, funding arrangements and program governance are still to be settled by Basin Governments.

A lack of firm deadlines and checks and balances for implementing the Northern Basin Toolkit means accountability for outcomes is limited. Basin Governments should ensure that

the arrangements to implement the Toolkit measures are transparent, enable progress to be tracked and ultimately lead to understanding the effectiveness of the measures.

In the absence of such arrangements, there is a risk that the timeframes for implementing the Toolkit will blow out, or that some may never be put in place to the degree originally intended, which may have consequences for achieving environmental outcomes.

Ultimately, the extent to which the implementation of the Northern Basin Toolkit has achieved its objectives should be examined when SDLs for the northern Basin are again reviewed by the MDBA as part of the comprehensive review of the Plan in 2026.

6 Three other elements require urgent improvement

Pre-requisite policy measures need to be fully implemented

The outcomes of the Basin Plan are based on an assumption that Basin States will implement pre-requisite policy measures (PPMs) to enable the efficient use of environmental water by providing:

- credit for return flows from environmental watering events for environmental use downstream (rather than being used to supply the demands of other users)
- the ability for environmental water holders to order water from a specific storage to top up or ‘piggy-back’ on naturally occurring high flow events.

The PPMs were assumed in the original modelling used to set SDLs and were also incorporated into the environmental equivalence methodology that underpins supply measures and the associated adjustment to SDLs. Without PPMs, a water recovery target of more than 4000 GL would be required to achieve the outcomes of the Basin Plan. If Basin States do not implement PPMs by 1 July 2019, the MDBA may recalculate SDLs.

The MDBA has accredited PPM implementation plans, and Basin States and the MDBA have conducted PPM pilot projects and trials in the southern Basin. However, some of these arrangements are yet to be formalised, and a number of PPM implementation issues remain unresolved, primarily in New South Wales. There is a lack of transparency of the progress of Basin States to implement PPMs and the MDBA’s process for assessing the adequacy of State arrangements. There is some risk that PPMs will not be implemented by 30 June 2019.

Some WRPs need more time to address key issues

WRPs embed the Basin Plan in State-based water management arrangements and need to be accredited by 30 June 2019, at which time the MDBA’s role to ensure compliance with the Plan (including SDLs) takes full legal effect.

For a few WRP areas, significant changes to local water management arrangements (which are often defined in State legislative instruments) are needed to meet Basin Plan requirements and achieve the outcomes of the Plan. These include:

- changing rules that define permitted water take
- changing rules that protect environmental flows, including those to shepherd environmental water in connected water resources
- implementing PPMs (particularly in New South Wales)
- managing water quality and the supply of critical human water needs in extreme events.

It is critical that Basin Governments provide adequate time to conduct the detailed analysis and consultation required to understand local issues, identify and test feasible solutions and make the necessary amendments to rules and supporting documents. There is insufficient time left to do this well.

The risk is highest for New South Wales, given the number of outstanding WRPs and the magnitude of proposed changes in some plans, including rules to protect environmental water in the Barwon-Darling and provisions to meet critical human water needs and address water quality issues in the Lower Darling.

The Australian Minister for Water and Basin States should as a matter of priority negotiate extensions to the 30 June 2019 deadline for accrediting WRPs where there are substantive changes to State-based water management rules proposed that may have material impacts on entitlement holders and/or the environment. Given the progress made against water recovery targets and the results of the MDBA's trials of new SDL accounting methods, limited extensions for WRPs appear unlikely to undermine key Basin Plan objectives.

In the longer term, there is a need to clarify the purpose of and effective format for WRPs and associated compliance processes.

The framework for evaluating the impacts of the Plan needs development

Effective arrangements for monitoring and evaluation are critical to the successful implementation of the Basin Plan. Improvements in arrangements are required to provide a clear framework, to enable informed judgements to be made about the extent to which the Plan is meeting its objectives and to ensure the review of the Plan in 2026 is well informed.

Basin Governments should not squander the opportunity to learn the lessons from implementation of the Basin Plan. There is a risk that unless necessary planning and preparation is done soon, there will be inadequate information and knowledge to evaluate the Plan and inform the review.

The Basin Plan evaluation framework should be improved to define the specific questions that will be used to comprehensively evaluate the effectiveness of the Plan in achieving environmental, socioeconomic and cultural outcomes at both a region and Basin scale. This will enable Basin Governments to communicate the outcomes of the Plan in a clear, cogent and consistent manner.

A Basin Plan monitoring strategy should be developed to obtain the information needed to answer the questions set out in the evaluation framework. This includes what information will be collected and by who, the process to address information gaps, and the arrangements for sharing the costs of monitoring and evaluating the Plan among Basin Governments.

The MDBA (as Basin Plan Regulator) should urgently publish a revised Basin Plan evaluation framework. Basin Governments should develop and publish the monitoring strategy.

The Commission expects to see that the MDBA has made demonstrable progress in planning for the 2026 review when it next examines the implementation of the Plan in 2023.

7 Institutional and governance arrangements need reform

It is unclear who is responsible and accountable for leading the implementation of the Basin Plan — the MDBA or Basin Governments. The MDBA has played the central role in developing the Plan and recommending key amendments. However, since the Plan was agreed in 2012, there has been a shift and Basin Governments have taken a more central role in deciding how it would be implemented as the responsibility for the management of water resources ultimately resides with them.

This shift has occurred implicitly. The MDBA has positioned itself as leading the implementation, and stakeholders most often perceive it to be an Authority that is in charge (although of what is unclear). Basin Governments have not sought to challenge this position, or explicitly claim this role. There is consequently a lack of clarity about how Governments should respond to issues as they arise and an exposure to a lack of accountability. As a result, key risks to successful implementation have not been strategically managed with a default to last-minute negotiations as a crisis looms.

In the Commission's view, the identified and significant risks to successful implementation cannot be managed effectively without improvements to the governance and institutional arrangements. Reform is required.

Basin Governments should set firm direction for the next phase

For the outcomes of the Basin Plan to be achieved and sustained, the Plan must be integrated into State water resource management frameworks and in joint arrangements for shared water resources.

The MDB Ministerial Council must set a much clearer tone of firm commitment to the Basin itself, with unmistakable collective direction for delivering on that commitment. BOC should take responsibility for leading the implementation of the Basin Plan, putting substance to Governments' Basin-wide direction-setting. This complements BOC's established role as the governance engine room of the MDB Agreement, directing the MDBA on the management of shared water resources and joint natural resource management programs.

To do both its roles well, BOC must change the way it operates. A shift in focus is required, from operational to strategic and from individual interests to 'Basin as a whole'. Rather than focusing on short-term crisis management, BOC should prioritise a long-term strategic approach that emphasises managing the implementation of the Basin Plan and sound water resource management. An independent Chair is required, to foster a culture of joint custodianship and a strategic approach to Basin-wide planning, resource management and service delivery.

Structural reform of the MDBA is required to manage its conflicting roles and better support Basin Governments

As the agent of Governments, the MDBA delivers the century-old role of custodian of the River Murray under the MDB Agreement and supports Basin Governments (through BOC) to manage shared water resources and joint natural resource management programs. And the MDBA will continue to be critical in driving collaboration between, and providing technical support to, Basin Governments to help them to implement the Basin Plan.

