



Australian Government

Department of Climate Change, Energy,
the Environment and Water

Submission to Productivity Commission's Murray–Darling Basin Plan Five-year Assessment 2023

JULY 2023



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Acknowledgement of Country

Our department recognises the First Peoples of this nation and their ongoing connection to culture and country. We acknowledge First Nations Peoples as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living culture and pay respects to their Elders past, present and emerging.

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Introduction

The Department of Climate Change, Energy, the Environment and Water (the department) welcomes the Productivity Commission's second legislated inquiry into the effectiveness and implementation of the Murray–Darling Basin Plan and water resource plans (WRPs), and the opportunity to respond to the commission's call for submissions paper. This submission provides information for the commission on the questions raised in their background paper.

As Australia's most iconic river system, ensuring a sustainable and healthy Murray–Darling Basin is critical for our environment and the livelihoods and welfare of millions of Australians.

The Basin is complex, diverse and constantly changing in response to the climate and human activities. There is a pressing need to adapt to these changes to ensure the Basin's unique environment is preserved, and that communities and industries can continue to rely on Basin water resources.

The Australian Government (the government) is committed to safeguarding the Basin for future generations through the implementation of the *Basin Plan 2012* (Basin Plan). The Basin Plan sets the amount of water that can be taken from rivers for industry, agriculture and community use, while leaving enough water to restore and maintain a healthy environment and river system. In the face of an increasingly harsh climate, full delivery of the Basin Plan is more important than ever.

The department has an important role in implementing water reform in the Basin and providing rigorous, evidence-based policy advice to the government. The department is also responsible for administering the *Water Act 2007*.

In early 2023, the Murray–Darling Basin Ministerial Council (Ministerial Council) tasked Basin state and territory government officials with bringing forward a package, including accountability measures and work programs, to deliver the Basin Plan in full.

The department continues to engage in these efforts and is negotiating with Basin governments and the public on:

- innovative ideas to deliver the Basin Plan in full
- delivery of supply and constraint projects
- water recovery settings and bridging the gap
- accreditation of WRPs
- Improving water market transparency.

Key achievements

Progress has been made towards implementing the Basin Plan and therefore it is important to acknowledge the following achievements.

- More than 2,140 GL of water has been recovered or is contracted to be recovered towards reaching the Basin Plan Sustainable Diversion Limits (SDLs) as at 31 March 2023.

- Water recovered and held by the Commonwealth Environmental Water Holder (CEWH) is achieving significant environmental outcomes, including by keeping rivers flowing all the way to the Coorong, flushing salt from the system.
- Eighteen of 33 WRPs have been accredited.
- Significant water efficiency and infrastructure improvements have been made through the Off-farm Efficiency Program, such as the Goulburn Murray Water (GMW) Water Efficiency Project generating 15,900 ML long term average annual yield (LTAAAY) of water recovery. The GMW efficiency project improves service delivery by decommissioning old channels and modernising ageing water infrastructure.
- Several programs to support Basin communities have been implemented, such as the delivery of three rounds of the Murray–Darling Basin Economic Development Program.
- Investments in science and technology have significantly improved the way Basin water resources are managed.

Key challenges

Despite this progress, there are significant challenges to overcome to fully implement the Basin Plan. These include the following.

- Bridging the gap to sustainable levels of water extraction and recovery of the additional 450 gigalitre per year (GL/y) of water for the environment are behind schedule.
- Progress in implementing WRPs has been slow, with the NSW Government failing to gain accreditation for 15 of its 20 plans.
- A number of supply and constraints projects under the Sustainable Diversion Limit Adjustment Mechanism (SDLAM) will not be delivered by 30 June 2024.
- Critical measures for improving outcomes in the northern Basin will not be delivered by 30 June 2024.

In July 2023, Minister for the Environment and Water, the Hon Tanya Plibersek MP (the Minister), asked the Murray–Darling Basin Authority (MDBA) for advice on progress to date on the Basin Plan and the prospects of meeting water recovery targets by 30 June 2024.

The MDBA's July 2023 advice to the Minister found that based on current progress towards water recovery, SDLAM projects, WRPs and northern Basin initiatives, the Basin Plan will not achieve its intended outcomes by 30 June 2024. Further information is available at the MDBA's advice to the Minister (MDBA, 2023).

The Minister has confirmed that work will continue with Basin water ministers to seek agreement on a new phase to deliver the Basin Plan in full with extended deadlines.

The department recently conducted a five-week public consultation seeking community ideas to deliver the Basin Plan in full. This included social media advertising, a public webinar and targeted workshops with peak stakeholder organisations. The results will be published in a 'what we heard' report in August 2023.

Scope of the inquiry

The department supports the scope of the Productivity Commission's 2023 inquiry, as outlined in the terms of reference and the call for submissions.

The department is particularly interested in analysis that acknowledges the collective progress made to date, and provides suggestions on how we can best address key challenges to achieving full implementation of the Basin Plan.

The commission's forward-looking recommendations on the future management of the Basin are of particular importance given the forthcoming review of the Basin Plan being led by the MDBA.

Resetting the balance

Water recovery

The Basin Plan includes two different water recovery targets— one that bridges the gap between historic overuse and a sustainable level of use and another that enhances environmental outcomes.

These recovery targets were determined based on an analysis of historical data, environmental science, and socio-economic analysis, as well as the modelling of different future scenarios.

The Basin Plan outlines the maximum amount of water that can be diverted from the Basin while maintaining environmental sustainability, called the SDL. To reach the SDL, the Basin Plan set a 2,750 GL/y water recovery target to bridge the gap and provided the opportunity for this target to be adjusted based on a review of the Northern Basin Science and the Sustainable Diversion Limit Adjustment Mechanism (SDLAM).

Following two amendments to the Basin Plan in 2018 to account for the outcomes of the Northern Basin Review and projects submitted under the SDLAM, this target was updated to 2,075 GL/y.

Various activities have been undertaken to meet the 2,075 GL/Y target to close the gap between historic and sustainable water extraction. Water recovery towards bridging the gap is done mostly by the government through the Sustainable Rural Water Use and Infrastructure Program which involves:

- infrastructure investments
- water purchases
- other state and federal recoveries.

