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MURRAY–DARLING BASIN AUTHORITY

Submission to the Productivity Commission

National Water Reform 2020: Draft Report

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Acknowledgement of the Traditional Owners of the Murray–Darling Basin
The Murray−Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray−Darling Basin. We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.

Executive Summary

The Murray–Darling Basin Authority (MDBA) welcomes the draft report from the Productivity Commission on their triennial enquiry into the progress of National Water Reform, and notes the early findings and recommendations.

The MDBA supports the need for a renewed National Water Initiative (NWI). This national framework guides water management across Australia including the Murray–Darling Basin. The MDBA supports the Productivity Commission's recommendations in relation to:

- increased focus on adapting to climate challenges
- strengthened First Nations involvement
- the need for greater integration of water and natural resource management policy and actions
- greater government support for those affected negatively by water reform
- greater investment into science and monitoring
- the need for active environmental water management.

The MDBA released its 5-year Basin Plan Evaluation in December 2020, which takes stock of the implementation of water reform in the Basin, examines if outcomes are being achieved, emerging issues and areas for improvement. The Evaluation identified six priority areas for the future:

1. Implementing the Basin Plan
2. Adapting to climate challenges and increasing resilience
3. Strengthening focus and support to enable social and economic outcomes
4. Establishing a clear and committed pathway for First Nations social and economic outcomes
5. Integrating water management with other activities to achieve environmental restoration
6. Advancing science and monitoring.

These priorities align with many aspects of the Productivity Commission's findings and recommendations, and the national framework provided by a renewed NWI will help to advance action in these areas.

The MDBA provided information on these priority areas in its previous submission to the Productivity Commission's Issues Paper in 2020. This submission will build on this information, and provide further insights from the Murray–Darling Basin (the Basin) perspective in relation to two areas highlighted by the Productivity Commission:

- Triggers and processes for reviewing the balance between water for the environment and consumptive use
- Investment in science and monitoring for future climate challenges.

The adaptive management of the NWI is critical for ensuring Australia's water management framework is fit-for-purpose to manage contemporary challenges. It is hoped that the following information will be useful in the refinement of the Productivity Commission's final advice on the renewal of the NWI.

Triggers and processes for reviewing the balance between water for the environment and consumptive use

Key Points

The MDBA recognises that there is merit in exploring both short-term responsive management options as well as long-term triggers that provide a clear rationale for revisiting the balance between consumption and the environment. At present there is no common framework across jurisdictions and agencies to establish and activate triggers.

Climate research indicates that climate challenges will continue to increase, with more frequent and intense droughts and extreme events. Currently, in the Basin, short-term responsive management mechanisms have been used to flexibly manage climate risks. It is likely that all jurisdictions will need to adjust their planning frameworks to account for future climate risks, and triggers are one possible mechanism to enable this.

Any triggers put in place to respond to climate and other challenges, and subsequent changes to water balances and broader management arrangements, must be scientifically robust, evidence based, transparent and provide certainty for communities and water users. They also must be integrated across jurisdictions for connected systems.

The MDBA notes that the Productivity Commission is investigating the process for rebalancing water uses between the environment and consumptive purposes, and has requested information on the use of triggers. The below information is intended to assist in the Productivity Commission's investigation into this option, and does not indicate the MDBA's support of or position on the use of triggers in a future NWI.

Triggers and water management in the Basin

In the Basin, the primary mechanism for reviewing the long-term balance between water use is through legislated review points—including through 5-yearly evaluations and a 10-yearly Basin Plan review. This time-based review process has a dual benefit of enabling long-term monitoring and evaluation to determine whether the management settings and policy are effective and fit-for-purpose; while providing Basin stakeholders with certainty about the system's management arrangements. Hydrological and environmental triggers are not currently used within the long-term review process to signal the need for a rebalance. However, hydrological triggers are used within a number of systems across the Basin to signal short-term-management changes in response to climate and other risks.