However, the MDBA is also the regulator of the Basin Plan. It is required to make final judgments on the success or otherwise of its own coordinated activity (for example, supply projects) and to manage breach or non-compliance of all aspects of the Plan. At times it may have to call out States (or indeed itself) when they are non-compliant.

Being the agent of, and funded by, those same Governments (a role that involves providing collaborative leadership, advice and technical capability) compromises the MDBA's ability to be an impartial regulator. This latter role is critical to restoring public confidence in the Plan. Conversely, having to regulate and stand in judgment of the States undermines the MDBA's ability to work closely and openly with them as a trusted adviser.

The MDBA has recognised and sought to manage these conflicts through its internal structure and processes. In the early phase of Basin Plan implementation, this was a pragmatic solution and the MDBA has done what it can to manage these conflicts. But

Governments have put it in an impossible position — it is an inherently conflicted entity and is perceived as such by stakeholders.

The conflict in the MDBA's roles will intensify over the next five years. Its agent of governments role will grow. Basin Governments will need to rely on the MDBA to help them to be proactive stewards of the shared water resources of the southern Basin, which has a market with more than \$13 billion of water entitlements. They will need its technical capability and river operations skills to implement supply projects and to maximise the benefits from an environmental water portfolio that is currently worth \$3.3 billion.

Its role as regulator of the Basin Plan comes into full effect when WRPs are accredited. As regulator of the Basin Plan, the MDBA will make judgements on whether Basin Governments and river operators manage water resources in a way that is consistent with WRPs. Given the MDBA's role as operator of the River Murray, it will be a judge of its own performance in this regard.

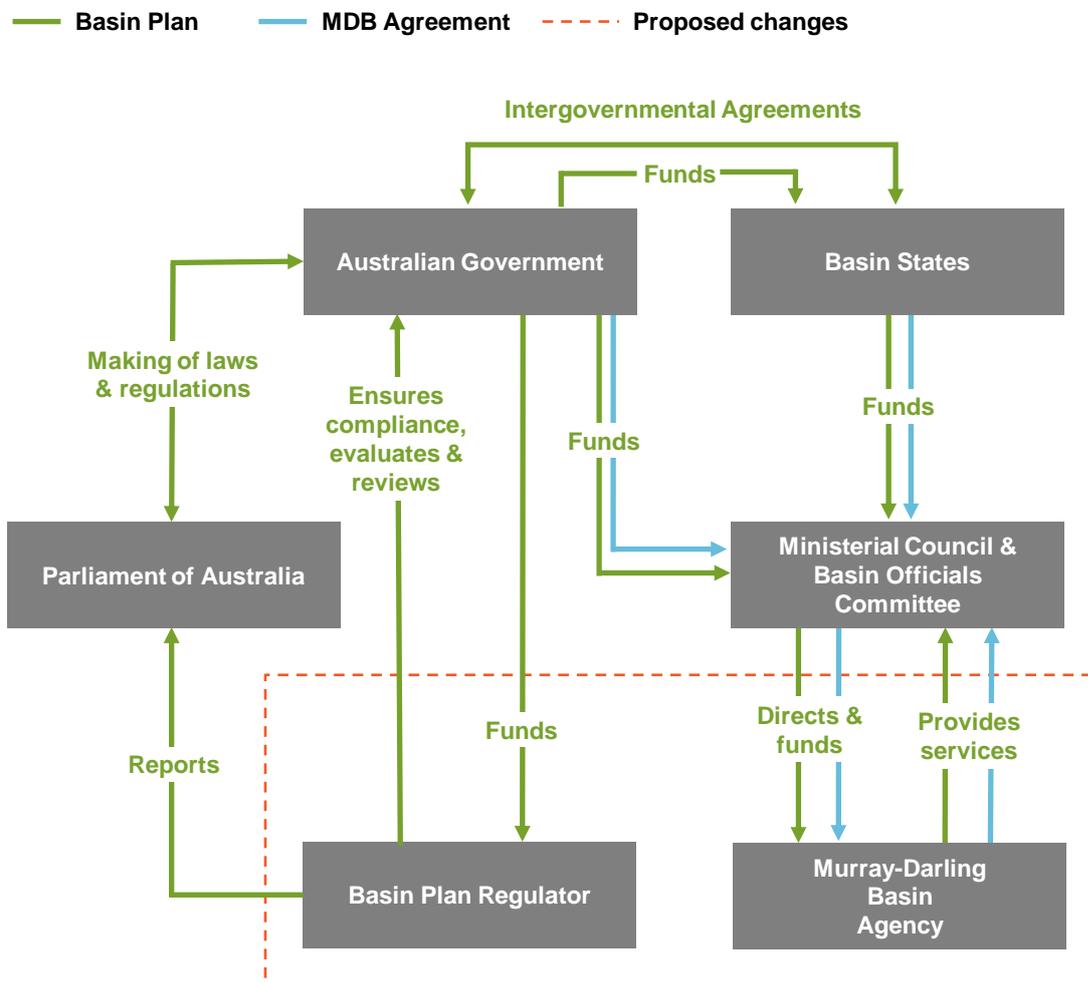
Structural conflicts are likely to be exacerbated by the very different operational culture and approach that will be required to perform each of these roles effectively. These conflicts cannot be successfully managed through internal controls. In its current form, the MDBA cannot be a trusted adviser to Basin Governments and a credible regulator.

Structural reform is required to assign the MDBA's two key roles to separate institutions (figure 3). Failure to do so will compromise:

- the credibility of the MDBA and Basin Governments
- the effective implementation of the Plan
- community confidence that the substantial investment made in the Basin Plan has led to meaningful change in the way water resources in the Basin are managed.

The agent of Governments role of the MDBA should be assigned to a new Murray-Darling Basin Agency (the Agency). The Agency would be governed, directed and funded by Basin Governments. The core focus of the Agency would be to drive intergovernmental collaboration and strategic service delivery for the implementation of the Basin Plan and resource management for the shared River Murray. The Agency would provide Basin Governments with the capability and services (such as coordination) required to successfully implement supply and constraints easing projects. It would also provide strategic advice and guidance to policy makers as to how resource management needs to adapt and evolve to manage risks and enable the outcomes of the Basin Plan to be achieved.

Figure 3 Recommended institutional arrangements



The compliance, evaluation and review functions of the MDBA should be assigned to a new independent Commonwealth statutory entity, the Basin Plan Regulator (the Regulator). The Regulator should be governed by a board consisting of members with skills that are aligned to its compliance and evaluation role. The Basin Plan Regulator would be a specialist regulator, established solely for the purpose of regulating compliance with the Plan. It would have the specific skills and expertise required to perform this role, and the ability to source additional expertise at times when it is required.

Where there is agreement, the process of institutional reform need not be protracted or excessively disruptive. In 2008, the current institutional arrangements were negotiated, agreed and implemented within a year. Further, the Commission estimates that the institutional changes proposed would affect less than 20 per cent of MDBA staff and about six per cent of total annual funding.

Although it would be ideal to have the Basin Plan regulatory functions commence in the context of a separate Basin Plan Regulator, the Commission acknowledges that institutional reform by July 2019 is not realistic.

As an interim measure, the MDBA should ensure its organisational structure aligns as far as possible with the recommended separation of functions. This would involve consolidating its compliance, evaluation and review functions into the Office of the Basin Plan Regulator. These changes would provide greater clarity of role and allow the different cultures required to do both roles well to be cultivated.