The graph at *Figure 1* shows Commonwealth water recovery by financial year.

Water recovery commenced before the Basin Plan was finalised and was initially done predominantly by water purchase. The focus of water recovery programs subsequently shifted from water purchase towards infrastructure investment, before progress on all forms of water recovery slowed considerably.

Key policy decisions that have changed the nature and progress of water recovery included:

- the shift away from water purchase towards water infrastructure investment as outlined in the Australian Government's *Water Recovery Strategy for the Murray–Darling Basin* (2014)
- the Australian Parliament's 1,500 GL legislated cap on surface water purchases, which placed further limitation on water purchase and increased focus on infrastructure-based solutions (2015)
- agreement to the socio-economic criteria for efficiency measures projects by the Murray-Darling Basin Ministerial Council (2018)
- the Australian Government's decision to rule out additional water buybacks (2020).

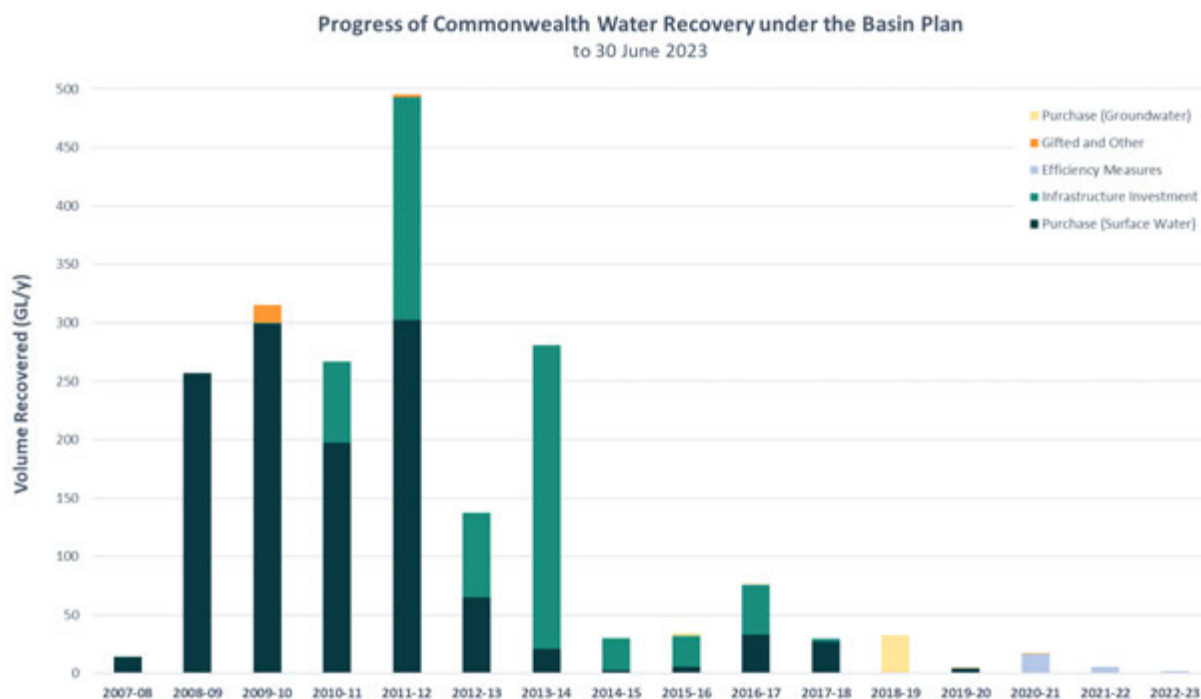


Fig. 1, Department of Climate Change, Energy, the Environment and Water, July 2023, *Commonwealth water recovery under the Basin Plan to 30 June 2023*, Canberra

Notes:

1. Water recovery is reported at the point at which water savings or purchase have been received, estimated or agreed under contract. Contracted arrangements may change before settlement in some circumstances.
2. All water recovery figures are expressed in gigalitres per year long-term average annual yield (GL/y) terms.
3. Estimates of water recovery are calculated using water recovery factors that allow for comparison with Basin Plan recovery targets. The factors are subject to revision through the Water Resource Plan accreditation process to account for the best available information. This chart has been prepared consistent with accredited WRPs and revised NSW factors as at 30 June 2023, which may change once NSW WRPs are finalised. Further information is available at: dceew.gov.au/water/policy/mbd/water-recovery/progress-recovery/accounting.
4. The 'Gifted and Other' category includes water entitlements that were not recovered through the Sustainable Rural Water Use and Infrastructure Program (SRWUIP). This includes entitlements gifted to the Commonwealth by the Queensland Government in 2009–10; entitlements recovered through the Water Smart Australia program in 2011–12; and entitlements recovered through the Mitiamo Pipeline project in 2020–21 funded by the National Water Grid Fund.
5. The Queensland Government conducted compulsory license reductions to achieve the SDL target in the QLD Upper Condamine Alluvium (CCA) groundwater resource unit in 2019, recovering 0.5 GL/y. This has been included in the groundwater purchase recovery figures.

Of the 2075 GL/y target, 49.2 GL remains across six catchments. The government has been working with Basin jurisdictions and stakeholders to explore water recovery options and project opportunities. This includes through dedicated workshops and on-ground consultation with communities and regional engagement officers. This work, alongside engagement with Basin jurisdictions and Australian Government agencies, informed development of the Strategic Water Purchasing Framework (DCCEEW 2023).

The framework outlines the guiding principles in considering strategic purchase opportunities to bridge the gap of 49.2 GL of water and the principles that could inform an overall assessment of value for money for the strategic water purchase tender:

- achieving the SDLs
- water market price and other financial considerations
- environmental utility.

The framework is considered fit-for-purpose for supporting the recent strategic water purchase tender to bridge the gap. The principles were developed to support water recovery decisions.