Of particular note, following the Millennium Drought, a tiered system for water sharing in the River Murray System was introduced, which sets out the arrangements for responsively managing water resources to ensure critical human water needs can be met during severe drought conditions. These arrangements are based on minimum historical inflows in the River Murray System and are set out in the Basin Plan 2012 (Chapter 11, Part 4) and the Murray–Darling Basin Agreement (Division 2 of Part XII). Since the end of the Millennium Drought, Tiers 2 and 3 have not been activated, however, this system combines long-term rules with short-term actions to provide flexibility to responsively manage water based on prevailing climate conditions, while providing certainty to water users and communities.

The extreme drought conditions experienced over the past three years have pushed water planning arrangements in the northern Basin to their limits. The record dry conditions resulted in the need for several short-term emergency actions, including water releases and protection mechanisms, to assist in managing the impacts on communities and the environment. These short-term responsive management actions are consistent with the Northern Basin toolkit measures that were recommended by the MDBA from the Northern Basin Review in 2017, but have been fast-tracked under the prevailing extreme drought conditions.

For example, the NSW Government introduced and activated its 'first flush' protection rules in 2019, placing an embargo on water extraction for a short time after flows recommenced in the Namoi and Macquarie rivers following a period of prolonged drought. The first flush was of critical importance to the rivers' ecological health and to downstream communities struggling with drought. The embargo protected the flows, enabling them to extend downstream through the system. While there is a need for increased transparency about these rules, this example shows that short-term, event-based management actions can be effective to protect critical human water needs and system health under extreme conditions in the boom-and-bust system of the northern Basin.

The Basin Plan was developed to consider and respond to the challenges of climate change — in addition to limiting extractions to reduce pressure on resources, the Basin Plan calls for Basin jurisdictions to have plans in place to manage climate risks. However, recent events in the northern Basin have indicated that current planning frameworks may need to be updated to effectively manage water in extreme dry conditions. Current projections for the Basin's future are for a hotter and drier climate, with more frequent and intense extreme events—there is a need for water managers to learn from the recent drought and adapt their plans for a lower inflow future.

Principles for establishing a trigger-based review system

An updated national framework would provide greater direction and certainty to water managers, water users and Basin communities about how critical human and environmental water needs will be met in a drier, more extreme climate future. Short-term responsive management options, such as those outlined above, are needed, and will continue to be needed to respond to short-term demands and risks. However, there is merit in exploring long-term triggers, outside of time-based reviews, that could provide a clear rationale for rebalancing consumptive and environmental needs.

The incorporation of alternative triggers could be a mechanism to bring recent science into water plans, assisting water managers, water users and communities in managing their resources under projected future climate conditions. However, it is important that any potential rebalancing of water uses is not considered in isolation of other water management objectives—there is a need to carefully consider how triggers would be built into the overall management of each individual system, as well as the flow on effects of any rebalancing on the other complementary management arrangements.

At present, there is no consistent approach or planning framework to establish and activate triggers across jurisdictions and agencies. The development of triggers that initiate the reassessment of the water balance between water users needs to be clear, transparent and based on sound scientific evidence. Considerations that should be built into any proposed framework for establishing and activating triggers include:

- **Type of triggers and scientific evidence for trigger** (e.g. hydrological, environmental, policy failure) – due to spatial variability, a one-size fits all approach is not feasible and the type of trigger will likely differ across catchments and systems. The evidence for the establishment of any trigger needs to be robust to improve stakeholder trust in the management system.
- **Frequency and predictability of the triggers being activated** – water users require a stable and transparent operating environment to enable them to make business decisions. Triggers must be practical—overly frequent changes will undermine certainty for water users.
- **Scale and impacts of changes to management arrangements on all water users**, including downstream jurisdictions—in interconnected systems, such as the Basin, decisions made in upstream jurisdictions will impact those downstream. When establishing any triggers, there is a need to clearly set out what the scope and scale of proposed changes may be, and consider and account for the impacts on other users.
- **Process and governance for activating triggers and making decisions on changes to management arrangements** – consideration must be given as to how decisions will be made across jurisdictions and government agencies. Decision making processes need to be timely and definitive to enable decisions to be taken in contested environments.
- **Transparency of trigger activation and rebalancing process** – the process for reassessing the balance in response to triggers, and how any changes to water policy would be decided and implemented, must be done in a transparent way in consultation with stakeholders, prior to the installation of such trigger.

