NSW Government submission

Productivity Commission inquiry into the effectiveness and implementation of the Basin Plan (2012) and water resource plans.

Executive summary

The NSW Government welcomes the opportunity to make this submission to the Productivity Commission's inquiry into the effectiveness and implementation of the Commonwealth Government's Murray-Darling Basin Plan 2012 (the Basin Plan) and water resource plans.

This submission provides the NSW Government's views on Basin Plan implementation to date and highlights key areas where improvements must be made in the lead up to and following the Basin Plan review in 2026. NSW is interested in ongoing engagement with the Productivity Commission throughout its inquiry to clarify any issues raised in this submission and elaborate on potential areas for improvements.

The NSW Government agreed to implement the Basin Plan in 2014 and NSW supports implementation of the Basin Plan in full.

Numerous reviews, including the Productivity Commission's 2018 review of Basin Plan implementation, have highlighted the need for realistic timeframes and greater flexibility in how some of these elements are delivered. While good progress has been made for Bridging the Gap water recovery and improving ecological outcomes, full delivery of other elements of the Basin Plan will not be possible by statutory deadlines. We acknowledge that NSW has contributed to this, and we are committed to doing our part better. Without more time, flexibility, and funding for implementation of supply, constraints and efficiency measure projects, changes to Commonwealth program design to incentivise participation and mitigate socio-economic impacts on communities from water recovery efforts, the full environmental outcomes and lasting change anticipated by the Basin Plan cannot be realised.

Ongoing improvements in planning, stakeholder engagement, operational arrangements and monitoring and evaluation are also needed. New science and operational insights need to be incorporated into water planning and management frameworks more frequently than is currently possible.

Addressing these issues and generating improvements in the efficiency and efficacy of Basin Plan implementation will require amendments to the Commonwealth *Water Act 2007* (the Water Act) and the Basin Plan, updated Commonwealth policies (including those relating to project management and reporting) and program design, and additional Commonwealth funding to support Basin States and affected communities. Some changes can and should be sought ahead of the 2026 Basin Plan review where continuation under current Basin Plan settings puts the Commonwealth's major reform agenda at risk.

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NSW water reform agenda

NSW has committed to a significant body of work outlined in our first 20-year NSW Water Strategy to improve the long-term security, reliability, quality and resilience of our water resources. The NSW Water Strategy sets the overarching vision and priorities for our 12 regional and two metropolitan water strategies, tailored to the individual needs of each region in NSW. Together, the strategies will improve the resilience of NSW's water services and resources.

The seven priorities identified in the NSW Water Strategy are as follows:

1. Build community confidence and capacity through engagement, transparency, and accountability
2. Recognise First Nations/Aboriginal People's rights and values and increase access to and ownership of water for cultural and economic purposes
3. Improve river, floodplain and aquifer ecosystem health, and system connectivity
4. Increase resilience to changes in water availability (variability and climate change)
5. Support economic growth and resilient industries within a capped system
6. Support resilience, prosperous and liveable cities, and towns
7. Enable a future focused, capable, and innovative water sector.

A key element of the strategy will be the establishment of a state-wide Aboriginal Water Strategy that will identify a program of measures to deliver on First Nations' water rights and interests in water management. The NSW Department of Planning & Environment's Water Group (DPE Water) has established an Aboriginal Water Program which is being delivered by an all-Aboriginal team and Director - a first for Murray-Darling Basin states and nationally.

In response to historical challenges regarding compliance and reviews into compliance across the Basin in 2017, NSW established an independent Natural Resources Access Regulator (NRAR) that has led the way in compliance and enforcement activities across the Murray-Darling Basin since commencing operations in April 2018. NRAR uses innovative compliance techniques and state of the art technologies including satellite imagery, drones, and acoustic profiler boats to monitor unlawful water take and underpin strategic activities.

NSW is delivering on its commitment to roll out accurate, tamper-proof, and auditable metering of water take and hold to account water users who take more than their fair share. We recognise that pioneering reforms of this scale and complexity involve challenges, especially as the market for metering goods and services matures. NSW recently launched a review of metering reform implementation to accelerate progress on compliance to address low compliance rates and slow switchover to the new rules.

Floodplain harvesting in the northern Basin was historically not accurately measured and incorporated into water licensing arrangements. NSW is committed to finalising our Healthy Floodplains Project to bring floodplain harvesting into a licensing framework and require it to be

accurately measured so that it can be managed within established legal limits for extraction. This reform has been many years in the making, and we are very close to completion. The NSW Government has undertaken extensive engagement with numerous public meetings, webinars, targeted stakeholder meetings, opportunities for stakeholders to provide feedback, email updates and online information.

A significant element of NSW's water reform agenda is better understanding river connectivity in the northern Basin and enhancing connectivity outcomes during and following dry periods. Our work to protect the first flush of water, reduce the impact of cease-to-flow periods, suppress algal blooms, support fish migration, and deliver Basin Plan outcomes, will only increase in importance with a changing climate.

Water recovery targets

Information responding to the Productivity Commission's submission questions on ensuring water recovery targets are met (question 1) and helping communities adjust to the Plan (question 7) are covered in this section.

More than 1,000 GL of water to Bridge the Gap has been recovered from NSW Basin communities. NSW has 27.1 GL of water recovery remaining across five valleys to meet our Bridging the Gap target. NSW also has 50.6 GL of over-recovered water that could be recognised against other water recovery targets not yet met.

NSW has a preference for ongoing investment in, and prioritisation of water recovery by the Commonwealth through project-based efficiency measures and rules changes. However, noting that the Commonwealth established a Strategic Water Purchasing Framework in February 2023 to complete Bridging the Gap recovery and that the Murray-Darling Basin Authority (MDBA) is forecasting a SDLAM shortfall and only limited water recovery towards the 450 GL of additional environmental water, the Commonwealth has signalled an intention to use water buybacks to complete at least a part of the remaining water recovery required under the Basin Plan.