A tender for the strategic water rights purchase of 44.3 GL/y to deliver the Basin Plan opened on 23 March 2023 and closed on 19 May 2023. The tender sought responses that offered water rights for purchase in six catchments across NSW and southern Queensland with a remaining gap to bridge. The tender marks an important step in finalising the delivery of the 'bridging the gap' target of 2,075 GL/y.

The department is also working with the Australian Capital Territory Government to recover 4.9 GL/y toward its shared reduction amount (targets that apply at the Basin shared zone level).

While programs are in place to bridge the gap, other targets associated with SDLAM projects and delivery of the 450 GL of additional environmental water remain at significant risk. For more information, refer to the Authority's advice to the minister (MDBA, 2023).

The government is exploring all ideas to deliver the Basin Plan in full. For example, it is considering submissions put forward through a public consultation which sought innovative and practical ideas to deliver the Basin Plan in full and achieve a sustainable Basin for the communities, farmers, businesses and First Nations who rely on it. Information gathered in this consultation will inform advice to ministers, contribute to policy and program development, and build on options stakeholders have already provided.

Supply and constraints measures

The Basin Plan provides flexibility for the SDL to be adjusted up or down (by no more than 5%) to achieve the environmental outcomes with less water via the SDLAM.

- Supply measures enable equivalent environmental outcomes to be achieved with less water primarily through environmental works, such as building or improving river or water management structures.
- Constraints measures are activities that remove or ease constraints on the capacity to deliver environmental water, such as adjusting crossings and bridges. Easing or removing constraints allows for better outcomes to be achieved from the use of environmental water.

Of the 36 supply and constraints measures, 15 projects are nominally complete. Based on the MDBA's advice to the minister (MDBA, 2023), it is estimated that 16 projects are unlikely to be operable by 30 June 2024 and a shortfall in water recovery of between 190 and 315 GL/y is likely.

Delays to the constraints measures program are acknowledged by all Basin governments and are due to:

- an initial low knowledge base of the on-ground implementation of the program. This needed to be addressed prior to consultation and detailed feasibility studies.
- a lack of recognition of the complexity of the task, poor program level design, governance and accountability, and a failure to effectively consult with communities.

Work to address the knowledge base and consultation challenges is part of the program and is funded by the Commonwealth. Progress on building the knowledge base and commencing detailed consultation has improved during 2022 and 2023. There is now significant community consultation under the NSW Reconnecting River Country program, Victorian Constraints Consultative Committee and SA Constraints Measures Project. This progress has re-gained some momentum for the program but there is significant work remaining for implementation of the constraints projects.

The status and timeline of the delivery of supply projects was discussed at the Ministerial Council meeting on 24 February 2023. In the Ministerial Council Communique, it was noted that governments in NSW and Victoria were seeking two more years to deliver some supply measure projects that are well advanced (MDBA, 2023).

Efficiency measures

Efficiency measures are activities (including infrastructure) that change water use practices and save water. They are integral to the Basin Plan's SDLAM, which is in place to benefit the environment and communities across the Basin.

At least 62 GL/y must be obtained through efficiency measures to keep the SDLAM adjustment within the 5% limit set out in the Basin Plan. Water saved through efficiency projects will be used as environmental water, forming part of the Commonwealth's environmental water holdings.

Based on the MDBA's advice to the minister (MDBA, 2023), little progress has been made in achieving the 450 GL/y target. Since 2018, only 12.2 GL/y, or less than 3%, has been recovered, with a further 13.8 GL/y contracted for delivery by 30 June 2024 (as at 31 May 2023).

The main barriers to progressing efficiency measures include:

- Lack of support (from some Basin states) to initiate efficiency projects.
- Socio-economic criteria that were found by the Productivity Commission (2018) to be impractical and that would, in effect, block additional water recovery.
- Unprecedented droughts, severe floods, and the global pandemic have caused delays in consultation and have impacted site access for extended periods.

The department continues to engage with Basin states, communities and industries on opportunities to be formally brought forward to the government to recover water against the 450 GL target.

Northern Basin Toolkit

The Australian Government is working with the NSW and Queensland governments to implement environmental works and measures identified in the MDBA's 2016 Northern Basin Review, collectively known as the 'Northern Basin Toolkit.'

Toolkit measures are designed to complement environmental outcomes in the northern Basin.

The six Northern Basin Toolkit measures include:

1. Arrangements to protect environmental flows.
2. Targeted recovery of water.
3. Event-based mechanisms, such as options for pumping and store-and-release.
4. Improvements to the coordination and delivery of environmental water.
5. Environmental works and measures to promote fish movement and habitat, such as building fishways.
6. Removal of physical constraints in the Gwydir catchment to improve flows to the wetlands.

There is a significant risk that the Northern Basin Toolkit measures will not be implemented by the June 2024 timeframe agreed under the Intergovernmental Agreement on Implementing Water Reform in the Murray–Darling Basin. The implementation of these measures has been significantly delayed, including by severe weather events, the global pandemic and associated supply chain challenges.

Monitoring and evaluation framework for the SDLAM

The department and the MDBA operates within a monitoring, evaluation, reporting and improvement framework and collaborates with the Basin states to deliver supply, constraint, efficiency and toolkit measure projects. There are variations in how each of the Basin states approach these projects.

These include:

- The Basin Officials Committee (BOC) is the key decision maker for some components of the program, including which projects are nominated and withdrawn, and facilitates communication between the government and Basin state governments.
- Basin state governments and the MDBA are responsible for implementing SDLAM measures, including consulting with communities, project design, undertaking construction, monitoring risk and providing any notification amendments by December 2023.
- The department provides funding for SDLAM projects.
- The Sustainable Diversion Limit Adjustment Mechanism Implementation Committee (SDLAMIC) provides oversight and monitoring of risks to support delivery of the package of supply and constraints projects. SDLAMIC is a sub-committee of the BOC.

- The MDBA provides annual assurance reports on progress in delivery of each SDLAM measure.

At the 24 February 2023 Ministerial Council meeting, Minister Plibersek tasked officials to develop a package, including accountability measures and work programs to deliver the Basin Plan in full, and to report to ministers at the next Ministerial Council meeting to be held in the second half of 2023.