Potential areas for exploration by the Productivity Commission

Some possible types of triggers or indicators that the Productivity Commission may wish to explore are listed below, noting that the last three consider management arrangements more broadly than environmental and consumptive uses:

- Environment watering requirements are consistently not able to be met to support priority environmental assets and priority ecological functions.
- Significant changes to biophysical factors such as historically low flows, rainfall, storage levels and/or recent climate trends, noting that:
    - If these factors are explored, there is a high degree of spatial variability across the landscape, and as such, any resultant triggers must be set at a regional scale.
    - Climate models are not yet able to be effectively downscaled to understand the impacts at a regional level, and as such, climate projections are unlikely to be an effective trigger.
- Failure of current management arrangements to meet minimum requirements for critical human water needs.
- Decline of access and reliability of water licenses (for example if water access licence reliability is consistently lower than modelled over a 5 to 10 year period).
- Water quality targets to maintain appropriate water quality for environmental, social, cultural and economic activity are consistently unable to be met.

Given the variability in biophysical characteristics and management arrangements across different catchments and jurisdictions, there could be merit in exploring a risk-based approach for reviewing the balance between consumptive uses and the environment. This could see triggers being applied to high risk regions or policy mechanisms (e.g. critical human water needs), while reducing uncertainty by limiting changes to arrangements in low risk areas. The Productivity Commission may wish to consider risk-based management frameworks outside of water policy, such as bushfire management or disaster management frameworks, as this may assist in developing a risk-based trigger framework.

While the MDBA notes that the Productivity Commission wishes to explore the creation of a mechanism or set of triggers that initiate a reassessment of water sharing arrangements when conditions deem it necessary, it is important to have fixed checks and balances throughout water reform implementation to ensure the policy is fit-for-purpose. As the NWI has stated, adaptive management is needed for large interconnected systems facing a changing climate. However, discussion surrounding adjustments of legislation can create uncertainty within Basin communities that could be mitigated through effective and sustained engagement. If the NWI is adjusted to incorporate climate (or other) triggers, the MDBA would encourage the Productivity Commission to consider a mixed approach, where regular review periods are coupled with mechanisms to trigger an early review if conditions require it. Additionally, it is crucial that any change to the current review process is clear and transparent.

Investment in science and monitoring for future climate challenges

Key Points

The MDBA welcomes the Productivity Commission's recommended principles to demonstrate commitment to a culture of evidence-based decision making, innovation and continuous improvement in a renewed NWI. The MDBA agrees that there is a need for both strategic scientific knowledge generation and greater collaboration between researchers and water managers.

The MDBA supports the call for governments to invest in public-good research and development planned through stakeholder collaboration; with knowledge and insights generated and translated for the use of Government, industries and communities. The MDBA has a number of initiatives aimed at contributing to improved public-good research and would welcome future collaboration in this space.

In water management, science is critical for understanding how the natural system works, and how it interacts with our environment, industries and communities. Science increases our understanding in how water moves through the system, what factors can impact water availability and quality, and where water is needed by the environment and people. This knowledge underpins the foundation for good water management decision making. It provides water managers and policy makers with the information needed to understand the implications of events or actions and make informed decisions to ensure water is provided to where it is needed most. Not only this, but once decisions have been made, robust science and knowledge is required to support transparent, adaptive management approaches to ensure ongoing system management is evidence-based, fit-for-purpose and yields the expected outcomes.