Noting that the NSW Government does not prefer water buybacks, if the Commonwealth intends to pursue water recovery through buybacks, NSW considers that these must be strategic and, in line with the Productivity Commission's 2018 review (recommendation 3.3), include support for local and regional communities to address adverse impacts. The design and timing of any water recovery program also needs to:

- consider water market impacts,
- match the nature and location of water recovery to the outcomes sought, support ongoing engagement in delivery of supply and constraints projects under the SDLAM, and
- include the full range of water products or agreements such as staging water purchases from an individual across a few years to facilitate on-farm adaptation, or purchase and lease back arrangements.

The Commonwealth Government's Strategic Water Purchasing Framework states that the 'Australian Government will continue to consider any impacts of water recovery on local communities' but does not detail how socio-economic impacts on communities will be considered and offset. We encourage the Productivity Commission to examine and make recommendations to support the Commonwealth in assessing, minimising and mitigating impacts on communities.

It is critical that support is in place for communities to adapt to changes brought about by the Basin Plan. This support should be based on social and economic assessment of anticipated impacts and engagement with affected communities (Sefton 2020) and match the pace of water recovery with communities' ability to adapt. This assessment should consider inequities and distributional impacts and lead to the establishment of appropriate structural adjustment or transitional packages for industries and communities. Adoption of a staged water recovery program that includes a 'pause and review' process would inform impact mitigation.

The 2026 Basin Plan Review provides an opportunity to consider whether there is a need to move beyond the initial focus on volumetric water recovery targets alone and invest in broader natural resource management activities such as riparian zone management and revegetation, addressing barriers to fish passage and habitat degradation, and rule changes that can enhance the outcomes from water already recovered and where possible, deliver multiple objectives from water available.

Delivery of supply, constraints, and efficiency measures

The Productivity Commission's call for submissions included background on supply and efficiency measures, including the status and potential shortfall against recovery targets which is not repeated here.

Project details and status

NSW is proponent or co-proponent for 21 of the 36 Sustainable Diversion Limit Adjustment Mechanism (SDLAM) projects. Twelve of our SDLAM projects are already complete or nearly complete and delivering Basin Plan outcomes. These projects contribute a significant volume towards the 605 GL offset.

One of these 12 projects is the NSW Gayini (Nimmie Caira) project. This project alone has resulted in over 84,000 hectares of internationally significant floodplain being managed by the Nari Nari Tribal Council and Nature Conservancy for environmental and cultural outcomes. This co-management model harnesses cultural knowledge to go beyond Aboriginal community engagement and deliver meaningful connection to Country and tangible environmental, cultural and community outcomes. Importantly, the project facilitates ongoing agricultural activities on areas outside the key vegetation communities.

With Commonwealth funding agreements negotiated in 2019, NSW has worked to establish governance arrangements and progress project design and implementation in partnership with our communities. To date, most funding milestones agreed between NSW and the Commonwealth have been met, noting that there are projects with upcoming milestones or milestones under negotiation.

In 2022, the NSW Government brought forward $330 million worth of SDLAM projects through the NSW SDLAM Acceleration Program to remove barriers and streamline construction funding to allow delivery of five projects. The Program will deliver up to an estimated 45 GL of the 605 GL offset.

NSW has three constraints projects that make up the NSW Reconnecting River Country Program which are a significant component of the Basin Plan's SDLAM program and a critical mechanism to maximise the environmental benefits of recovered water. Translating and refining the initial constraints relaxation flow targets set out in the Constraints Management Strategy developed by the MDBA into real world projects has required considerable NSW investment in new science and modelling to allow the inundation extent and environmental benefits of these overbank flows to be understood and trusted by our communities at the property level. This has taken time, but NSW is engaging with affected landholders, councils, First Nations people and businesses to discuss the results of the inundation modelling, flow options and potential mitigation measures that NSW is taking forward for further investigation.

Following agreement from the Murray-Darling Basin Ministerial Council in April 2021, the NSW Government has rescoped the Menindee Lakes Water Savings and Yanco Creek Offtake SDLAM projects to achieve broader ecological social, cultural and economic outcomes – now known as the Better Baaka and Better Bidgee programs. Consultation with affected communities was undertaken on these programs between October 2021 and June 2022 and there is strong community support, including from First Nations communities, for initiatives to upgrade weirs and improve fish passage and fish health. However, these do not deliver a recognisable Sustainable Diversion Limit (SDL) offset and cannot be progressed unless an alternative funding source is found. NSW continues to progress further modelling and costing work to understand the possible water savings from some elements of the rescoped projects – which is anticipated to be completed in October 2023.

NSW has continued to support the Commonwealth's recovery of the 450 GL of additional environmental water via efficiency measure projects under the Off-farm efficiency program and has worked with project proponents to progress feasibility and full project proposals to improve water infrastructure and reduce water losses. Two off-farm efficiency projects have been funded by the Commonwealth and are currently underway - the Murrumbidgee Irrigation Automation Finalisation Project and the Nap Nap Station Water Efficiency Project. NSW is progressing two additional efficiency projects for Commonwealth assessment and funding consideration. Three feasibility proposals have also been funded but these projects cannot be completed and have water savings returned by 30 June 2024.

Challenges to project delivery

As flagged in numerous reviews, including the Productivity Commission's 2018 Basin Plan review, the full package of supply, constraints and efficiency measures cannot be delivered by the statutory deadline of 30 June 2024. Delays in project commencement and funding observed by the Productivity Commission in 2018 have been compounded by climatic challenges (widespread bushfires, drought, and floods) and the unprecedented COVID-19 pandemic, which has disrupted project consultation and delivery and resulted in cost escalation and skills shortages. Inefficiencies in program management arrangements and delays in negotiating amendments to funding arrangements between the Commonwealth and States has also led to challenges.

An extension of time and funding, including consideration of increased costs to deliver the full scope of projects over extended timeframes, is needed to maintain project momentum, enable project completion, and realise the environmental outcomes anticipated from these projects. Securing full implementation of supply, constraints and efficiency projects will require amendments to the Water Act and Basin Plan.

For some projects, a couple more years will be required. For the NSW Reconnecting River Country Program, significantly more time is required for full implementation, noting that these projects involve landscape scale change, over 4,000 individual landholder agreements and need to be supported by genuine community consultation and new science.