The department is in negotiations with Basin governments on the timing, assurance, design and community consultation needed to deliver supply, constraints, efficiency and toolkit projects in full.

Basin management arrangements

Water Resource Plans

Water Resource Plans are integral to the implementation of the Basin Plan. Accredited WRPs set the rules of water accounting for water take to ensure the SDLs are not exceeded over time and to provide for the protection of water for the environment, cultural values and uses, and water quality. WRPs are developed by state and territory governments and accredited by the Commonwealth minister for water.. To be accredited, WRPs must be consistent with the requirements in the Basin Plan.

In general, the Basin Plan and WRP framework has resulted in improvements in water planning and management in the Basin by providing a consistent process that supports transparency, accountability, and assurance from WRP accreditation through to reporting and compliance.

However, the effectiveness of the Basin Plan and WRP framework is impacted by its complexity, and the very delayed submission or non-submission of WRPs by some Basin governments, which in turn reduces the confidence that water planning and management in the Basin is being undertaken adequately and consistently.

WRP annual compliance reporting arrangements could be improved by clarifying roles and responsibilities of the MDBA and the Inspector-General of Water Compliance (IGWC) as they relate to assessment of reasonable excuse claims.

Water quality

Australia's waterways, including surface and groundwater systems, catchments, and estuarine and marine water bodies are complex ecological systems that we interact with every day. We rely on our waterways and wetlands for:

- drinking water supplies
- irrigation and farming
- receiving and cleansing effluent and stormwater
- recreational and commercial activities like fishing and boating.

Water quality is a critical part of managing water catchments. It affects what we can use the water for and influences the health of the hydrological system. A healthy system will in turn provide better quality water and a more resilient ecosystem.

Proper management of water quality and contamination management requires work across all levels of government. The government focusses on national leadership on these matters. State and territory governments have responsibility for managing and regulating environmental impacts associated with water resources in their respective jurisdictions. The environment protection authorities in each state and territory are the primary environmental regulators responsible for these matters.

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZ Guidelines) are key guidelines under the National Water Quality Management Strategy (NWQMS). Their objective is to provide authoritative guidance on the management of water quality in Australia and New Zealand. ANZ Guidelines include setting water quality and sediment quality objectives designed to sustain current, or likely future, community values for natural and semi-natural water resources.

Chapter 9, Division 3, and Schedule 11 of the Basin Plan set out the water quality targets to be met by the Basin Plan and in Water Resource Plans. Since the Basin Plan was established in 2012 there has been significant work on water quality guidelines under the ANZ Guidelines and NWQMS that is not reflected in the Basin Plan. At present, the Basin Plan focuses on salinity and oxygen saturation, which, while critical, are only two of many measures of water quality.

The ANZ Guidelines provide:

- a platform for consistent water quality management and planning
- technical support for the NWQMS and New Zealand's National Policy Statement for Freshwater Management
- tools for governments and the community to assess and manage ambient water and sediment quality.

The Basin Plan requirements at Schedule 11 identify that water quality should meet the standards set out in the ANZ Guidelines. The irrigation water and livestock drinking water guidance documents under the NWQMS are being reviewed and new iterations will be available over the coming year. These documents identify water quality standards which should be met to protect these industries. The guidance documents identify the levels of toxicants which should not be exceeded in water provided for that purpose.

The aim of the Water Quality Guidelines Improvement Program (WQGIP) is the development and revision of the ANZ Guidelines. WQGIP is ongoing and, due to the rigorous processes embedded in the ANZ Guidelines review to ensure the guidelines are based on the highest standards of science, have been revised at a slower pace than all jurisdictions would like. A strategic review of the WQGIP and associated processes is underway that is aimed at, among other things, identifying how the ANZ Guidelines can be amended more rapidly while retaining rigour.

Stage 1 of the strategic review of the WQGIP and the ANZ Guidelines, to be undertaken between June and November 2023, will set out performance indicators and targets to determine whether the guidance, tools and arrangements assist water quality planning.

Stage 2 of the strategic review will involve developing a 5-year strategic plan. The plan will cover aspects such as, the vision, objectives, activities and budget for the ongoing revision of the ANZ Guidelines.

The plan will include:

- a review of the relationship between the WQGIP and the NWQMS
- an agreed vision for the ANZ Guidelines and a 5-year goal

- suggested pathways to achieve the 5-year goal and vision.

The review will provide recommendations to reach the 5-year goal across the following elements: budget, process, monitoring and evaluation, governance, communications and collaboration, the policy context and future developments.

Incorporating the ANZ Guidelines and NWQMS into the upcoming review of the Basin Plan will ensure it continues to reflect best practice in water management. It will also be a practical example of how water quality and broader water management issues are integrated to address quantity and quality outcomes.

Critical human water needs

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

The 3 water sharing tiers are:

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

The Basin Plan sets triggers for water volumes, quality and salinity that allow movement between water sharing tiers that can re-prioritise water usage for urgent or emergency situations. These trigger points help to manage risks to meeting and delivering CHWN, as well as consideration of water quality. This approach enables greater planning in water management for meeting CHWN.

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

In 2020, Marsden Jacob Associates noted in the *Urban Water in the Murray–Darling Basin* report (MJA 2020) that for communities that rely on the River Murray (southern Basin), the CHWN rules are generally viewed with confidence and that these rules will ensure community needs can be met. However, the *Independent assessment of social and economic conditions in the Murray–Darling Basin* (Sefton 2020) noted that the quality of supply is variable, particularly in regional NSW (northern Basin), and some areas have faced urban water shortages.

Basin states prioritise critical human water needs in state planning frameworks and policies, consistent with the Basin Plan and Water Act, to ensure that arrangements are in place for periods when there is low water availability. In the southern Basin, South Australia maintains a dry year reserve to ensure that critical human water needs can be met during drier times through a combination of water held in storage and water provided through desalination (South Australia, 2023). NSW developed the NSW Extreme Events Policy to respond to the increased pressures of climate change, particularly more intense drought events in the northern Basin (NSW, 2023).