The recommended interim arrangement is achievable without legislative change and should be seen as a practical stepping stone to full structural separation. However, the interim arrangement does not solve the fundamental conflicts embedded in the current legislative settings, whereby the Chief Executive of the MDBA:

- is accountable to Basin Governments for the delivery of the agent of governments role
- has statutory obligations as a member of the Authority appointed to oversee the compliance and regulatory functions.

Only complete structural separation would create incentives for each institution to pursue its functions more effectively, as well as develop the internal cultures most appropriate for the delivery of these functions. Basin Governments should agree to and progress institutional reforms, so that they are in place by 2021.

8 The potential costs of inaction are massive

Much is riding on how Governments implement the Basin Plan from this point forward. There is still about \$4.5 billion in Australian Government funding left for implementing the Plan. Most of this is allocated to resetting the balance through supply and efficiency measures. If major shortcomings in current arrangements are not addressed, projects are likely to fail or be implemented poorly. Failure will mean:

- the future cost of resetting the balance could be in excess of \$564 million higher (the cost of having to make good by acquiring water entitlements plus any cost of wasted expenditure on failed projects)
- lower environmental outcomes as the anticipated benefits of projects are either delayed or do not eventuate
- community trust and confidence in the Plan and Basin Governments will be reduced further, particularly if there is a perception that money is being wasted as Governments are unaware of issues, or unwilling to confront them
- there will be shortcomings in key arrangements that will have potentially significant implications for how water is managed for the environment and to meet users' needs.

The Commission has made 38 recommendations that would significantly improve the arrangements for implementing the Plan. The recommendations are organised by timeline and responsible institution in figures 4 and 5.

Most of our recommendations involve incremental improvements to the current arrangements.

Other recommendations are to provide the strong foundations needed for the Plan to succeed — sound governance, good planning, and effective and adaptive management.

It has been a real achievement for Basin Governments to get this far, but without the recommended changes, the implementation of the Plan is at risk. Delivering on the objectives of the Plan is vital to a region that is of significant environmental, cultural, social and economic importance to Australia.

Figure 4 **Short-term priorities (within 12 months)**

Basin Governments

- Take joint responsibility for implementing the Basin Plan (14.1).
- Review collaborative processes, capability and resourcing required to jointly implement the Plan (14.4).
- Resolve governance and funding and develop an integrated plan for delivering the package of supply measures (4.1).
- Signal the possibility of extensions for the deadline for delivery of some supply measures to enable projects that offer value for money to be delivered in credible timeframes (4.2).
- Develop a monitoring strategy to give effect to the evaluation framework (13.3).
- Put in place transparent and accountable governance arrangements for implementing the Northern Basin Toolkit (4.5).
- Agree on a policy and timeframe for addressing over-recovery (3.1).
- Negotiate extensions to the timelines for WRP accreditation in areas where there is clearly insufficient time for adequate community engagement (6.1).
- Publish a work plan that describes how delivery capacity issues associated with changes in water use and trade will be investigated and managed (10.2).
- Establish transparent arrangements to coordinate connected environmental watering activities (11.4).
- Ensure processes are in place for coordinating event-based watering decisions (11.5).
- Consider the costs and benefits of metering policies, including the role of metering standards (12.2).

Basin States

- The New South Wales Government to include, in the New South Wales Murray and Lower Darling WRP, how key operational plans interact and provide for critical human water needs (9.1).

The Australian Government

- Ensure there are specific milestones and clear responsibilities in any future intergovernmental agreements, with independent assessment of progress (13.1).
- Appoint an independent chair to the Basin Officials Committee (14.4).
- The Department of Agriculture and Water Resources (DAWR) to establish a gateway review (with independent advice) to determine if supply projects offer value for money prior to funding (4.4).
- DAWR to publish the advice it has received on environmental priorities for water recovery once transactions are complete (3.2).
- DAWR to publish a new water recovery strategy that aims to achieve the Schedule 5 outcomes while minimising adverse socioeconomic impacts (5.2 and 5.3).

Murray-Darling Basin Authority

- Change its organisational structure to create the Office of the Basin Plan Regulator to house all compliance and evaluation functions (14.3, 12.1).
- Revise its compliance policy to convey its role in system-wide Basin Plan compliance and that water take enforcement is a Basin State responsibility (12.3).
- Develop a revised Basin Plan evaluation framework (13.2).
- Devise a strategy for undertaking SDL reconciliation to enable adaptive management and to assess reasonable progress (4.3).
- Update its modelling to confirm the environmental benefits of additional water recovery (5.1).
- Determine the extent of any over-recovery (3.1).
- Clarify the annual reporting obligations of Basin States to enable them to demonstrate compliance with WRPs and the process for amending WRPs (6.2).
- Finalise and publish a detailed terms of reference for the five-yearly evaluation of the effectiveness and efficiency of WRPs in consultation with Basin Governments (6.3).
- Include in the 2019 Basin-wide environmental watering strategy clearer guidance on the relative priority of assets and types of watering activities (11.1).
- Finalise and publish an assessment framework for evaluating trade restrictions (10.1).

Figure 5 **Medium-term priorities (1–5 years)**

<p style="text-align: center;">Basin Governments</p> <ul style="list-style-type: none">• Agree and embark on the institutional reform to establish the Murray-Darling Basin Agency — an agent of Basin Governments, and the Basin Plan Regulator — an independent Commonwealth statutory authority (14.2).
<p style="text-align: center;">Basin States</p> <ul style="list-style-type: none">• Ensure processes are in place for identifying social and cultural outcomes that could be achieved from environmental watering without compromising environmental outcomes (11.6).• Manage the risks to achieving environmental outcomes by delivering complementary management activities (11.7).
<p style="text-align: center;">The Australian Government</p> <ul style="list-style-type: none">• Specify that the 2021 review of the Water for the Environment Special Account review the benefits, costs and impacts of pursuing the enhanced environmental outcomes, to inform how the Australian Government should proceed with water recovery (5.4).• Establish an effective Basin Plan Regulator by reviewing the skills mix of the statutory appointments, establishing a statement of expectations, and organising formal, transparent arrangements for the supply of any additional technical capabilities needed (14.5).• Target any further assistance to communities where substantial adverse impacts from water recovery have been identified (3.3).
<p style="text-align: center;">Murray-Darling Basin Authority</p> <ul style="list-style-type: none">• Review the salt export objective (8.1).• Provide material to Basin States to guide the first revision of long-term watering plans (11.2).• Consider the usefulness of Basin Annual Environmental Watering Priorities as part of the 2020 review of the Environmental Watering Plan (11.3).• Publicly outline the approach to be taken for the 2026 review (13.4).

Findings and recommendations

Chapter 3 — Recovering water for the environment

The Australian Government (through the Department of Agriculture and Water Resources) is responsible for recovering water for the environment to give effect to the Sustainable Diversion Limits (SDLs) for surface water and groundwater on 1 July 2019. The surface water target was originally set at 2750 gigalitres (GL), but was reduced to 2075 GL in 2018 by the supply measures package (605 GL) and the *Northern Basin Review* (70 GL). The full offset of 605 GL is subject to 62 GL being recovered through efficiency measures to maintain the change in the SDL to less than 5 per cent, leading to an (effective) water recovery target of 2137 GL by 1 July 2019.