The flexibility to recognise new SDLAM projects to contribute to the 605 GL offset will be required to reduce the volume of any shortfall, noting that the rescoped Menindee Lakes Water Savings and Yanco Creek Offtake projects will not deliver the same volume of water savings as the original notified projects. One pathway to recognise new projects is for the Basin Officials Committee and MDBA to agree an alternative scoring methodology that would allow new approaches to be considered.

Greater progress in meeting the 450 GL of additional environmental water could also be achieved with an extension of time and funding. Changes to program design, while still upholding the requirement that projects must deliver neutral or improved socio-economic outcomes, could also assist with greater progress towards this target.

NSW is committed to ensuring transparency and accountability in the ongoing delivery of projects up to and beyond the current rigid deadlines in the Basin Plan and will work with the Commonwealth and other Basin jurisdictions to continue to build community trust and understanding of project delivery and outcomes. An increased focus on the administrative efficiency and timeliness of intergovernmental agreements (funding and others) will be essential to ensure that any new timeframes agreed for project delivery can be met. The Productivity Commission may wish to examine and make recommendations on this.

Good progress has also been made on implementing Toolkit measures in the Northern Basin to enhance environmental outcomes which were agreed following the MDBA's 2016 Basin Plan review. More time is also needed to maximise delivery of environmental works and measures projects, which have been impacted by extensive recent flooding in the Northern Basin and restrictions during the COVID- 19 pandemic. Changes to the timeframes for project delivery, currently agreed by Ministers to be 30 June 2024, could be given effect via an amendment to the Intergovernmental Agreement on Implementing Water Reform in the Murray-Darling Basin.

Basin management arrangements

Water Resource Plans – development and accreditation

NSW is responsible for 20 of the 33 WRPs required across the entire Basin. All 20 WRPs have been formally submitted to the MDBA and five plans have been accredited to date. Seven plans have since been withdrawn and will be resubmitted to meet accreditation requirements. We are

committed to expeditiously resolving outstanding issues to ensure this key piece of the Basin Plan will finally be delivered.

Getting to this stage has involved a significant body of work involving the development of 31 amended or replacement Water Sharing Plans (WSPs) under NSW legislation, nine long term water plans (LTWPs), 20 water quality management plans, 20 Incident Response Guides, 20 risk assessments, 10 ecological monitoring, evaluation and reporting (MER plans), 20 area description reports, 20 WRP consultation reports and significant work on 18 associated surface water modelling reports.

NSW is committed to genuine consultation in water planning and management, which was hindered by the COVID-19 pandemic and recent widespread flooding across NSW. Despite this, NSW WRPs are all informed by extensive local consultation. This included 53 on Country meetings with our Aboriginal communities on a Nation-by-Nation basis, rather than a broader approach by WRP area, improving efficacy and honouring connection to Country. Consultation with Aboriginal communities can always be improved, and we are taking on board the lessons from this process for our ongoing approach to meaningful engagement and consultation.

It is too early to comment on the effectiveness of NSW WRPs in delivering Basin Plan outcomes. Limits on extraction, compliance with rules for access and trade, licence conditions and environmental water planning continued to underpin NSW water management under state legislation before the Basin Plan was enacted in 2012. WRPs have required only minimal changes to the management of groundwater and unregulated rivers across NSW and consequently, the contribution of the Basin Plan itself through the planning framework to improved outcomes in these water resources is likely to be limited.

Even before NSW had any accredited WRPs, and while work continues to get our remaining WRPs accredited, NSW has not avoided its responsibilities to report on the key elements of WRPs including SDL compliance and asset scale environmental outcomes and progress towards water quality targets. Under a bilateral agreement with the MDBA, NSW has been reporting on WRPs as if they were accredited, including lodging annual reports on compliance with SDLs, and taking compliance action where required, consistent with the requirements of section 71 of the Water Act.

Development and accreditation of WRPs has been resource intensive for Basin States and the MDBA. A key area for improvement in the efficiency and effectiveness of Basin Plan implementation is the accreditation process for WRPs. The MDBA needs to be provided with greater flexibility in how the exhaustive list of considerations for WRPs are assessed. Documentation and analysis requirements need to reflect the priority and materiality of issues and the risk to the resource. There is also considerable duplication in WRP development in NSW as these rely heavily on our WSPs which also have consultation requirements.

The ongoing administrative burden for the MDBA and Basin States in the review and amendment of accredited WRPs also need to be addressed. The Basin Plan requires that all 20 of the NSW WRPs must be updated within three years of the Basin Plan review (or any changes in SDLs). Consideration of what constitutes a minor amendment that could be subject to a streamlined assessment and consultation process, should be reviewed as an avenue for future improvement. Consideration should be given to giving States more time between finalisation of WRP requirements and

implementation on the ground to ensure there is capacity to develop and start using management systems and processes in response to new requirements.

Future consultation requirements should focus on outcomes, rather than rigid interpretation of Basin Plan provisions. Greater flexibility is required in how States meet the Aboriginal community consultation requirements moving forward noting previous challenges and learning opportunities from past consultation efforts. NSW's Nation-by-Nation approach to consultation with Aboriginal communities improves efficacy by including all Aboriginal Governance structures and honours connection to Country whilst also delivering the outcomes of intended consultation. NSW is continuing to look at ways to improve our Aboriginal consultation approach. Additional resourcing that we have secured, and the department's Aboriginal Water Program will be central to the delivery of future consultation requirements for WRPs.

Water quality

Managing water quantity and flow in isolation cannot achieve water quality targets and objectives when one of the main influences on water quality is land management practices. It is not clear what changes in Basin outcomes will be generated by the Water Quality Management Plans in WRPs without ongoing improvements in different State-based regulatory frameworks for water quality, land use planning, infrastructure investment and water management. Further investment in integrated natural resource management activities will be required to address existing risks to water quality and instream ecological processes.