Although the department considers the current triggers and measures within the Basin Plan are generally adequate to meet risks to CHWN, it also acknowledges the Productivity Commission's warning in the *National Water Reform 2020, Inquiry Report*, (PC 2020), that Australians would need to be more adept at dealing with drought and be able to adapt to lower water availability.

In this context, there are a number of upcoming reviews, including the Basin Plan Evaluation 2025 and the Basin Plan Review 2026, that may provide further opportunity to consider if the current provisions can be improved to provide certainty across a range of climate change scenarios.

Environmental water management

Water for the environment plays a critical role supporting river health and building resilience into the Basin's rivers and wetlands in wet and dry times.

As at 31 May 2023, the CEWH held a total of 2,899 GL/y of registered entitlements, with a long term average annual yield of 2,001 GL/y.

Commonwealth-held water for the environment has led to a range of positive outcomes, including:

- delivering more than 15,000 GL total of environmental water since the establishment of the CEWH
- supporting over 22,000 kilometres of Basin rivers and creeks
- improving water quality by freshening up thousands of kilometres of rivers and flushing salt from the system
- partnering with First Nations to help deliver environmental and cultural benefits
- helping to maintain 10 Ramsar sites, listed wetlands of international importance in the Basin
- contributing to the health of six icon sites of The Living Murray program, established in 2002 along the Murray River, chosen for their environmental, cultural and international significance.

Areas for improvement

Further improvements can be made to get the most out of environmental water by allowing the CEWH and other water holders greater flexibility to deliver water to where it's needed.

Primarily, this means continuing to gain momentum for the Constraints Measures program, to drive the next phase of implementation through:

- improved program-level governance
- a strategic approach to implementation
- consolidation of recent progress on consultation
- improved decision-making on project feasibility studies, business cases and implementation
- improved project and strategy-level accountability and assurance
- ensuring a consistent approach where practicable, particularly for landholders on the NSW/Vic border

- accelerate implementation of quick wins/no regrets projects.

The Enhanced Environmental Water Delivery (EEWD) strategy is another such opportunity. The EEWD as a project will enhance planning, forecasting, accounting, inter-valley coordination, and delivery processes for environmental water across the southern connected Basin, including up to any new regulated flow limits made possible under the full delivery of the Constraints Measures Program. This includes:

- Accurately aligning the release of held environmental water with unregulated flows to shape the peak or duration of a flow event, to create a stronger biological stimulus in synch with natural climate signals. This provides opportunities to create desired flow regimes using smaller volumes of held water than would otherwise be possible if releases were not well aligned with natural inflow events.
- Making decisions to release water quickly, to enable a timely response to a natural flow event in real time.
- Making efficient use of channel capacity through the implementation of constraints relaxation measures to allow managed flows up to new regulated limits to improve in-channel, floodplain, wetland and end of system outcomes.
- Coordinating environmental water releases across tributaries of the southern connected Basin to maximise downstream and system-wide connectivity outcomes with efficient use of environmental water.

There are also opportunities to improve First Nations peoples' engagement in environmental water management to ensure that traditional knowledge is appropriately reflected to get the best ecological and cultural outcomes. In the May 2023 Budget, the CEWH received \$3.5m to establish a First Nations Environmental Water Partnerships Pilot Program. The CEWH is striving to embed First Nations peoples' knowledge and science into the future science program (Flow-MER 2.0) to ensure environmental watering is underpinned by the best available knowledge. The MDBA reports on First Nations peoples' involvement in the planning and delivery of water for the environment in the Basin as part of a ministerial direction (MDBA, 2023).

Basin governments, the MDBA and the BOC identified a number of improvements to the management of environmental water in 2020 (MDBA 2021). These are being progressed primarily by the Environmental Watering Committee and funded by the Commonwealth to states as part of the \$60 million Federal Financial Agreement for Implementing Water Reform in the MDB (2021 to 2024). The department undertakes annual assessments of states' progress against the achievement of the milestones.

Adapting to a changing climate

Since the Basin Plan was established in 2012, climate change science, knowledge, and modelling have progressed significantly – globally and in Australia. This includes the capability to project future conditions with higher resolution and confidence, and a greater understanding of impacts and adaptation options.

Given the latest findings of the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC 2023), southeast Australia can expect a hotter and drier future, with more extreme events.

Accordingly, consideration of this new knowledge and understanding would strengthen the Basin Plan and environmental watering.

The IPCC stresses that effectiveness of adaptation to climate change now depends on a shift from reactive to adaptive implementation. Thus, incorporating an increased focus on building adaptation, refuge, and resilience to climate change into enhanced environmental watering would complement the existing adaptive management approach.

Integration with other natural resource management programs

The Native Fish Recovery Strategy (NFRS) is a joint government initiative developed in partnership with Basin state governments, First Nations and the wider community to support healthy and resilient native fish populations in the Basin. The vision and ecological outcomes of the NFRS align with the native fish objectives of the Basin Plan.

The NFRS has enabled communities to get involved in fish recovery through employment of local recovery coordinators, implementation of on-ground fish recovery programs, native fish rescues, and greater awareness of native fish benefits and threats. There is an opportunity to scale up Basin-wide support for the NFRS in the future to improve the outcomes that can be achieved.

The government and state jurisdictions are considering the National Carp Control Plan, led by the Fisheries Research and Development Corporation and published on 3 November 2022. Consideration of the NCCP is expected to take several years, and delivery will not occur without further research, implementation planning, regulatory approvals, agreement from all relevant jurisdictions, and extensive stakeholder consultation.

The Murray–Darling Basin Indigenous River Rangers Program was first funded in 2021. The National Indigenous Australians Agency runs this program. Through the program, First Nations organisations improve waterway health and manage Country, which helps to sustain the Basin’s valuable environmental assets.

The government is committed to delivering better environmental protection and reforms as part of its Nature Positive Plan. As part of this, the government has committed to:

- protecting 30% of Australia’s land and seas by 2030
- creating a nature repair market
- establishing an independent environment protection agency
- working in partnership with First Nations peoples, including to develop standalone cultural heritage legislation.

As the Nature Positive Plan is implemented, there may be further opportunities available to integrate water management with state and territory regional plans, conservation planning or other nature repair or recovery efforts.

