SUBMISSION

Submission to the Department of Climate Change, Energy, the Environment and Water

# Submission to the consultation on Delivering the Murray-Darling Basin Plan

3 July 2023

**The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.**

Active management of the Murray-Darling Basin is required to protect the Basin's ecosystem and ensure water is available across the Basin for future generations. The Murray-Darling Basin Plan has formidable challenges for its successful implementation and requires adjustment to respond to the impacts of climate change and ensure fair distribution of water between the states. In amending the plan, ATSE urges scientific evidence, rather than political considerations, be considered first and foremost. ATSE further urges the current consultation on delivering the Murray-Darling Basin Plan to take into account the long-term impacts of proposed approaches.

ATSE makes the following recommendations to inform proposed approaches to water recovery and use efficiencies:

**Recommendation 1:** Prioritise the development and implementation of water management technologies including smart water sensors to provide timely and consistent monitoring data across Basin states and institutions.

**Recommendation 2:** Harmonise definitions in Basin states' legislation in accordance with the National Water Initiative.

**Recommendation 3**: Utilise water buybacks as the primary short-term mechanism to deliver the water recovery target component of the Murray-Darling Basin Plan.

**Recommendation 4:** Consolidate and require transparency of community consultation processes for Murray-Darling Basin reviews.

**Recommendation 5:** Evaluate ideas to deliver the Murray-Darling Basin Plan against long-term impacts on Basin health and communities.

## A science and technology-based approach for the Murray-Darling Basin Plan

It is critical for the Murray-Darling Basin Plan to be responsive to climate change and new evidence, and the upcoming Basin Plan Review must address this. ATSE strongly urges evidence-based decision-making and the long-term health of the Basin as the key priority for the Plan. To explore the scientific basis, ATSE is currently preparing for publication a collection of invited essays adopting a 50-year perspective on challenges and adaptation opportunities for the Murray-Darling Basin. ATSE looks forward to providing the Department of Climate Change, Energy, the Environment and Water a copy of this collection in due course.

As noted in ATSE's recent report *Technologies for Water Management*, there are profound technological challenges created by the way water data is collected, managed and used in Australia (ATSE 2022). The impact of ideas to deliver the Murray-Darling Basin Plan cannot be evaluated and compared without resolving differences in how Basin states and the many Basin-related institutions measure and report their water data. Critically, modelling technologies must be able to accommodate imperfect data and provide clear outputs to inform evidence-based decision making (ATSE 2022). New technologies to monitor and detect non-compliant water use in the Murray-Darling Basin should be prioritised, complementing technologies such as satellite monitoring that have been used in recent years (MDBA 2021). New water monitoring technologies include smart water sensors that use Internet of Things applications, and sensors that preserve metadata to allow end-users to interpret data (ATSE 2022). A whole-of-Basin approach to the timely collection, analysis, and public reporting of water data over various time-scales (from hours to years) must be implemented alongside water recovery and use efficiency projects to understand the extent to which the Plan is being delivered. Improved data collection, analysis and transparency across the Basin is necessary to determine appropriate levels of environmental flows and the required water buybacks, adapt the Plan to climate change, and combat non-compliant water use from flood plain harvesting and withdrawals from faulty meters.

To optimise and coordinate water data, monitoring, planning and compliance, ATSE advises standardising terminology across Basin states and authorities. Currently, Basin states' legislation use a diversity of terms rather than those agreed upon in the Intergovernmental Agreement on a National Water Initiative. Amending all acts and regulations to use the same language and definitions for entitlements, allocations

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and definition of uses would enable consistent interpretation of water data and more efficient planning and management.

Investment in standardised technology for water data collection, data sharing and modelling is only one component of delivering and adapting the Murray-Darling Basin Plan. Social and political considerations are also key to the success of the Murray-Darling Basin Plan and must be addressed.

**Recommendation 1:** Prioritise the development and implementation of water management technologies including smart water sensors to provide timely and consistent monitoring data across Basin states and institutions.

**Recommendation 2:** Harmonise definitions in Basin states' legislation in accordance with the National Water Initiative.

## Delivering the objectives of the Murray-Darling Basin Plan

The Murray-Darling Basin Plan contains numerous objectives and outcomes beyond water recovery targets. It identifies five areas for its management objectives and outcomes: the Plan as a whole, environmental outcomes, water quality and salinity, sustainable diversion limits and trading in the water market.

While the current consultation seeks short-term solutions to reaching targets that are presently out of reach using existing efficiency measures (Lewis et al. 2021), ATSE urges a focus on the long-term health and sustainability of the Murray-Darling Basin. This should consider planning, technology, policy and governance mechanisms for regulating water allocations.

Water buybacks remain a critical short-term action to deliver water recovery targets, due to efficiency measures being unable to deliver the 450 GL target (Lewis et al. 2021). Buybacks are the most useful and cost-effective mechanism to provide the return of environmental flows to the system as committed in the Murray-Darling Basin Plan (Wheeler 2023). Any water savings arrangements should be both environmentally and hydrologically effective as well as cost-effective.

**Recommendation 3**: Utilise water buybacks as the primary short-term mechanism to deliver the water recovery target component of the Murray-Darling Basin Plan.

## Maximising the impact of consulting with Basin communities

The governance of the Plan is complex, with 13 different institutions at federal and state levels being involved in key policy and decision making, operations and management, regulation, and monitoring and reporting. This has resulted in a proliferation of consultations as well as independent reviews, with inadequate cooperation and coordination, limiting the utility of communities and organisations engaging in reviews. This risks inadequate community consultation, including from Traditional Owners, in future reviews if there is an experience of over-consultation with limited past outcomes. ATSE recommends that input for future consultative processes at a state and federal level, including the required Productivity Commission reviews every five years and the upcoming Basin Plan Review, be consolidated where possible. This would minimise the burden on Basin communities to continually provide feedback, as well as ensuring their feedback is shared between the different reviews. It is also important for institutions conducting reviews to provide Basin communities with information about how their feedback has been considered, and the scientific basis for their recommendations and outcomes. Community input and information the decision-making process should be made public in a timely manner.

The current review does not interrogate the appropriateness of targets or other aspects of the Plan. While this limits its ability to fully investigate the challenges, it is imperative to centre the long-term health of the plan and intergenerational impacts of water management. Any new initiatives for water recovery and use efficiencies should be fully evaluated for their long-term impacts on Basin health, including water quantity and quality, effects on ecosystems, and on regional and remote communities including Aboriginal cultural values. Proposals should also be assessed taking a long-term view with modelling of the impacts of climate change.

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**Recommendation 4:** Consolidate and require transparency of community consultation processes for Murray-Darling Basin reviews.

**Recommendation 5:** Evaluate ideas to deliver the Murray-Darling Basin Plan against long-term impacts on Basin health and communities.

*ATSE thanks the Department of Climate Change, Energy, the Environment and Water for the opportunity to respond to the consultation on Delivering the Murray-Darling Basin Plan. For further information, please contact academypolicyteam@atse.org.au.*

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## References

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Lewis, S, Farrier, S, and Kelsall, M (2021) *Second Review of the Water for the Environment Special Account*, DCCEEW, accessed 27 June 2023.

Wheeler, S (24 February 2023) 'Water buybacks are back on the table in the Murray-Darling Basin. Here's a refresher on how they work', *The Conversation*, accessed 27 June 2023.