Recovered water contributes to a held water portfolio that is managed to achieve the environmental objectives of the Basin Plan. The Australian Government has spent \$6.7 billion on bridging the gap, which includes purchasing water and investing in water-saving infrastructure. In addition, \$189 million has been provided through structural adjustment programs to support communities in adjusting to reduced water availability.

FINDING 3.1

Basin Governments need to recover 2137 GL of surface water by 1 July 2019 and the outstanding gap is less than five per cent of this target. Achieving the 2019 target is contingent on:

- delivering 117.9 GL that is already under contract, but has not yet been delivered
- recovering a further 29.4 GL from the northern Basin
- delivering a further 61.5 GL through efficiency measures
- any change to planning assumptions that affects the contribution of water entitlements already recovered towards water recovery targets.

A total of 2000 GL has already been delivered to environmental water holders, but it is unlikely that the July 2019 target will be met. Any shortfall will be monitored through the Sustainable Diversion Limit reporting and compliance framework until the water recovery task is complete.

A further 37.7 GL must be delivered to finalise groundwater recovery. Arrangements are in place to meet this target.

RECOMMENDATION 3.1

Once Water Resource Plans are accredited, the Murray-Darling Basin Authority (as Basin Plan Regulator) should assess which (if any) resource units are over-recovered against the Sustainable Diversion Limit.

As soon as practicable, the Commonwealth Environmental Water Holder, in co-operation with Basin Governments, should develop a process and an appropriate timeframe to return any identified over-recovery to consumptive uses in accordance with Sustainable Diversion Limits.

RECOMMENDATION 3.2

The Department of Agriculture and Water Resources should ensure that water recovery aligns with environmental requirements and its processes for doing so are transparent.

To support accountability, it should commit to publishing all advice provided by the Commonwealth Environmental Water Holder and the Murray-Darling Basin Authority (including advice on strategic purchases) once transactions are complete in a Sustainable Diversion Limit resource unit.

FINDING 3.2

The Department of Agriculture and Water Resources has accounted for the impacts of improving irrigation efficiency on return flows in some major water recovery projects, but has not done so in all cases. The Department has committed to monitor impacts in future water recovery programs, but the framework for doing this is not yet clear.

The overall impact of improved irrigation efficiency on water resources is not precisely known, but recent independent work indicates it to be relatively small.

The Murray-Darling Basin Authority (as Basin Plan Regulator) is responsible for monitoring the risks to Sustainable Diversion Limits from changes in return flows.

FINDING 3.3

The size and speed of water purchases has had negative socioeconomic impacts on some regional communities.

Recovering water through infrastructure modernisation programs has partially offset pressure for structural adjustment in some communities, but at a significant cost to taxpayers.

Water recovery is only one factor of many driving change in regional communities. Higher water prices, water trade, and other pressures on the agriculture sector mean that some structural change is inevitable and ongoing.

FINDING 3.4

The Department of Agriculture and Water Resources has not always demonstrated that water recovery has been cost-effective in meeting its goal of mitigating adjustment pressures caused by sourcing water entitlements. It has:

- paid a substantial premium above market prices to recover water through infrastructure modernisation
- not systematically released information for strategic water purchases acquired by direct negotiation
- not undertaken a comprehensive assessment of benefits and costs of these approaches.

FINDING 3.5

There is little evidence to indicate that structural adjustment programs have been effective at supporting communities adjust to the Basin Plan.

- Assistance was not targeted to those areas considered most vulnerable to the Basin Plan.
- Some projects considered to provide community assistance have not done so.

RECOMMENDATION 3.3

If provided, the Australian Government should target any further assistance to communities where substantial adverse impacts arising from water recovery to date or any future recovery program have been identified. This should:

- have clear objectives and selection criteria
- be subject to monitoring and evaluation.

Any support for regional development should align with the Productivity Commission's strategies for transition and development, set out in its report on *Transitioning Regional Economies*.

Chapter 4 — Supply measures and Toolkit

The Australian Government made up to \$1.3 billion available for funding supply measures. A package of 36 supply measures was agreed by Basin States in May 2018. These projects provide equivalent environmental outcomes, enabling the water recovery target to be offset by 605 GL, and are required to be fully operational by 2024. Some of these projects are at the scoping or concept design stages of development. The Murray-Darling Basin Authority (MDBA) may undertake a reconciliation of the actual equivalent environmental outcomes of projects compared with their predicted outcomes in 2024. Failure to deliver projects by

the deadline may require Governments to make good the shortfall through further water recovery. Similar projects are proposed for the northern Basin (referred to as Toolkit measures), although there are no formal consequences if these projects fail.

FINDING 4.1

It is likely that some key projects in the approved supply package will not be fully operational in 2024.

- They are behind schedule and the timeframe for implementation has been compressed due to delays in developing the projects.
- They are still in an early stage of development.
- History has shown that these types of projects are complex, interdependent and require extensive consultation to implement.
- A range of issues still need to be resolved between Governments before these projects can proceed. These include project risk sharing, monitoring, governance and funding.

RECOMMENDATION 4.1

Basin Governments should, as soon as practicable:

- resolve governance and funding issues for supply measures, including risk sharing arrangements
- develop an integrated plan for delivering supply measures to improve understanding and management of interdependencies within the package of supply measures
- develop clear mechanisms for consultation on the package and individual projects with Traditional Owners and local communities.

RECOMMENDATION 4.2

Basin Governments should be open to the possibility of extending the 30 June 2024 deadline for specific supply measures to be operational where an extension would be necessary to allow worthwhile projects to be retained.

Basin Governments should make this position clear to project proponents early enough to inform the finalisation of detailed business cases for supply measures. It should be clear that extensions would need to be well founded, only apply in limited circumstances, and not alter the requirement to make good if a project ultimately fails.

RECOMMENDATION 4.3

The Murray-Darling Basin Authority (as Basin Plan Regulator) should, as soon as practicable, devise a strategy for undertaking the reconciliation of supply measures that accommodates projects to be delivered in realistic timeframes.

RECOMMENDATION 4.4

The Department of Agriculture and Water Resources should, as soon as practicable, establish a clear gateway process that determines whether proposed supply measures proceed to implementation.

The Department should appoint an independent panel to provide advice throughout the gateway review. The panel should consider:

- any material decrease in the anticipated net benefits of projects since their initial business case (to ensure projects represent a prudent and effective use of public money)
- whether project timeframes and milestones are credible.

Based on the above assessment, the panel would make a recommendation on whether projects should proceed to implementation. The Department should publicly respond to the advice of the independent panel, including justifying instances where it elects to not accept that advice.

Throughout implementation, the independent panel should also advise on whether projects are meeting their milestones, and projects that fail to make reasonable progress should be removed.

RECOMMENDATION 4.5

Northern Basin Governments should, as soon as practicable, put in place transparent and accountable governance arrangements for implementing the Northern Basin Toolkit. These arrangements should include:

- a mechanism to establish clear milestones to ensure the Toolkit measures are implemented within reasonable timeframes
- an independent assessment by the Murray-Darling Basin Authority (as Basin Plan Regulator) of progress and effectiveness in implementing the measures.

Chapter 5 — Efficiency measures

The Basin Plan allows for the recovery of an extra 450 GL of water to pursue environmental outcomes additional to those that can be achieved by recovering the equivalent of 2750 GL (outlined in Schedule 5 of the Plan). These enhanced environmental outcomes are also

dependent on easing or removing constraints (for example, flooding on private land). This extra water is to be recovered through efficiency measures — infrastructure investments to reduce water loss. Efficiency measures must meet the Basin Plan requirement for neutral or improved socioeconomic outcomes. \$1.575 billion is set aside in a special account for water recovery through efficiency measures.