Governance and institutions

Effective institutional and governance arrangements are vital to the successful implementation of the Basin Plan. Arrangements implemented, including those made in 2018, have led to improved governance and oversight of Basin Plan implementation.

The establishment of the Inspector-General of Water Compliance in 2021 has further enhanced governance and institutional arrangements through legislative powers regarding compliance with the Water Act, the Basin Plan and WRPs. The IGWC undertakes monitoring and independent oversight of Commonwealth and Basin states performance of obligations in the Basin and engages Basin communities on the management of Basin water resources. They hold an administrative role to lead and facilitate solutions to complex interjurisdictional matters through the development of standards and guidelines. The IGWC presents an update on compliance matters in the Basin to Ministerial Council meetings and responds to requests for advice from council members.

The MDBA and Basin governments have continued to improve the way information is shared with regular reporting to stakeholders.

The department and the BOM are also progressing a program of water market reform (under the Water Market Reform roadmap). The reforms will:

- introduce integrity safeguards to water markets, including applying professional standards to intermediaries, comparable with other markets
- ensure that water market participants have sufficient information to make informed water trading decisions
- improve the functioning, transparency and governance of water markets

There are credible mechanisms for transparency, integrity, conflict management and accountability within the governance of the Basin Plan, with robust terms of reference and existing organisational codes of conduct. These are being strengthened by:

- Terms of Reference for several committees including BOC and Basin Officials Committee Alternates (BOCA) are being reviewed.
- BOCA is reviewing a draft transparency plan prepared with input from the Basin Community Committee.
- Additional transparency measures, or improving existing ones such as reporting, being considered by BOCA.
- An overhaul of the BOC strategic priorities and associated reporting is underway to improve accountability, transparency and outcomes.

Institutions generally have the capability, powers and resources needed. The department is working to get the required resources in place to best support delivery of the Basin Plan. Overall, institutions have been affected by the tight labour market over the past year and have at times struggled to find necessary resources promptly.

Compliance

The Murray–Darling Basin Compliance Compact (2018) is an agreement between the Basin states and the government that commits the parties to a range of compliance-related matters including:

- transparency and accountability
- compliance and enforcement frameworks
- metering and measurement
- finalising WRPs
- protecting and managing environmental water.

The MDBA and the IGWC assessed progress of the Compliance Compact implementation. Most of the commitments have been met and suitable compliance mechanisms are generally in place.

The department is responsible for some compliance related policy, which focuses on metering, measurement, and telemetry issues. The department has responsibility for the Metrological Assurance Framework 2 (MAF2) which is the primary set of standards for regulators to maintain measurement methods. All Basin jurisdictions have adopted the MAF2 requirements.

The department is of the view that institutional and governance arrangements are in place and are suitable for compliance with Basin water laws. Compliance techniques are not static, and governments are working to develop processes for better coverage of metering telemetry to support water management.

Monitoring evaluation and reporting

Chapter 13 of the Basin Plan provides for a monitoring and evaluation program to evaluate the effectiveness of the Basin Plan. This program includes reporting requirements for the MDBA, Basin states, the department and the CEWH.

The MDBA has primary responsibility for monitoring, evaluating and reporting on the Basin Plan, including undertaking 5-yearly Basin Plan evaluations. The Basin Plan evaluation plays a critical role in tracking and communicating progress and achievement against the Basin Plan outcomes and identify potential improvements, informing adaptive management and decision-making. The next evaluation of the Basin Plan will be completed in 2025 to ensure it informs the upcoming Basin Plan review in 2026. The MDBA has released a 2025 Basin Plan Evaluation Roadmap and Framework to guide the progress.

This document identified 6 priority areas for attention by Basin governments in seeking to improve the health and productivity of the Basin, which will be considered in the 2025 Basin Plan Evaluation. The priority areas are:

- implementing the Basin Plan
- adapting to climate challenges and increasing resilience
- strengthening focus and support to enable social and economic outcomes
- establishing a clear and committed pathway for First Nations social and economic outcomes

- integrating water management with other activities to achieve environmental restoration
- advancing science and monitoring.

A number of changes have been made to Basin Plan monitoring and evaluation capability during the reporting period. In particular, in the areas of systems and data (involving improving science underpinning Basin water monitoring, modelling and management), developing the ability to monitor and evaluate First Nation's water and giving greater consideration to the evaluation of climate change impacts. The department has a Federal Financial Agreement in place with Basin state governments that specifies and funds the achievement of performance indicators to support this work.

The department is responsible for monitoring, evaluating and reporting water recovery and financial information on all programs it administers. This includes water recovery projects, water purchase projects and water security projects.

The department supports and has contributed to the MDBA's Monitoring Statement which is published on its website and summarises and locates the data sets used to meet Basin Plan monitoring obligations. The MDBA also publish a quarterly dashboard report on implementation of SDLAM infrastructure projects, updates on their website, Ministerial Council communiques on progress and the MDBA annual report.

Water market reform

On 11 October 2022, the Minister for the Environment and Water, the Hon Tanya Plibersek MP, released the *Water Market Reform: Final Roadmap Report* (Australian Government 2022), developed by the independent principal adviser Mr Daryl Quinlivan AO. Basin state governments supported implementation of all 23 Roadmap recommendations to deliver on the government's commitment to restore transparency, integrity and confidence in water markets.

The roadmap recommendations aim to improve confidence in water markets through:

- introducing integrity safeguards to water markets, including applying professional standards to intermediaries comparable with other markets
- developing new data standards, a new water market hub and water market website
- working with Basin states to reduce barriers to inter-valley trade.

The government has committed to introducing legislation to regulate water market conduct, including establishing stronger insider trading rules, prohibiting market manipulation and to enable a mandatory code of conduct for water market intermediaries. These provisions will be enforced by the Australian Competition and Consumer Commission (ACCC).

The BOM will develop new data standards, a water market data hub and publish accurate minute-by-minute water prices on its website. These platforms will capture, transfer, and publish existing and new data to improve transparency and inform trade decisions. Development of the new Water Markets Hub and website is underway and is expected to be operational by 2027.