Science is also critical in supporting communities and industries. It can provide them the evidence with which to plan for and implement sound business, lifestyle and cultural decisions. Importantly however, science alone cannot service Government, academia, industry and communities: there needs to be collaboration in planning for what knowledge is required; and how that knowledge needs to be presented to be of value for each user. In supporting public-good science, not only is knowledge generated but it also helps build capability and skills in people who can help improve water management into the future.

The MDBA strongly supports the Productivity Commission's recommendations for continued and sustained investment into science and monitoring. The MDBA agrees that this must operate alongside communities using best-practice engagement to develop research and development programs; and provide information on how best to communicate and translate findings to build individual, community, industry and Government capacity.

The MDBA's 2020 Basin Plan Evaluation highlighted the need to invest in science, monitoring and information to better support the management of the Basin in the face of increasing climate challenges. In particular, the MDBA recommended that:

1. Basin governments should prioritise higher levels of ongoing strategic investment in science and monitoring.
2. Science and monitoring information must be made more accessible for all Basin stakeholders to improve the communication of Basin outcomes to the broader Basin community.
3. Basin governments should improve sharing of knowledge, tools and innovations that are critical to support community resilience to the impacts of external drivers such and climate and water.
4. Basin governments and the MDBA need to prepare to adapt the Basin Plan in 2026 to incorporate new knowledge about future climate scenarios and trends.
5. Basin water users, managers, First Nations and community groups need to adapt their planning to ensure climate challenges are considered.

While these are Basin specific recommendations, the alignment of the Evaluation with the Productivity Commission's draft findings indicate that action is required in this area at the national scale. A renewed NWI with a strong focus on knowledge generation would greatly assist in this space.

The MDBA agrees with the Productivity Commission's observation that few institutional mechanisms now exist to regularly bring water decision makers, communities, industries and researchers together, risking a disconnect between science, policy and on-ground information. The MDBA has committed to working with Basin governments, researchers and Basin stakeholders to improve Basin-wide knowledge through an updated monitoring framework, the development of a climate strategy and the delivery of the Murray–Darling Water and Environment Research Program (MD WER Program).

The MD WER Program is an Australian Government initiative, delivering $20m over 4 years to strengthen scientific knowledge of the Murray–Darling Basin. There are four priority themes to be the focus of the strategic research component of the Murray–Darling Water and Environment Research Program:

1. Climate adaptation
2. Hydrology
3. Environmental outcomes
4. Social, economic and cultural outcomes.

This program is designed to bridge the gap between science and policy to help inform water and environment management decisions which will improve outcomes for the Basin and its communities. The MDBA believes this program will make a measurable contribution to water management in the Basin but there is still the need to consider how research and public good science can be supported beyond 2024.

Fit for purpose monitoring and evaluation is foundational to developing best available information suitable for supporting adaptive management and building capacity to grapple with a changing climate. The MDBA is applying the 2020 Basin Plan Evaluation recommendations to the development (and subsequent implementation) of the new integrated monitoring and evaluation program for the Basin. The monitoring strategy will define the MDBA's monitoring priorities and play a key role in framing and informing relevant aspects of the 2026 Basin Plan review. It will also guide the establishment and maintenance of an enduring Basin monitoring and evaluation program that can be improved as needs, knowledge and capabilities change.

The MDBA supports governments' continued investment in facilitating the development, sharing and integration of information on climate adaptation. Bringing together water managers with communities, First Nations, industries and governments to develop regionally tailored, user-focused information and strategies is important to enable stakeholders to adapt to the climate challenges predicted for the future. To that end, in addition to the development of a climate strategy, the MDBA is investigating options to uplift inter-jurisdictional modelling capability to build the information base available to water managers and Basin stakeholders to support informed decision making. A strengthened NWI is a critical first step to encourage governments to advance adaptive and purposeful research that serves the common goal of improving transparency and informing decisions that seek to mitigate the impacts of future climate extremes and reduced inflows. Given the prediction for more extreme climatic conditions, it is critical for governments across Australia to create a collaborative and complementary water science field that provides the evidence base to effectively manage water under any climate conditions.