FINDING 5.1

The Basin Plan requirement for neutral or improved socioeconomic outcomes, which is based on voluntary participation in infrastructure projects, does not fully address stakeholder concerns about the impacts of additional water recovery on regional communities.

However, requiring efficiency projects to have no adverse impacts is impractical. Any additional test that aims to ensure there are absolutely no negative impacts will, in effect, block additional water recovery, including projects that may recover environmental water cost-effectively and with relatively limited socioeconomic impact.

Potential adverse impacts of further water recovery would be better addressed through program design that aims to minimise the socioeconomic impacts of recovering the additional 450 GL.

FINDING 5.2

There is a high risk that the efficiency measures program will not achieve the enhanced environmental outcomes of the Basin Plan by 2024 or within the current budget.

- There has been no update to the 2012 modelling to estimate what environmental benefits can be realistically achieved under the revised constraints proposals.
- It is possible that the proposed projects to ease or remove constraints may not be fully operational by 2024.
- Despite not having re-modelled the objectives or targets, the Australian Government is rolling out a water recovery program Basin-wide, which risks recovering water in the northern Basin that may not contribute usefully to achieving the enhanced environmental outcomes in the southern Basin.
- Basin Governments have not yet agreed on an efficiency measures work plan to recover 450 GL by 2024. Proposed additional criteria to manage socioeconomic impacts remain contested and risk unduly delaying planning for the program.
- There is a material risk that recovering a further 450 GL could be significantly more expensive than anticipated. The benefits and costs of the program as a whole have not been assessed (and there is no requirement to do so).

RECOMMENDATION 5.1

As soon as practicable, the Murray-Darling Basin Authority (as the agent of governments) should comprehensively update and publish modelling to confirm the enhanced environmental outcomes that can be achieved with additional water recovery. This modelling should use up-to-date information on constraints proposals, the effects of supply measures, and the volume of held environmental water.

The Murray-Darling Basin Authority should also model the benefits of additional environmental water within existing delivery constraints, and use this information to establish which Sustainable Diversion Limit resource units should be the priority for additional environmental water recovery.

RECOMMENDATION 5.2

By early 2019, the Department of Agriculture and Water Resources should release a strategy for the efficiency measures program to achieve the Schedule 5 environmental outcomes while minimising adverse socioeconomic impacts. To ensure that the recovery of the 450 GL is effective and efficient, this strategy should:

- prioritise recovering water that can usefully contribute towards achieving Schedule 5 outcomes
- plan for a range of scenarios for constraint easing
- phase water recovery to ensure that, as new information becomes available, it aligns with both revised constraint proposals and progress in easing constraints, and contributes towards specific Schedule 5 outcomes
- consider all available options for recovering water in the development and assessment of projects, including community-designed initiatives
- clearly outline how it will address adverse socioeconomic impacts through the design of its program (recommendation 5.3)
- be transparent, and regularly publish information on successful projects, prices paid and overall progress against program objectives
- outline clear processes to ensure ongoing engagement with local communities and industries.

RECOMMENDATION 5.3

The Department of Agriculture and Water Resources' (DAWR's) water recovery strategy should explicitly outline how it will seek to address adverse socioeconomic impacts through program design. DAWR should require project proponents to provide information on:

- the likely benefits to, and adverse impacts on, the local district and any potential flow-on impacts
- the degree of engagement with community and/or industry
- alignment with irrigation network plans, including any planned rationalisation.

The purpose of collecting this information would be to identify possible cumulative socioeconomic impacts across different combinations of projects under consideration, as part of a broader decision about which projects to fund. This information should not be used as pass or fail criteria for individual projects.

DAWR should also implement a regional-level monitoring and evaluation program to identify (over time) which regions are subject to substantial socioeconomic impacts from additional water recovery.

RECOMMENDATION 5.4

The Australian Minister for Water should specify that the 2021 review of the Water for the Environment Special Account review the benefits, costs and impacts of pursuing the enhanced environmental outcomes in Schedule 5 on the basis of new and updated information. This should include:

- identifying which, if not all, of the Schedule 5 outcomes can be achieved, given progress in easing or removing constraints, and how much environmental water would be required to do so
- assessing the benefits and costs (and feasibility) of other approaches to achieving those environmental outcomes.

This review should be supported by modelling provided by the Murray-Darling Basin Authority (as the agent of governments) and any additional information from Basin States.

The Australian Government should use the outcome of this review to determine whether there is a need to amend the Schedule 5 outcomes, or adjust the water recovery strategy to pursue those outcomes efficiently and effectively.

Chapter 6 — Water resource planning

Water Resource Plans (WRPs) ensure that the Basin Plan (particularly the SDLs) is reflected in state-based water management arrangements. The Australian Minister for Water's accreditation of WRPs is due to be finalised by 30 June 2019. The Murray-Darling Basin Authority's role in ensuring compliance with the Plan takes full effect following accreditation.

FINDING 6.1

The development and accreditation of Water Resource Plans (WRPs) is well behind schedule and there are key issues still to be finalised in some WRP Areas.

Although a number of WRPs appear likely to meet the 30 June 2019 deadline, in some areas there is a risk that attempting to accredit the WRP by the 30 June 2019 deadline will compromise the quality of plans by:

- inadvertently impacting on the entitlements of water users or the environment
- reducing the effectiveness of WRPs in implementing key elements of the Plan including the protection of environmental water, providing water for critical human needs and water quality objectives
- not allowing sufficient time to consider and consult on those key issues with affected stakeholders.

This risk is highest for New South Wales, given the number of outstanding plans and the magnitude of proposed rule changes in some WRP Areas. There is currently limited public information on how the Murray-Darling Basin Authority will address the risk of some plans not having accreditation by 30 June 2019.

RECOMMENDATION 6.1

The Australian Minister for Water and Basin States should as soon as practicable negotiate extensions to the timelines for accrediting Water Resource Plans in areas where there is clearly insufficient time for adequate community engagement before 1 July 2019 (particularly in areas of New South Wales).

Extensions should only be given in limited circumstances, particularly where substantive changes to state-based water management rules are proposed that may have material impacts on entitlement holders and/or the environment.

FINDING 6.2

The process of developing Water Resource Plans has been onerous and unnecessarily costly because of inadequate guidance on the requirements of plans and little clarity on the Murray-Darling Basin Authority's expectations for accreditation.

Key details for the implementation of Water Resource Plans have not yet been agreed including the:

- requirements for annual compliance reporting, risking unnecessary compliance costs
- process for updating plans, risking an amendment process that inhibits adaptive management.

RECOMMENDATION 6.2

Before 1 July 2019, the Murray-Darling Basin Authority (as Basin Plan Regulator) should:

- clarify what Basin States are required to self-report annually to show compliance with Water Resource Plan (WRP) obligations
- articulate the compliance assessment regime relevant to WRP obligations
- consult with Basin States in developing guidance on how it proposes to assess future amendments to WRPs.

RECOMMENDATION 6.3

The Murray-Darling Basin Authority (as Basin Plan Regulator) in consultation with Basin Governments should finalise and publish a detailed terms of reference to assess the effectiveness and efficiency of Water Resource Plans in preparation for the five-yearly evaluation in 2020.