The IGWC will regulate compliance with the new data reporting obligations. The IGWC's role under these reforms broadly aligns with its current role in regulating price reporting under the Basin Plan.

The cross-agency Trade Working Group is reviewing Schedule D of the Murray–Darling Basin Agreement to identify opportunities to improve efficiency and access to intervalley trade opportunities. Phase 2 of the review is underway and will specifically address relevant roadmap recommendations.

The ACCC’s 2021 water market inquiry and the *Water Market Reform: Final Roadmap Report* have provided 2 comprehensive review processes. Implementing the roadmap recommendations will improve community confidence in water markets, develop new integrity safeguards, and support investment in new data and systems capabilities that will improve trade and transaction transparency. On this basis, there is no immediate requirement for any additional water market reform process.

The future of the Basin Plan

Climate change

Since the Basin Plan was established in 2012, knowledge and understanding of climate change and its impacts has grown significantly. In the past decade, southeast Australia has experienced first-hand the impacts of climate change, with an increase in extreme events such as drought, floods, fires, and mass fish deaths.

Moving forward, the need for flexibility and adaptability will be paramount. The recent IPCC AR6 stressed that the effectiveness of adaptation to climate change now depends on a shift from reactive to adaptive implementation.

An evolved and robust Basin Plan may benefit from an increased focus on measures and objectives that refer to building the resilience of the system, relate to the adequacy of refuge areas or associated infrastructure, and provide for heightened protection of vulnerable biodiversity and ecosystem functions. The latter includes attention to reducing the impacts of invasive species and disease, which are exacerbated by climate change.

The Basin Plan may also benefit from the potential for integrating infrastructure and technological solutions to deal with climate challenges.

First Nations in the Basin

The government is committed to improving participation by First Nations peoples in decision making and water management. In line with this commitment, the department recently released its Statement of Commitment to First Nations which has key components to:

- establish a dedicated central First Nations branch to integrate Aboriginal and Torres Strait Islander peoples' advice across the portfolio, coordinate and deepen engagement with, and deliver on the Closing the Gap targets and priority reforms
- develop our Reconciliation Action Plan to meaningfully advance reconciliation, including through recruitment, procurement, cultural capability, leadership, partnerships, and cultural safety and competence
- collaborate and partner with Aboriginal and Torres Strait Islander peoples, including taking time to listen and understand that every community will have unique experiences, preferences and perspectives
- prioritise reforms in Aboriginal and Torres Strait Islander peoples' employment practices and cultural competency for staff, with a focus on engagement and open dialogue on policy, programs and service delivery
- create a culturally safe and supportive workplace by celebrating our diversity, recognising and working to reduce cultural load, and celebrating the history and culture of Aboriginal and Torres Strait Islander peoples
- advance key policy priorities that directly relate to Aboriginal and Torres Strait Islander peoples, including water, clean energy and cultural heritage protection

- support staff understanding of the Voice, in the lead up to the Voice Referendum, by providing factual information, uphold our obligations to work with impartiality, and ensure a culturally safe and inclusive workplace for all employees
- continually seek to exceed our portfolio's Indigenous Procurement Target by recognising that many Aboriginal and Torres Strait Islander people have a wealth of knowledge on topics that may relate to the department's work and stimulating Indigenous entrepreneurship and business development in line with the Indigenous Procurement Policy.

In its 2020 inquiry of the National Water Initiative (NWI), the Productivity Commission (Productivity Commission 2020) found the NWI should be renewed and modernised to better account for changes in knowledge and technology and to address emerging challenges such as climate change and population growth. The commission's recommendations included that a renewed NWI should focus on increasing Indigenous Australians involvement and influence in water resource management.

The Committee for Aboriginal and Torres Strait Islander Water Interests

The Committee for Aboriginal and Torres Strait Islander Water Interests (CAWI) was established in 2020 to identify and provide advice on Aboriginal and Torres Strait Islander interests and identify priority national water reform directions to the National Water Reform Committee (NWRC). The NWRC is made up of senior government officials from the government and all state and territory water agencies and advises on, oversees, and coordinates the implementation of water policy reforms at the national level.

The CAWI includes independent water experts who identify as Aboriginal and Torres Strait Islander and are situated across Australia. Each committee member, who brings a wealth of experience and extensive networks, has been appointed based on the following criteria:

- have an understanding of the importance of water in a cultural context
- are competent in relation to water policy, planning and management, and water markets
- are effective in engaging with Aboriginal and Torres Strait Islander communities.

The work of the CAWI has a national focus and is additional to each jurisdiction's work at the state and local level on furthering water reform with Aboriginal and Torres Strait Islander peoples. The CAWI is integral in influencing national water reform to invest in, formulate policy for and progress Aboriginal and Torres Strait Islander water interests within their respective jurisdictions.

The CAWI is developing principles and actions for inclusion in the review of the NWI. These principles and actions will provide strong strategic direction towards ensuring First Nations peoples' interests in the access, use and management of water is prioritised in Australia. Key work produced by the CAWI for the NWRC include:

- a draft Indigenous-themed position statement/preamble to be included in a renewed NWI
- guiding principles for elevating Aboriginal and Torres Strait Islander peoples' water interests in a renewed NWI. These guiding principles are aimed to support authors to consider across all themes of renewed NWI.

In December 2022, the government committed an additional \$700,000 to support the work of the CAWI until 2026. The terms of reference of the CAWI has been updated to include its expanded role

in advising the government and Water and Ministerial Council on Aboriginal and Torres Strait Islander interests.

CAWI will hold regular meetings with senior government officials from state and territory water agencies to offer feedback on incorporating cultural values and commitments to Aboriginal and Torres Strait Islander peoples in water policies.

The CAWI will also have a major role in providing advice to the minister and the department on 2 key government First Nations water initiatives:

- Aboriginal Water Entitlement Program
- First Nations Water Holder proposal.

The Australian Government relies on the CAWI to provide a valuable First Nations voice on water interests and reform in the Murray–Darling Basin.