The Basin Plan water quality targets are focused on surface water and are not appropriate for groundwater systems. Consistent water quality standards and practices are sought across the Basin for both surface water and groundwater. To demonstrate a commitment to water quality monitoring across the Basin, extending the River Murray Water Quality Monitoring Program to other connected rivers, particularly the shared Menindee system, and potentially all river systems within the Basin should be considered.

NSW has established an interagency Hypoxic Blackwater Working Group to coordinate monitoring, communication (internal and external) and implementation of water resource management actions (where available) in response to hypoxic risks across the State which can be triggered by both low flows and flood events. NSW also undertakes algal monitoring of surface waterways and storages.

During the water quality and fish deaths event at Menindee earlier this year, the Hypoxic Blackwater Working Group which included NSW and Commonwealth water agencies met at least fortnightly and at times held multiple meetings per week when critical conditions for ecological health were evident and management action was required. The Working Group monitored dissolved oxygen levels at several sites and worked with environmental water holders and operators to make water releases to improve water quality and provide refuge for fish where possible. Successfully working across agencies to understand the complex influences on water quality is reliant on access to up-to-date reliable information and sharing the best available science and this will be critical to underpin management strategies for future events.

A key issue arising from the work of the Hypoxic Blackwater Working Group is the reliance on the use of held environmental water (HEW) to address issues such as hypoxia and hypoxic blackwater.

There is still confusion and uncertainty on the extent to which environmental water holders are required / obligated to use their water to resolve water quality issues, and if not, where this water should come from. Clarity around the use of water for the environment for water quality issues is required, noting that this issue is not just restricted to NSW. This is an ongoing challenge for governments and river operators and will be further informed by the independent review by the NSW Chief Scientist & Engineer and the investigation by the NSW Environmental Protection Agency which are currently underway.

As reported in the 2021-22 Basin Salinity Management 2030 report, the Basin salinity target was met for the thirteenth consecutive year. NSW has continued to review existing accountable actions including the Upper Darling Salt Interception Scheme and the Murray Irrigation Land and Water Management Plan and developed a proposal for a new groundwater model to assess the salinity impact of irrigation development in the NSW Sunraysia region. NSW has included priority actions to address identified salinity risks to water resources in relevant regional water strategies and in the NSW Groundwater Strategy. Salinity registers, which are a very important part of managing salinity in the Basin and all states, are in credit.

The 2018 Productivity Commission report acknowledged there is an inherent conflict between achieving the salt export objective and meeting other salinity targets that needs to be overcome. The salt export objective was established to ensure there is adequate flushing of salt from the River Murray System into the Southern Ocean however, in most years, barrage flows under regulated conditions are not sufficient to meet the objective. NSW supports the MDBA's review of the salt export objective that tests the rationale behind the establishment of the objective including a review of the technical analysis that was undertaken that support the objective being included in the Basin Plan, in particular focusing on the purpose of adequate flushing. NSW also supports the review of the Burtundy salinity target as the current target has been difficult to achieve with the range of conditions in the Darling River and limited water management options available to dilute flows.

Critical human water needs

The Basin Plan provisions for critical human water needs could be reviewed to improve clarity and relevance for water resources beyond the River Murray.

NSW is pursuing two key areas of reform relevant to critical human water needs. This work, under the NSW Water Strategy and regional water strategies, aims to build our knowledge of the critical human needs in each catchment, increase water security for towns and explore opportunities for improving connectivity within and between catchments to support community resilience during extreme droughts.

Significant drought conditions have affected NSW, particularly in the northern Basin from 2017 to 2020. In 2019, conditions were drier and hotter than any other NSW drought in the last 120 years. From January 2017 to December 2019, rainfall was the lowest on record, and 2017 – 2020 were among the warmest years on record. The drought across the northern Basin was akin to the Millennium Drought in the southern Basin – inflows less than previous recorded minimums with drought conditions extending into a third year.

The drought highlighted that the planning framework around critical human water needs based on the historic inflow records was significantly stressed when new record-low inflows occurred, and the drought continued to a third year. The prolonged nature of the drought exceeded the existing water security planning horizon and reserves for critical human water needs and critical environmental needs were extremely depleted.

NSW commenced the Extreme Events Policy in October 2018 to manage extreme events in the Murray-Darling Basin in a structured and proactive way. It provides a clear and transparent framework for making decisions during extreme events – what decisions, when they are made and who makes them and establishes the principles by which water resources will be managed during an extreme event – including water shortages during drought and water quality events, such as hypoxic blackwater. To respond to lessons learned from the recent drought, the policy has been updated to reflect these lessons and will be published on the DPE Water website. The revised policy explicitly embeds consideration of critical human needs.

Post drought conditions, NSW continues to respond to community feedback from towns along the Barwon-Darling and Lower-Darling Baaka River about poor water quality for domestic use and consumption, with significant attention in recent months focusing on water quality, taste and appearance at Walgett. These are ongoing issues following drought and flood events and are likely to continue and intensify along the river and as water levels and storages recede when regions move back into drought. These are issues that the NSW Government is looking to respond to through the implementation of actions from the NSW Water Strategy and regional water strategies including addressing system impediments, improving water industry capabilities, understanding water quality requirements, as well as opportunities to augment supply and improve aesthetic qualities. Ongoing support and engagement with the Commonwealth is required to deliver these actions and could be addressed at a national level.

Another area that the Basin Plan could focus on to improve future water resource management is changing demands between surface and groundwater sources, which can fluctuate between drought and non-drought conditions. The Basin Plan and NSW WSPs currently manage surface water and groundwater separately. When consumptive users have access to both surface water and groundwater sources, water take can be biased towards surface water in wet years and to groundwater in dry years. Basin groundwater sources have large storage capacities and careful management of groundwater storage could significantly improve critical human needs outcomes, environmental outcomes, and drought resilience. Further modelling and evidence are required to better understand the impacts of future climate change on groundwater systems and their recharge rate and potential influence on critical human needs outcomes. Alignment of modelling efforts and direction of additional resourcing to address this emerging challenge should be considered by all Basin governments.