These MDBA initiatives will assist in improving water management knowledge in the Basin, however an increased focus on science and knowledge in a renewed NWI would help to build positive momentum nationally. The MDBA urges governments to commit to providing a common purpose for the science community to work towards, a mechanism for academics and policy makers to communicate, partner and collaborate, and sustained resourcing to enable long term knowledge gains and improved management outcomes.

Insights from recent MDBA reviews

Since the Productivity Commission's issues paper and the MDBA's first submission, the 2020 Basin Plan Evaluation, the Environmental Watering Plan (Chapter 8 of the Basin Plan, EWP) review and the *Independent Review of Water Quality Targets in the Basin Plan* (Chapter 9 of the Basin Plan) have been finalised. The Productivity Commission may wish to consider the findings of these reviews as they finalise their advice, particularly in relation to:

First Nations involvement in water management

The MDBA supports the proposed actions to promote the involvement and participation of First Nations people in water reform. As noted in the MDBA's 2020 Basin Plan evaluation, there is a need for all agencies involved in water management to improve in this area. In addition, the MDBA's recent review of the Environmental Watering Plan (EWP) found that First Nations' values and uses, and methodology to have regard to these values and uses, need to be strengthened through implementation of the EWP. The *Independent Review of Water Quality Targets in the Basin Plan* also recommended a proposed pathway for incorporating cultural and spiritual values into water quality planning ahead of the 2026 Basin Plan Review. The MDBA is exploring opportunities for potential improvements, including through building First Nations ecological outcomes in the next Basin-wide environmental watering strategy, providing opportunities for environmental watering to contribute to cultural outcomes (without compromising environmental outcomes), and incorporating First Nations' ecological objectives into the next Basin Plan following engagement, facilitation and agreement with Traditional Owners. A strengthened NWI will assist in gaining momentum in this important area of the reform.

Environmental water management

Within the Murray–Darling Basin, significant progress has been achieved in many areas identified by the Productivity Commission including coordinated water delivery, criteria to prioritise between environmental assets and mature governance structures. Overall, the 2020 Basin Plan Evaluation found the Environmental Management Framework and Basin-wide Environmental Watering Strategy to be working well. The MDBA's recent review into the Environmental Watering Plan (released March 2021) also identified a number of areas of improvement that are consistent with the Productivity Commission's recommendations. These include strengthening connections between First Nations' values and environmental water management, adaptive management processes, and reviewing the appropriateness of environmental objectives and targets under a changing climate. The MDBA supports the Productivity Commissions' recommendations related to environmental water management and would welcome nationwide commitment to improvements in this space.

Integration of water and other policy areas

The MDBA agrees with the Productivity Commission's recommendations to build complementary natural resource management actions into the NWI and notes the benefits this will have for water dependent ecosystems. However, the MDBA would also like to note that there are other policies and external drivers that contribute to water management outcomes. The 2020 Basin Plan Evaluation identified the need for Basin governments to strengthen policies and programs that support communities and industries to adapt and prosper. This recommendation highlighted the need to go beyond water-focussed programs and invest in social and economic opportunities to stimulate regional development and prosperity. Government investment in policy areas outside of water

reform such as infrastructure, regional development and land use planning can at times complement or conflict with the objectives and outcomes of the Basin Plan. Currently, the NWI has recognised the need for natural resource management policy and environmental management more broadly to complement water policy, but this could be expanded to policy areas outside this remit, such as First Nations' social and economic outcomes. There is a growing need for the NWI to seek opportunities to influence potentially conflicting policy areas that may have implications for water reform. An example is the infrastructure required to secure safe and reliable water supply for regional and urban areas. While the policy area transects both infrastructure and water there is an opportunity for the NWI to assess the infrastructure policy through the lens of existing water policy, such as the Basin Plan. In a system such as the Murray–Darling Basin which is subject to an increasingly changing climate with reduced water availability, this area of policy will be a priority area in coming years which the NWI could play a large role.

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