This evaluation should enable an assessment of the utility of Water Resource Plans for delivering on the objectives and outcomes of the Basin Plan.

Chapter 7 — Indigenous values and uses

The Basin Plan specifies how Indigenous values and uses are to be considered by Basin States in the preparation of Water Resource Plans and provides for Traditional Owners to be involved in the development of environmental watering priorities. Two organisations — the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Northern Basin Aboriginal Nations (NBAN) — represent Traditional Owners and work in partnership with the Murray-Darling Basin Authority to provide culturally authoritative advice.

FINDING 7.1

Basin States have improved their formal processes for engaging Traditional Owners as part of Water Resource Plan (WRP) development.

Given that so few WRPs have been submitted for accreditation to date, there is a risk that Basin States have left too little time before July 2019:

- to complete effective engagement with Traditional Owners
- to have regard to the views of Traditional Owners in preparing their WRPs
- for MLDRIN and NBAN to develop their advice about whether the WRP requirements for Indigenous values and uses have been met.

The risk of not meeting the deadline is greatest for New South Wales because of the number of WRPs they have to develop and their delayed start to nation-based consultation.

Beyond accreditation of WRPs, it is important that Basin States continue to consult on, and have regard to, Indigenous values and uses of water. Fostering long-term partnerships with Traditional Owners would contribute to the achievement of Indigenous outcomes from the Basin Plan and state water resource management more generally.

FINDING 7.2

Basin Governments have developed, in partnership with Indigenous Australians, a range of tools and processes to support the recognition of cultural values and uses in state water planning, and environmental management and planning.

The Australian Government has also committed \$40 million to administer a program to support Indigenous investment in cultural and economic water entitlements in the Basin. The objectives and principles guiding the implementation of this program have not yet been articulated. It is unclear why this funding is limited to Indigenous communities in the Basin, rather than being available to all Indigenous communities in Australia.

Chapter 8 — Water quality

The Basin Plan sets out specific objectives and targets for water quality that aim to ensure that water is suitable for a range of purposes. These include: an objective for salt export of two million tonnes per year from the Basin into the Southern Ocean, site-specific salinity targets for flow management in the River Murray and the Lower Darling, and end-of-valley salinity targets. The main Basin Plan mechanism by which water quality is to be managed is through Water Quality Management Plans, which form part of Water Resource Plans.

FINDING 8.1

Salinity targets for flow management have been met at four of the five reporting sites.

The salt export objective has not been met. In periods of low flows, there can be an inherent conflict between meeting site-specific salinity targets and meeting the salt export objective.

RECOMMENDATION 8.1

The Murray-Darling Basin Authority should review the Basin Plan salt export objective in its 2020 review of salinity and water quality targets. This review should consider:

- the relationship between the salt export objective and site-specific salinity targets that require a higher prioritisation to meet water quality objectives
- whether there are any additional environmental benefits associated with achieving the salt export objective that are not covered by achieving the environmental outcomes of the Basin Plan
- whether the objective should be respecified or abolished.

FINDING 8.2

Communities across the Basin are justifiably concerned about the management of water quality during periods of low flow in the Lower Darling. The development of the Water Quality Management Plan for the New South Wales Murray and Lower Darling Water Resource Plan is the process to resolve this concern.

Chapter 9 — Critical human water needs

The Basin Plan sets specific water volumes required to meet critical human water needs in communities that are dependent on the River Murray for water. For communities that rely on water from sources other than the River Murray, the Basin Plan requires that Water Resource Plans describe how critical water needs will be met during extreme events such as drought and water quality events.

FINDING 9.1

The Basin Plan provisions for supplying critical human water needs in the River Murray system in periods of low water availability are robust and no changes to the provisions are warranted.

FINDING 9.2

Communities across the Basin are justifiably concerned about the management of critical human water needs during periods of low flow in the Lower Darling. The development of the extreme event provisions in the New South Wales Murray and Lower Darling Water Resource Plan is the process to resolve this concern.

RECOMMENDATION 9.1

The New South Wales Murray and Lower Darling Water Resource Plan (WRP) should recognise the direct link between the management of Menindee Lakes, flows to the Lower Darling and the risks to the provision of water for critical human water needs.

The WRP should set out how key operational plans (including the Murray-Darling Basin Authority's River Murray System Annual Operating Plan and the WaterNSW Lower Darling Operations Plan) interact with each other to provide for critical human water needs.

Chapter 10 — Water trading rules

The Basin Plan water trading rules aim to contribute to more efficient water markets by introducing new requirements to improve market information and promote confidence in the market, and defining the types of trade restrictions that are permissible in the Basin.

FINDING 10.1

Some trade restrictions that were inconsistent with the Basin Plan trading rules have been removed.

The Murray-Darling Basin Authority (MDBA) has raised 17 instances of potential non-compliance with the trading rules with Basin States. Eleven of these matters remain unresolved and the MDBA has not been clear with Basin States about the steps to resolve these in a timely way.

RECOMMENDATION 10.1

The Murray-Darling Basin Authority (as Basin Plan Regulator) should:

- finalise and publish an assessment framework for evaluating the consistency of trade restrictions against the Basin Plan trading rules, which gives guidance about how to estimate the costs and benefits of removing trade restrictions
- specify the timeframes that it will endeavour to meet in resolving trading rule compliance matters
- notify Basin States about whether the 11 unresolved matters raised with them amount to non-compliance and what action is required by Basin States to resolve them
- publish the reasons given by Basin States for restrictions on surface water trade
- publish its compliance determinations and the assessments that support each determination.

FINDING 10.2

New information and reporting requirements specified under the Basin Plan trading rules are largely in place.

FINDING 10.3

Growth of trade has increased demands on delivery capacity and put pressure on delivery constraints in some parts of the Basin. A range of community members are increasingly concerned about the effects on third parties and the environment.

Basin States and the Murray-Darling Basin Authority are aware of this strategic policy issue, but the process for managing it is unclear to the market.

RECOMMENDATION 10.2

Basin Governments should set and publish a work plan within the next 12 months that describes how delivery capacity issues and third party effects associated with changes in water use and trade will be investigated and managed. The work plan should specify responsibilities, timeframes and how this information will be communicated to the water market.

Basin Governments should assign the Murray-Darling Basin Authority (as the agent of governments) responsibility for identifying and managing risks related to changes in water use and trade in shared resources and connected systems.

Chapter 11 — Environmental water planning and management

The outcomes of the Basin Plan are based on an assumption that Basin States would implement pre-requisite policy measures (PPMs) to enable the efficient use of environmental water. PPMs provide the capacity to credit environmental return flows for downstream environmental use and allow the call of held environmental water from storage to piggy-back on unregulated flows. The PPMs were included in the original modelling to determine the Sustainable Diversion Limits (SDLs) and have been incorporated in the environmental equivalence methodology that underpins supply measures and the associated adjustment to SDLs. By assuming PPMs would be implemented, a higher SDL could be determined. If PPMs are not implemented, SDLs may be recalculated.

The Basin Plan establishes an environmental management framework that outlines the principles and processes to coordinate the planning, prioritisation and use of environmental water. It includes a Basin-wide environmental watering strategy and catchment scale long-term environmental watering plans.