Environmental water planning and management

The Basin Plan has reinforced the need for environmental water planning and management to sustain key habitats and river systems and enhance cross-jurisdiction coordination to maximise outcomes. Management of water for the environment has matured over recent years with multi-site

trials and reviews, often supported by significant resource commitments from Basin governments and river operators.

Overall, the Basin Plan provides good guidance for implementation of environmental water initiatives. It has had a significant influence on the management of water for the environment via four main avenues:

- Strengthening the legitimacy for the need and delivery of environmental water,
- Assisting states with additional funding to implement Basin Plan frameworks such as development of LTWPs and MER programs that demonstrate outcomes and help inform future use of water for the environment,
- Providing the authorizing environment and support for cross-jurisdiction coordination,
- Setting a science-based framework of objectives to achieve maintenance and restoration of river system health.

NSW's nine LTWPs draw together local, traditional, and scientific knowledge to guide the management of water for the environment over the longer term and aim to improve the way water is managed to maximise river and wetland health outcomes from all available water within and between catchments. The LTWPs set objectives, targets and watering requirements for key plants, waterbirds, fish, and system functions over 5-, 10- and 20-year timeframes. To support the ongoing improvement of environmental water planning and delivery, resourcing for LTWPs should be matched to their lifespan and avoid the disruption of short-term funding cycles.

LTWPs are supported by MER programs that demonstrate outcomes from watering events and help inform future use of water for the environment. There is evidence available that the Basin Plan has improved the health and resilience of these rivers and their connected ecosystems. The focus of environmental water delivery, monitoring and reporting continues to be dominated by outcomes in regulated rivers, where most water recovery has occurred. The benefits of the environmental water framework for unregulated rivers and groundwater systems are not evident at this point in time.

There has been a substantial expansion of communicating and consulting on management of water for the environment and related outcomes, and it is a continuing journey. NSW uses Environmental Water Advisory Groups (EWAGs) in several valleys, some operating for many years, to successfully guide and inform environmental watering decisions to achieve Basin Plan and LTWP objectives and targets. All EWAGs ensure the views and understanding of First Nations, local communities, industry, and environmental stakeholders are considered when priorities and planning decisions are made.

NSW recognises that environmental watering outcomes are not intrinsically the same as First Nations outcomes. While there may be alignment in some cases, it should not be assumed that cultural objectives will be satisfied as part of water activities. Environmental water managers should seek to achieve cultural outcomes as a co-benefit where this can occur without compromising environmental outcomes. Funding structures and timelines make it difficult to

engage and collaborate meaningfully with First Nations in many aspects of Basin Plan implementation, including MER partnerships.

Connectivity and coordination of water for the environment

Part of the NSW reform agenda is to improve connectivity within and between water sources. This is being delivered by licensing of existing floodplain harvesting water use and removal of illegal structures, active management of water for the environment and rules to enhance connectivity during and following dry periods, relaxing constraints to environmental water delivery under the SDLAM and the Northern Basin Toolkit, implementing active management rules to protect water for the environment from extraction in the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan water sources in the northern Basin and implementing PPMs in the southern Basin. The continuation and enhancement of this work will be important in improving the effective use of water for the environment portfolios and enhancing the resilience of our water resources and Basin communities in the face of climate change.

The influence of the Basin Plan Framework for improved coordination of environmental watering events is evident in recent connectivity and fish flow events in the northern Basin and piggybacking and return flows accounting in multi-site events in the southern Basin. These measures have been delivered without accredited WRPs and any legal requirement for the Basin Plan to improve connectivity. Agreement by all States to contribute to connectivity outcomes would likely result in much better outcomes for critical environmental assets and critical human requirements. The Productivity Commission may wish to examine and make recommendations in relation to this.

Gaps and opportunities for improved outcomes

A critical gap in the intended Basin Plan environmental water framework that needs to be addressed is the delivery of constraints projects under the SDLAM. Without constraints measures in place, reconnection of rivers with their associated floodplains and wetlands and their key tributaries to achieve the environmental outcomes anticipated in the Basin Plan cannot be delivered and the significant investment that has been made to recover water for the environment cannot be fully realised. More time and funding are needed to implement these projects.

Water for the environment cannot achieve the desired environmental outcomes of the Basin Plan in isolation. The 2020 Basin Plan Evaluation called for integrating water management with other activities to achieve environmental restoration. Broad-scale and enduring success will only result from committing to addressing the full range of threats faced by aquatic ecosystems, including barriers to hydrological and ecological connectivity, disruption to fish lifecycle through extraction, cold water pollution, habitat degradation, invasive species, poor riparian zone management, lack of geomorphic stability / recovery processes and vegetation clearing.

Investment in these non-flow measures alongside water recovery would help ensure that Basin Plan objectives and related Basin-wide Watering Strategy outcomes are effectively and efficiently achieved. Some of these complementary measures are already being delivered under the Northern Basin Toolkit and consideration should be given to continued commitment to implementing these activities and rolling these measures and others out across the broader Basin.

River operators can also contribute to environmental outcomes through operational releases that are currently not reflected in the Basin Plan. Airspace releases from storages to manage inflows during periods of increased flood risk can achieve improved floodplain outcomes. A flexible approach to meeting ecological needs beyond the use of environmental water portfolios alone, will position our river systems for climate change futures.

Issues raised by the Productivity Commission in 2018 regarding the effectiveness of annual watering priorities remain, namely the mismatch between timing of MDBA advice to NSW regarding annual watering priorities. Alignment of these processes is recommended to allow states to directly respond to the MDBA's Outlook for the Basin, or by using strategic and coordinated rolling 3-year priorities.

Governance and institutional arrangements

Since the Productivity Commission's review in 2018, Basin governments have committed to improving governance and reporting arrangements to increase efficiency and transparency in decision making on Basin Plan matters.

A key commitment that all Basin governments, including NSW have made, is responding to the review of the Murray-Darling Basin joint government's governance arrangements (2019). In response to the independent governance review, the Murray-Darling Basin Ministerial Council in December 2019, endorsed committee governance improvements which included a revised governance structure based on the advice of Basin Officials Committee (BOC) in their joint government response. The revised committee structure and other changes are designed to implement the governance improvements, promote joint stewardship of the Basin, and improve the strategic focus and effectiveness of the BOC.