Aboriginal Water Entitlements Program

In 2018, the government committed \$40 million to administer the Aboriginal Water Entitlements Program (AWEP) to support Murray–Darling Basin Indigenous communities’ investment in cultural and economic water entitlements and associated planning activities.

Since then, a series of consultations were undertaken to inform the design and delivery of AWEP. Over this time, the program was transferred between various agencies, including the Department of Agriculture and Water Resources, the Department of Agriculture, Water and the Environment and the National Indigenous Australians Agency. The AWEP funds were transferred back to the Department of Climate Change, Energy, the Environment and Water in the October 2022 Budget.

The Australian Government remains fully committed to delivering the \$40 million and the entire amount remains available. In 2023, the department published the ‘What we heard’ draft consultation report to help inform the development of a draft water purchasing strategy and principles for water entitlements in the Murray–Darling Basin.

The department is hosting a series of gatherings with Murray–Darling Basin First Nations peoples in July and August 2023. These gatherings are to confirm what we’ve heard, determine purchasing principles and an interim governance arrangement, while an enduring model is determined with First Nations peoples. Members of the Committee on Aboriginal and Torres Strait Islander Water Interests will be participating in these gatherings to support the First Nations engagement and provide advice to government.

First Nations water holding mechanism

First Nations have been calling for enduring water holding arrangements for more than a decade. The government is investing \$9.2 million to consult and design an enduring arrangement for First Nations peoples to own, access and manage water in Australia. Additional resources for engagement on delivering AWEP and developing the model for a permanent water holding arrangement are included in the funding.

The mechanism for the First Nation water holder arrangement is yet to be determined as First Nations peoples need to be engaged about how models would work, and how these can support the principles of self-determination.

A model of governance that supports First Nations water holdings is essential to achieving the government's commitment to First Nations peoples and ensuring enduring benefits for all First Nation peoples.

The department will work with CAWI, the Coalition of Peaks, the Indigenous Land and Sea Corporation, National Indigenous Australians Agency and other stakeholders to engage with First Nation peoples. This engagement will help to develop a fit-for-purpose model for First Nation peoples to own, access and manage water in Australia.

Community engagement

The government is committed to delivering the Basin Plan in full and has been engaging with stakeholders and communities to understand the range of water issues and opportunities across the Murray–Darling Basin.

The department uses established programs and networks to engage with Basin communities including through:

- The Regional Engagement Officer program, which is a network of 6 officer positions co-funded by the MDBA, who provide a conduit between the community and the department.
- The MDBA conducts listening tours to ensure senior leaders across the department and the MDBA can hear directly from people with lived experience. The visits in the past year have included:
 - Lachlan, 21–23 June 2022
 - Lower Darling, 25–28 July 2022
 - South Australia, 1–3 November 2022
 - Southern Queensland, 21–23 March 2023
 - Barwon Darling, 2–5 May 2023.
- The department takes part in three peak stakeholder briefings hosted by the MDBA each year where stakeholder groups are invited to raise their issues and the department provides updates on policy and program delivery.
- Other engagements are undertaken on an ad-hoc basis, including attendance at Murray Regional Strategy Group workshops, attendance at key Basin stakeholder events, for example the MDBA's River Reflections conference and the Murray–Darling Association's annual conference.
- The department recently conducted a 5-week public consultation seeking community ideas to deliver the Basin Plan in full. This included social media advertising, a public webinar and targeted workshops with peak stakeholder organisations.
- Departmental officials attend Ministerial Council meetings and various BOC meetings.

The department is committed to providing communities with clear, concise and easily available information for consultations and engagement activities.

The recent Basin Plan public consultation by the department reflects this commitment, providing communities with access to a *Have your say* website outlining the scope of ideas, a public webinar, several targeted workshops with key organisations to discuss ideas and finally promoting the consultation on social media across the Basin.

The department welcomes feedback from communities and stakeholders on its process and approaches to engage communities.

Improvements can be made to community engagement where the arrangements to consult can be coordinated and views gathered on multiple topics in one visit to a community or stakeholder. The department is coordinating multiple engagement activities with communities to avoid 'consultation fatigue' in specific regional areas or for target community groups such as First Nations.

The department discusses potential engagement activities at weekly internal meetings and raises these with the MDBA, the CEWH and other areas of the department for this purpose.

Helping communities adjust

The government's Murray–Darling Basin Economic Development Program has helped eligible communities to undertake activities to offset the negative impacts of past water recovery under the Basin Plan. The program provided \$72.7 million for 132 projects across three rounds.

Learnings from past implementation of the program show that the variety of projects put forward and undertaken by eligible communities underlines and supports their unique community needs. The benefits of each project are broad across each community assisting with the adjustment process. Additionally, the challenges encountered in delivering larger construction and development projects demonstrated that they require at least a 3-year timeframe for implementation.

The flexible, supportive and well-developed program management provided by the department resulted in delivering all contracted projects successfully, especially when considering complex delays such as floods, fires and Covid-19 impacts, inflationary pressures and the limited material supplies and restricted trades and contractor availability that resulted from these events.

Concluding remarks

The Basin Plan provides an integrated and strategic framework to bring the Murray–Darling Basin back to a healthier and sustainable state. Delivering the Basin Plan requires achieving all elements of the agreed Plan as a package. In the face of an increasingly harsh climate and greater demand for water, delivering the Basin Plan in full is more important than ever.

The Productivity Commission’s second legislated inquiry into the effectiveness and implementation of the Basin Plan and WRPs comes at a pivotal time in the Basin Plan’s implementation. While reforms have gone some way to safeguarding the Basin for future generations, significant challenges remain. It is now clear that the Basin Plan cannot be delivered within the original legislated timeframes due to delays with progressing water recovery, SDLAM projects, WRPs and northern Basin initiatives.

Despite these implementation challenges, the Basin Plan remains our best opportunity to secure the future of Australia’s most iconic river system, and the ongoing viability of the communities and industries that depend on the Basin. The Australian Government remains committed to achieving long-term sustainable outcomes for the Basin and will continue to work with Basin states to agree on a new phase to deliver the Basin Plan in full. References

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