FINDING 11.1

Although the Murray-Darling Basin Authority (MDBA) (as Basin Plan Regulator) has approved the Pre-requisite Policy Measure (PPM) Implementation Plans for all relevant Basin States, there is a lack of transparency around the progress of Basin States and the MDBA's process for assessing the adequacy of PPMs following implementation. There is some risk that PPMs will not be implemented by 30 June 2019.

FINDING 11.2

The 2014 Basin-wide environmental watering strategy (BWEWS) has provided a strategic foundation for the environmental water planning of significant environmental water holders and has been used to inform their portfolio planning and watering decisions.

The 2014 BWEWS does not provide clear guidance on how to prioritise those assets or types of watering events that are most important for achieving the Basin Plan objectives and expected outcomes.

RECOMMENDATION 11.1

The Murray-Darling Basin Authority, when developing the next five-year Basin-wide environmental watering strategy in 2019, should strengthen its value as the key strategic plan governing environmental watering across the Basin by:

- including a clear objective to 'maximise environmental outcomes through effective and efficient environmental water management'
- including a secondary objective that, where environmental outcomes are not compromised, environmental watering should seek to contribute to social or cultural outcomes
- providing clear guidance, under all water availability scenarios, on the relative priority of key Basin environmental assets (including instream assets) to achieving the overall environmental objectives of the Basin Plan and the expected outcomes set out in the strategy
- providing clear guidance, under all water availability scenarios, on the priority for achieving flow connectivity at the system scale relative to watering within an individual Water Resource Plan Area
- providing clear guidance on potentially harmful flow regimes, to support river operators and resource managers to act in a way that is consistent with the Basin Plan.

FINDING 11.3

Only seven out of 20 long-term watering plans (LTWPs) have been developed and published, with the remaining 13 due to be published by the ACT, New South Wales and Queensland Governments by 30 June 2019 or earlier.

LTWPs are likely to be an important component of the Environmental Management Framework because they are:

- undertaken at the catchment scale and facilitate top-down and bottom-up input
- a mechanism to facilitate local input into environmental water planning activities and the prioritisation of assets within a catchment.

Basin States have adopted different approaches to specifying priorities, objectives and targets in LTWPs.

RECOMMENDATION 11.2

Following the publication of the 2019 Basin-wide environmental watering strategy (BWEWS), the Murray-Darling Basin Authority (MDBA) (as Basin Plan Regulator) should provide clear guidance material to Basin States on the expected content of long-term watering plans (LTWPs) when they are reviewed and revised. This guidance material should include the need for LTWPs to articulate:

- realistic long-term objectives to be achieved from the available environmental water portfolio through watering activities within the operational constraints at that time
- environmental watering requirements in the catchment including the required magnitude, timing and frequency of watering for priority assets, ecosystem functions and system connectivity
- the relative priority of assets within the catchment for achieving the objectives of the Basin Plan and the expected outcomes of the BWEWS
- risks to the achievement of the long-term watering objectives, including the risk of undesirable outcomes arising from environmental watering or potentially harmful flow regimes as a result of river operations.

To improve the accessibility of information, the MDBA should maintain a register of LTWPs on its website, including relevant deadlines, progress towards completion, final documents when they are completed, and the status of each plan as they are reviewed and adapted over time.

FINDING 11.4

The Basin annual environmental watering priorities:

- are released too late to be considered by environmental water managers in their planning processes
- are becoming increasingly redundant as significant environmental water holders are moving to rolling multi-year plans.

RECOMMENDATION 11.3

As part of the 2020 review of the Environmental Watering Plan, the Murray-Darling Basin Authority (as Basin Plan Regulator) should consider the usefulness of Basin annual environmental watering priorities and whether the Basin Plan requirements for these annual priorities should be amended or removed.

RECOMMENDATION 11.4

By 2020, Basin Governments should:

- establish a Northern Connected Basin Environmental Watering Committee as a mechanism for intergovernmental coordination for planning and coordinating connected environmental watering events in the northern Basin
- increase the transparency of the Southern Connected Basin Environmental Watering Committee and its role by making governance arrangements including terms of reference, membership and reporting responsibilities publicly available.

RECOMMENDATION 11.5

Where not yet in place, Basin State Governments should establish processes for consultation and coordination between key stakeholders to enable event-based watering decisions — including water managers, asset managers and entitlement holders (including the Commonwealth Environmental Water Holder) — as soon as practicable.

These processes should be documented and publicly available.

Once in place, these arrangements should be reflected in the Commonwealth Environmental Water Holder's annual portfolio management plans.

RECOMMENDATION 11.6

While achieving environmental outcomes is the primary focus of environmental water holders under their respective legislation, opportunities to contribute to social or cultural outcomes (without compromising environmental outcomes) should be actively pursued. Before the first revision of long-term watering plans, Basin States and environmental asset managers should have processes to engage with local communities and Traditional Owners.

RECOMMENDATION 11.7

Basin States should manage the risks to achieving the environmental watering objectives set out in long-term watering plans by delivering complementary waterway and natural resource management measures (such as habitat restoration or weed and pest control).

Chapter 12 — Compliance

The Murray-Darling Basin Authority (as Basin Plan Regulator) is responsible for ensuring compliance with the Basin Plan. This role comes into full effect once Water Resource Plans are accredited by 1 July 2019. Basin States are responsible for ensuring compliance with their own water laws to prevent illegal water take and ensure entitlement holders fulfil their licence obligations. Basin Governments have instigated a number of reforms in response to recent reviews, including developing a Compliance Compact which outlines their commitments to reform.

FINDING 12.1

The Murray-Darling Basin Authority's reforms of its regulatory approach (including the establishment of an Office of Compliance) are a step forward in establishing its capability, but it is too early to gauge the likely effectiveness of the new arrangements. The Productivity Commission will examine these in its 2023 review of Basin Plan implementation.

RECOMMENDATION 12.1

As a transitional measure, the Murray-Darling Basin Authority should house its Sustainable Diversion Limit and Water Resource Plan compliance functions within the Office of Compliance, before its compliance role comes into full effect in July 2019.

FINDING 12.2

Compliance reforms by Basin State Governments, in aggregate, represent a strengthening of water take compliance regimes. Their efficiency and effectiveness will be reviewed in 2023 by the Productivity Commission.

RECOMMENDATION 12.2

Basin States should consider the role, costs and benefits of consistent metering policies including the role of metering standards.

Basin Governments should work with Standards Australia to formally revise standards to ensure quality and cost effectiveness in water measurement.

Before new Basin State metering regulation and implementation plans are put in place they should be subject to scrutiny through publicly available business cases.

RECOMMENDATION 12.3

The Murray-Darling Basin Authority (MDBA), as the regulator responsible for overseeing compliance at a Basin-wide level, should publicly report instances where Basin States are not effectively enforcing their water take laws.

The MDBA's 2026 Basin Plan review should reconsider the risk to meeting the objectives of the Basin Plan from non-compliance of water take, including the case for reducing Sustainable Diversion Limits if there is evidence of persistent illegal water take.

Chapter 13 — Reporting, monitoring and evaluation

The Basin Plan specifies annual and five-yearly reporting requirements that Basin Governments must meet. Reporting arrangements are also set out in the intergovernmental agreements that underpin the implementation of the Plan. The Plan sets out a program for evaluating its effectiveness. Completing these evaluations is the responsibility of the Murray-Darling Basin Authority (as Basin Plan Regulator), but the information required to conduct the evaluations comes from many different parties. Under the *Water Act (2007)* (Cwlth), the Plan is required to be reviewed in 2026.