Further improvements could be made to clarify roles and responsibilities as it relates to implementation of the Basin Plan as there are a lot of entities especially in the government-owned water sector, across all tiers of government, with various overlapping roles and accountabilities and differing arrangements between States.

Compliance

Reforms implemented by the Murray-Darling Basin Ministerial Council to the institutional and governance arrangements for implementing the Basin Plan have increased transparency and accountability of compliance activities. In particular, the restructure of the MDBA to separate its service delivery and regulatory functions, and legislative changes by the Commonwealth Government to establish the Inspector-General Water Compliance, will enable a more robust and transparent approach to compliance.

In NSW, the establishment of the independent water regulator, NRAR, in April 2018 has seen a significant increase in the transparency and accountability of compliance activity and enforcement actions in NSW. The establishment of NRAR was in direct response to historical non-compliance across the Basin and has represented a fundamental shift in how compliance with Basin Plan limits and NSW water management frameworks operates. NSW continues the implementation of strong,

consistent and transparent rules for metering non-urban water, through the non-urban water metering framework, to ensure robust and fair water management across the state and throughout the Basin. New metering rules became law in December 2018 and are taking effect in a staged roll-out to December 2024.

Ensuring that Basin governments are individually and collectively resourced to perform their compliance roles continues to be a challenge. Specifically, NRAR considers that investment in and resourcing of compliance needs to have longer term certainty to enable the design, implementation and refining of enduring compliance campaigns, and investment in compliance activity should be commensurate with the asset values that are being protected on-ground.

In this regard, the value of water entitlements in NSW is estimated at $41 billion comprising up to $34 billion in private water entitlements, $5.8 billion town water supply, and $0.8 billion in stock and domestic entitlements. Irrigated agriculture production alone is estimated to generate $3 -$4.5 billion per annum, and with total flow-on economic effects of 1.5 times this value to regional economies across NSW. Further, compliance resourcing should be supported by investment in reliable, accurate and robust data and systems and enforcement tools, offences, and penalties that match commercial gains, deter non-compliance, and align regulatory responses where possible between Basin jurisdictions - similar to traffic offences.

NSW acknowledges the statutory independence of the Inspector-General of Water Compliance and the constructive relationship between the Inspector-General and his office with the NRAR. Given the potential for overlap and duplication of functions, it is important that the roles and responsibilities of the Inspector-General and NRAR continue to be clearly communicated to water users to avoid confusion.

NSW awaits publication of the Inspector-General's Regulatory Policy in the near future. NSW would welcome the Regulatory Policy clarifying how the Inspector-General role interfaces with other Commonwealth agencies, including the MDBA and how consistent advice and approaches can be provided across the Commonwealth with respect to Basin states and their management of Basin water resources.

Monitoring, evaluation, and reporting

The MDBA Evaluation Roadmap (2022) and supporting documentation provides an improved level of robustness and confidence in the upcoming 2025 Basin Plan Evaluation. This evaluation will however be limited by the availability of underlying information.

The Basin Plan Evaluation 2020 highlighted existing gaps in monitoring within the Murray-Darling Basin with greater investment in science and monitoring required to inform robust evaluation and support ongoing management of the Basin. These gaps, which continue to be an issue, limit our understanding of current conditions, and hinder effective responses to events and emerging risks. To address this, continued efforts to establish a robust monitoring framework into the future that encompasses comprehensive and consistent data collection across the Basin is required. This includes monitoring water quality, water flows/groundwater levels, social, economic, cultural and ecological indicators, and climate trends to capture the complex dynamics of the hydrological system. It is not clear whether the MDBA's Sustainable Rivers Audit will address this.

Greater, long term and consistent investment in funding to Basin States to plan and implement monitoring, evaluation and reporting is required to ensure it is being undertaken at the level needed to meet requirements across the Basin for all surface and groundwater sources, evaluation themes and communities.

Improved strategic coordination from the MDBA as a governing authority and a clearer division of roles and responsibilities to reduce overlapping efforts by the MBDA and NSW in undertaking activities could improve the efficiency and effectiveness of Basin Plan MER activities. The investment in a coordinated long-term Basin-scale MER program would facilitate the collection of comprehensive, consistent and relevant data on water availability, water quality, biodiversity, social, economic, cultural and ecological indicators and the impact of climate change, to support evidence-based decision-making and adaptive management strategies in future reviews and implementation.

Gaps between research values as determined by universities, research groups etc and what may be of meaning and value to state jurisdictions and communities at a valley scale (acknowledging that these are not mutually exclusive either) may exist. Pathways for jurisdictions and communities to contribute to conversations about monitoring, evaluation, and reporting when investment schemes are being designed, contracted and research questions determined could assist in reducing this gap.

NSW invests considerable time and resources into compiling its Schedule 12 reporting. Greater guidance for reporting on groundwater, social, economic, and cultural outcomes from the MDBA is encouraged to ensure that useful and relevant information is being collected by Basin States. Greater visibility and understanding are also requested from the MDBA on how, or if, the information being collected and reported on annually, is being used to improve outcomes and management of the Basin.

The mismatch between the timing of the 5-yearly Schedule 12 reporting and the 5-yearly Basin Plan evaluations needs to be addressed. The BOC approved the MDBA bringing forward the Schedule 12 reporting by one year from 2025 to 2024 so it can be used to inform the Basin Plan Evaluation in 2025. A more permanent change which enables Basin State reports to be considered in MDBA evaluations is recommended.

Climate change and using best available science

Climate change

Basin Plan surface water SDLs and environmental objectives (Part 2, Chapter 8) are based on modelling using the historical climate period up to 2009. Use of this climate period does not represent best available science.

While the Basin Plan includes requirements for climate change to be considered, the mechanism for adaptive water management in response to climate variability is limited to the risk assessment process underpinning WRPs and the periodic statutory reviews of the Basin Plan itself which must have regard to the management of climate change risks and include an up-to-date assessment of those risks.

State statutory instruments already deal with a wide range of climate variability through water allocation frameworks, priorities for water and reserves in regulated systems, cease-to-pump levels in unregulated systems, and groundwater level management. Basin states also explicitly manage for extremes in climate events and climate sequences in our asset planning and dam safety, short-term and seasonal operations processes, long-term supply forecasting and modelling, and emergency management planning and response.

NSW has developed a new climate data and modelling framework to inform our twelve regional water strategies with a sophisticated depiction of plausible future climatic conditions, including the likely frequency and duration of future droughts combined with projections of changes from regional climate models. An expert panel found that the method was consistent with best practice in the field and a major advance over using only historical records or only climate models and provides the best available knowledge of climate risk to inform NSW's regional water strategies.

NSW's new climate data and modelling framework integrates recorded historical data (approximately 130 years of rainfall, temperature, and evaporation data) with paleoclimate data (reconstructed from before instrumental records, using sources such as tree rings, ice cores, cave deposits and coral growth) to provide 500 years of climate data. Application of stochastic modelling extends the dataset to covering up to 10,000 years, enabling us to quantify the natural variability and extremes (drought and flood) in our regions with more certainty than was previously possible. Combining this with an understanding of key climate drivers and the use of existing climate projections greatly enhances our ability to identify plausible future climate impacts and risks, and it represents a significant and important advance in water planning and management for NSW. We now better understand future climate characteristics (such as the frequency, duration and severity of droughts and floods in each NSW region), how to mitigate these risks, assess the benefits of medium and long-term solutions, and build resilience in communities.

Our new climate data and modelling indicates NSW's surface water supplies are likely to be less secure than we thought, and future water sharing arrangements may need to be adjusted in response. More work is required to apply the new climate data to our understanding of groundwater systems to determine how secure groundwater supplies will be in the future. Further to this, consideration should be given to water management options outside of simplistic recovery mechanisms to address climate risks. For example, the work that NSW is undertaking to improve connectivity outcomes could address such risks without recovering additional water. This could be carried out as part of the Basin Plan review in 2026.

As the Productivity Commission has noted, it is not within their terms of reference to consider questions that fundamentally underpin the Basin Plan, such as whether it is necessary to recover water for the environment or how much water can sustainably be taken from the Basin. The commentary in this submission therefore only notes that all water use will be affected by future changes in water availability, and there will be challenges ahead for Basin jurisdictions and the MDBA in considering the risk that this poses to our water resources and communities in continuing to meet the environmental, cultural, social, and economic objectives of the Basin Plan.

It is critical that the development and application of fit for purpose hydroclimate information, consistent with best practice, informs Basin Plan implementation and related water policy and planning needs. Currently, there is no agreed tool or plausible future climate scenarios between

Basin jurisdictions and the MDBA. NSW has developed world class tools for improving climate change insights. This climate data has complete coverage of all Basin valleys and has been applied across NSW as part of the regional water strategies process. This data has been made publicly available via the NSW Sharing and Enabling Environmental Data (SEED) portal to give practitioners and the community access to the peer reviewed and quality assured data that NSW has developed and used and allows for it to be used for their own analytical purposes.

NSW continues to advocate for adoption of NSW's tools Basin wide so that the best available science underpins the 2026 review and its preceding inputs, and the efforts of jurisdictions are effectively harnessed and deliver credible analysis which sets all Basin jurisdictions and our communities up for the next 10-year phase of Basin Plan implementation.

Changes in Basin Plan implementation as a result of climate change impacts and risks that will impact on the operation, maintenance, modernisation, upgrade and replacement of NSW publicly and privately owned infrastructure and assets will need to be considered and funding for infrastructure investment will likely be required.

Best available science

The scientific work undertaken to inform the development of the Basin Plan was the best available at the time, however, new work is always becoming available. In addition to the new climate change insights noted above, there have been considerable advances in understanding ecological water needs and more limited improvements in our knowledge of social, economic, and cultural issues. In addition to the MDBA and State driven research agenda and monitoring and evaluation, there continues to be ongoing operational insights gained from environmental water delivery.

NSW's LTWPs are based on Environmental Water Requirements that represent a much-improved knowledge base than the original site-Specific Flow Indicators developed to inform the Basin Plan. While this new information drives environmental planning and delivery, it has not yet been incorporated into modelling which underpins the Basin Plan. Ongoing reliance on the original Basin Plan modelling has limited efficacy for a more variable climate future.

Greater accountability and transparent use of best available science is central to the credibility of decision-making by governments and to the credibility of any reform agenda. Clear evidence supporting how and why decisions are made is important – but equally, ensuring that this evidence is available and can be understood by customers, stakeholders, and the broader community. NSW has implemented new technologies and invested significant resources to improve knowledge sharing and advice for NSW water users, environmental water managers and water utility providers. New information and techniques including remote sensing are improving the way we model water management and delivery. The MDBA should focus on a coordinating role working with state agencies to access the best available information, analytics, and communications.

The NSW Government is committed to making water information and data widely available including model outputs and climate information through platforms such as the WaterInsights Portal and the SEED portal, consistent with our open data framework and open data and information guidelines.

In preparation for the 2026 review of the Basin Plan, NSW notes that extensive resourcing is being provided to support an uplift in surface water modelling and science capability. Similar effort and resourcing are needed to understand groundwater risks and options and ensure best available science is used to inform future water management and planning activities.

Aboriginal cultural outcomes

The Productivity Commission's National Water Reform 2020 Inquiry Report found that stronger requirements through the Basin Plan have led to better engagement of Aboriginal communities. In NSW, this has been limited to environmental watering frameworks where environmental water holders and the MDBA have made good progress in considering cultural outcomes in environmental watering where objectives are not in conflict. Improvements in WRP accreditation criteria for Aboriginal consultation are included in the text above.

The expansion of the MDBA Board to include an Indigenous member and expansion of the Basin Community Committee (BCC) membership to include specific Aboriginal community representation are good steps in ensuring that the views of Aboriginal people are considered in Basin Plan implementation. Mr Rene Woods is the first Indigenous member to serve on the Authority Board and Mr Phil Duncan was the first Aboriginal Chair of the BCC from January 2020 – June 2023.