FINDING 13.1

There are weaknesses in the design of the *National Partnership Agreement on Implementing Water Reform in the Murray-Darling Basin* (NPA) that reduce its usefulness as a means to hold Basin Governments to account for meeting their commitments in implementing the Plan.

These weaknesses include that:

- milestones are inadequately defined and have been able to be assessed as met when there is evidence to the contrary
- there is no option to recommend a partial payment to a Basin State. Payments must be made in full or not at all
- key information that informs assessments of progress against NPA milestones is not publicly released
- the release of assessments of progress against NPA milestones has not been timely in some years.

RECOMMENDATION 13.1

Reflecting lessons learned from deficiencies in past agreements, for any future funding agreements relating to the implementation of the Basin Plan, the Australian Government should ensure:

- the roles of the Australian Government and Basin States are clearly identified
- specific performance milestones are identified, and that clear responsibility is assigned for the delivery of each milestone
- where milestones are linked to payments, that these payments are disaggregated with a payment per milestone to provide a genuine incentive for implementation
- reporting on the progress of Basin Governments in meeting milestones is timely
- independent assessment of the progress of Basin Governments is undertaken
- advice provided by relevant agencies (such as the Murray-Darling Basin Authority or the Commonwealth Environmental Water Holder) is used to inform assessments of progress and is published in full.

FINDING 13.2

The 2014 Basin-wide evaluation framework is unclear and there is no clear strategy to coordinate the collection of the information needed to monitor the outcomes of the Plan. This means that:

- actions taken to monitor outcomes in the Basin are fragmented and inadequately integrated
- there is the potential for information gaps that may result in future evaluations being unable to accurately and comprehensively assess the impacts and outcomes of the Plan
- there is a risk of monitoring activity being duplicated
- the ability of Basin Governments to clearly communicate the outcomes of the Plan is impeded.

RECOMMENDATION 13.2

The Murray-Darling Basin Authority (as Basin Plan Regulator) should develop a revised Basin Plan evaluation framework. This framework should define the specific questions that are to be used to evaluate the outcomes and effectiveness of the Plan, and the scales and times at which these questions will be answered.

The process through which the framework will be developed should be made public as soon as possible.

The evaluation framework should be finalised by the end of 2019, and be made publicly available.

RECOMMENDATION 13.3

Basin Governments should develop a monitoring strategy to give effect to the evaluation framework for the Basin Plan. This should describe the process by which the information needed to answer the evaluation questions set out in the framework will be collected. This includes:

- outlining what information will be collected and by whom
- identifying any information gaps, who will be responsible for addressing them and the process by which they will be addressed
- establishing the arrangements for sharing the costs of monitoring and evaluating the Plan between Basin Governments.

This monitoring strategy should be developed by Basin Governments, supported by the Murray-Darling Basin Authority (as the agent of governments).

The monitoring strategy should be finalised by the end of 2019, and be made publicly available.

RECOMMENDATION 13.4

After the completion of the 2020 evaluation of the effectiveness of the Basin Plan, the Murray-Darling Basin Authority (as Basin Plan Regulator) should publicly outline the approach it will take for the 2026 review of the Plan. This should include establishing:

- the broad objectives and scope of the review
- how the process as set out in the Water Act will be undertaken, including establishing the timing of the review's discussion paper
- a clear process for identifying and addressing knowledge gaps that may hinder the review
- how the review will be resourced.

Chapter 14 — Institutions and governance

The Water Act, Murray-Darling Basin Agreement and the Basin Plan have resulted in a complex suite of institutional and governance arrangements for water management in the Basin. Responsibilities are shared by Basin Governments and key agencies (such as the MBDA) have been assigned multiple roles. There has been an implicit shift in responsibility for leading implementation from the MDBA to Basin Governments.

FINDING 14.1

There are major shortcomings in the current institutional and governance arrangements.

- Responsibility for leading the implementation of the Basin Plan is not clear and there has been a lack of strategic leadership. There is uncertainty about who should respond to issues as they arise.
- The Murray-Darling Basin Authority has conflicting roles. Its ability to effectively perform its collaborative service delivery functions (as the agent of governments) and be an independent and credible regulator that ensures compliance with the Plan is compromised by these conflicts.

These key deficiencies in institutional and governance arrangements have led to:

- a lack of transparency and accountability
- ineffective processes for intergovernmental collaboration
- stakeholders who are confused and frustrated by the efforts made to engage them due to a perceived lack of responsiveness
- key risks not being strategically managed and timelines slipping
- implementation being managed through last-minute negotiations as a crisis emerges or a deadline looms.

The shortcomings in institutional and governance arrangements pose a significant risk to the next phase of implementation of the Basin Plan.

RECOMMENDATION 14.1

Basin Governments should demonstrate strategic leadership, take joint responsibility and direct the implementation of the Basin Plan.

The Murray-Darling Basin (MDB) Ministerial Council should collaborate to provide the strategic leadership and policy direction required to implement the Plan, and be ultimately accountable for implementation.

In 2019, the MDB Ministerial Council should commence reforms to the institutional and governance arrangements for implementing the Basin Plan by:

- enhancing the role of and delegating accountability for implementation to the Basin Officials Committee (BOC). BOC should be responsible for managing the significant risks to successful implementation and ensuring effective intergovernmental collaboration
- ensuring that formal directions to BOC regarding implementation are publicly available
- ensuring that arrangements to assess progress, evaluate outcomes, and ensure compliance with the Plan are fully independent
- recognising that the Murray-Darling Basin Authority's agent of government role will continue to be key to driving collaboration between and providing technical support to Basin Governments as they implement the Plan
- ensuring that Basin Governments are individually and collectively resourced to perform their roles to implement the Plan.

RECOMMENDATION 14.2

Basin Governments should agree to the restructure of the Murray-Darling Basin Authority to separate its service delivery and regulatory functions into two institutions.

The Australian Government should then embark on the necessary institutional reforms to establish the:

- Murray-Darling Basin Agency — as the agent of Basin Governments
- Basin Plan Regulator — an independent Commonwealth Statutory Authority.

These institutional reforms should be in place by 2021.

RECOMMENDATION 14.3

As a transitional measure, and before the Murray-Darling Basin Authority's compliance role comes into full effect in July 2019, the Office of Compliance should be broadened to be the Office of the Basin Plan Regulator, and include compliance, evaluation and Plan review functions.

RECOMMENDATION 14.4

By 2020, to enable it to carry out its enhanced role (recommendation 14.1) the Basin Officials Committee should:

- have an independent Chair, appointed by the Australian Minister for Water in consultation with the Murray-Darling Basin Ministerial Council
- comprehensively review the capability and the resourcing it requires to jointly implement the Plan
- agree on the capability and services Basin Governments require of the Murray-Darling Basin Agency to support them to implement the Plan and for shared water resource management
- establish new arrangements and processes to support ongoing intergovernmental collaboration.

RECOMMENDATION 14.5

In establishing the Basin Plan Regulator by 2021, the Australian Government should ensure that it will be effective, including by reviewing the skills mix of the statutory appointments and establishing a statement of expectations.

When there is a need for additional technical skills not available within the Regulator's staff, the Regulator should organise formal, transparent arrangements for the supply of these capabilities from the Murray-Darling Basin Agency, Basin Governments, or other providers.