However, little progress has been made on developing a practical pathway for the use of water for cultural and economic purposes (MDBA, 2020) or improving access to, and control over, water resources (PC 2020). While not part of the Basin Plan, there is considerable frustration over the lack of Commonwealth action to deliver the $40 million Aboriginal Water Entitlement Program announced in 2018, and governance arrangements for water allocated for cultural and economic purposes has not progressed.

NSW is developing an Aboriginal Water Strategy that will recognise Aboriginal rights, values, and knowledge in water, strengthen involvement and influence in water management and protect Aboriginal culture related to water. Implementation of the Aboriginal Water Strategy will progress the return of water entitlements to First Nations/Aboriginal people by providing meaningful engagement, self-determination and the review of existing policy and regulatory frameworks to better support this process. Aboriginal Water Program initiatives are already successfully removing barriers to increase First Nations/Aboriginal peoples' access to and ownership of water for cultural and economic purposes, for example setting prices for cultural access licences to nil during the 2021-2025 pricing period. The Strategy is being informed by direct engagement and co-design with Aboriginal people and communities to understand their water aspirations and we acknowledge there is work to do to ensure this ongoing engagement is effective.

Significant additional funding will be required to move towards the National Agreement on Closing the Gap proposed National inland waters target of 3% of entitlements held by Aboriginal communities. NSW will continue to work with the Coalition of Aboriginal Peak Organisations members to design a delivery plan to support the 2022-2024 Closing the Gap Implementation Plan and to make progress toward achieving the target, consistent with the whole of government governance processes established for Closing the Gap.

The National Cultural Flows Research Project to improve knowledge of cultural flows and explore ways of integrating cultural flows into Basin water management and planning is a positive step. In NSW, we are working with six Aboriginal Stakeholder groups to develop Cultural Watering Plans as a pilot under the NSW Aboriginal Water Program. These plans will improve understanding of how Aboriginal people want to use their cultural water, and what, if any barriers there are to accessing water. Successes and lessons from this work should inform the future of the Basin Plan and its WRPs to further improve Aboriginal people's involvement in water resource management and decision making.

NSW is dedicated to establishing and fostering genuine partnerships and co-management arrangements between government agencies, water managers, and First Nations communities to ensure they have a genuine voice in the management of water for the environment. The NSW Environment and Heritage Group (EHG) and First Nations communities are working together on several Nation-led initiatives to support the planning and delivery of water for the environment under the EHG Healing Country Program. This includes reviewing LTWPs to better capture the watering priorities of First Nations. EHG has partnered with the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) to review the LTWPs and advise the NSW Government on the best approach to improve meaningful First Nations-led input. Additionally, DPI Fisheries is working with local First Nation communities in the Peel valley to develop a culturally appropriate methodology that pairs local cultural knowledge, experience, perspectives, and values with the existing fish and flow management frameworks to inform future water management activities in the region.

NSW agencies are working together to ensure consistent approaches, noting that sufficient consultation and engagement in relation to operations, water resource management and throughout project development and delivery is required to ensure First Nations priorities, concerns and aspirations are incorporated into decision-making. First Nations communities also need to have equal access to information, resources and data to make informed decisions on issues that impact them. Funding structures and timelines however make it difficult to engage and collaborate with First Nations in some aspects of Basin Plan implementation.

There appears to be little progress towards the MDBA's 2020 priority of ensuring an effective monitoring and evaluation framework that attribute First Nations people's social and economic outcomes to the implementation of the Basin Plan. This will need to be addressed to better understand the long term social and economic impacts of the Basin Plan, especially on First Nations' people. The Commonwealth Government may also want to include an assessment of the Basin Plan and WRPs' contribution to delivering objectives and outcomes for Aboriginal communities in a published socio-economic method (as described below under 'Community consultation and engagement').

The provisions of the current Basin Plan, including Part 14 of Chapter 10, are very procedurally focussed and often use passive language. This is an area that the Basin Plan review should look at closely in partnership with Aboriginal and First Nations communities in 2026.

Community consultation and engagement

An area that can always be improved under the Basin Plan is community consultation and engagement. The Basin Plan annual report 2021-22 sets out several recent community consultation and engagement activities, including how the MDBA has used a community-centred approach to developing the Basin Condition Monitoring Program. Publication of annual reports helps to build trust and confidence in the community about Basin Plan reforms.

The operation of the BCC and its advice to BOC and the Ministerial Council, and the MDBA's Regional Engagement Officers, shows there are good foundations in place. However, NSW would like to see continued improvements to community consultation and engagement. Such improvements could include:

- More notice of when face-to-face engagement sessions occur
- Better coordination of consultation processes and engagement activities to avoid consultation on multiple, and at times overlapping, initiatives which can lead to confusion, frustration and stakeholder fatigue, especially with Aboriginal communities and a perception that water agencies are not 'joined up' or working together
- Providing feedback on engagement processes to close the loop with those who provided input and the wider community
- Greater clarity on roles and responsibilities of agencies involved in water management and Basin Plan implementation
- Better information about where to direct enquiries or seek further information across the various water sector agencies
- Greater use of local government and councils in engagement activities to help drive community participation and consultation
- Fit for purpose engagement products that meet the needs of community e.g., simple infographics, fact sheets, interactive maps etc.
- Making clear and concise information about water sharing and management easy to find and understand

A key area NSW would like to see further improvements made, is the monitoring and evaluation of socio-economic impacts of the Basin Plan, and the effectiveness of investments to mitigate negative socio-economic impacts, over time alongside assessments of whether the environmental outcomes of the Basin Plan are being achieved.

A detailed published method that is clear about how impacts will be objectively baselined, tracked and what weight will be given to community and industry views will provide assurance to Basin States and communities that it is robust. The method also needs to be transparent about by who and

how any negative consequences are determined. A statement published by the Commonwealth Government back to the community, using such a method, on the effectiveness of investments it has made and will make to address and mitigate potential negative socio-economic impacts of the Basin Plan is suggested.