

WENTWORTH GROUP

OF CONCERNED SCIENTISTS

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Murray-Darling Basin Plan: Implementation review 2023

Submission to the Productivity Commission

July 2023

Wentworth Group of Concerned Scientists

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OVERVIEW

The Wentworth Group of Concerned Scientists (**Wentworth Group**) welcomes the opportunity to make a submission on the Productivity Commission's Murray-Darling Basin Plan Implementation Review Issues Paper. A healthy working Murray-Darling Basin is vital for the wellbeing and livelihoods of more than three million people who live in the Basin and rely on its resources.

Twelve years since the Plan commenced, the Basin remains overallocated. Weakening of policies, stalling of water recovery and undermining of the Plan have placed reform at risk, leaving the Basin compromised. It will be the environment, downstream communities and future generations that bear the greatest cost of a degraded river system. The concerns raised in our submission to the 2018 Productivity Commission Basin Plan Five Year Assessment¹ remain relevant, as do those in our 2017 Review of Water Reform in the Basin².

RESPONSE TO THE ISSUES PAPER QUESTIONS:

1. What needs to change to ensure water recovery targets are met and that supply and efficiency measures are delivered? What lessons can be learnt from past experiences?

To date, the Commonwealth Government has only recovered 26GL of the 450GL required under Part 2AA of the *Water Act 2007* (Cth) to deliver the 'enhanced environmental outcomes'³. Further, the Murray-Darling Basin Authority (MDBA) has indicated that several supply measures projects will not be operational by June 2024. The MDBA has indicated that the shortfall in water recovery that is likely to be identified under this process will be 'at the upper end of the 190GL to 315GL range.'⁴. In the order of 730 GL of environmental water remains to be recovered to meet the Basin Plan target of 3,200 GL by 30 June 2024. This volume does not take into account climate change or its impacts on water availability and wetland condition, which would require additional water recovery.

It is vital that the Commonwealth and Basin States assess the extent to which this gap can be bridged via voluntary buybacks and other policy levers to ensure environmental water recovery targets are met. Such policy options should be developed and considered in consultation with Basin communities, Aboriginal people and other stakeholders, be based on best-available scientific evidence and be capable of delivering verifiable, additional environmental water.

We propose five key approaches, intended to be considered together:

1. **Partner and collaborate with Basin communities.** Governments should partner and collaborate with Basin communities to identify and promote opportunities for water recovery, community development, economic diversification and structural adjustment.
2. **Purchase water entitlements from willing sellers.** The Commonwealth Government should amend the *Water Act* to remove the 1,500 GL limit on buybacks and purchase entitlements on the market. Emphasis should be on entitlements capable of delivering the 'enhanced environmental outcomes' according to Part 2AA of the *Water Act*.
3. **Use the temporary water market to address short-term shortfalls.** Where there are shortfalls or delays in permanent water recovery and environmental equivalence offsets, the Commonwealth Government should secure environmental water by purchase of temporary water allocations or by entitlement leaseback.
4. **Explore rule changes capable of resulting in verifiable reductions in consumptive use.** Reduce the long-term volumes of water extracted from the river through new rule changes that result in additional flows that enable delivery of the objectives of the Basin Plan.

1 Wentworth Group (2018) Murray-Darling Basin Plan: five-year assessment Submission to the Productivity Commission Issues Paper. <https://wentworthgroup.org/wp-content/uploads/2018/06/Submission-to-the-Productivity-Commission.pdf>

2 Wentworth Group (2017) Review of Water Reform in the Murray-Darling Basin. <http://wentworthgroup.org/wp-content/uploads/2017/12/Wentworth-Group-Review-of-water-reform-in-MDB-Nov-2017.pdf>

3 DCCEEW (2023) Progress on Murray-Darling Basin water recovery. Department of Climate Change, Energy, the Environment and Water, Canberra. <https://www.dcceew.gov.au/water/policy/mdb/progress-recovery>

4 MDBA (2023) Authority response to the Minister's request for advice. Advice in Basin Plan implementation. Murray – Darling Basin Authority, Canberra. <https://www.mdba.gov.au/about-us/who-we-are/authority/authority-statements/2023-authority-advice-basin-plan-implementation>

5. **Explore other mechanisms for ensuring water for the environment.** These relate to annual allocations, floodplain harvesting policy, constraints management, improved connectivity, and downstream flow targets.

2. Are the current arrangements for implementing the Murray-Darling Basin Plan operating effectively? How could the arrangements be improved?

3. Have the governance and institutional arrangements for the Plan – including the arrangements for compliance and monitoring, evaluation, and reporting – proved effective? What changes would you recommend?

Response to questions 2 and 3

Our responses to these questions focus on core governance issues requiring attention

Modernised water accounting

Currently, hydrological models used for compliance purposes under the Basin Plan are not validated against observed, gauged data (that is, the actual volume of water in the river). This means that there is currently no clear method for identifying when a model has over-simulated river flows or underestimated extractions (and in turn generated an inaccurate assessment of compliance with extraction limits, including annual permitted take). This is particularly concerning when considered against the backdrop of the Wentworth Group's 2020 report entitled 'Assessment of river flows in the Murray-Darling Basin: observed versus expected flows under the Basin Plan 2012-2019.' The work underpinning this report used an MDBA-endorsed method to compare observed versus expected flows and found that over seven years, 22% less water entered South Australia than expected⁵.

The Wentworth Group is accordingly of the view that water accounting should be modernised to ensure that models used for compliance purposes are validated against observed river flows. This would significantly reduce margins of error, improve the reliability of the models themselves over time, improve transparency and trust in compliance processes, and assist in ensuring that the Basin Plan is delivering the volumes of water required by law – and to ensure the long-term health of the system.

Single set of water accounts for the Basin

Following the Murray–Darling Basin Royal Commission report and a 2019 ABC Four Corners investigation, the Commonwealth Government established the Inspector-General of Water Compliance to ensure water recovery and efficiency projects were delivered as promised and water users were abiding by the conditions of their water entitlements. The Inspector-General cannot perform these functions without reliable water accounting capable of indicating how much water is available, how it is being used, by whom and where. This basic information is not readily accessible from the MDBA, the Bureau of Meteorology, the Commonwealth Environmental Water Holder or state water agencies. Further, we continue to be reliant on these agencies to verify their own water accounts with no independent scrutiny.

We urgently require a comprehensive, transparent, and publicly accessible single set of water accounts for the Basin and an independent annual audit to track water holdings and their use. Such a system would enable the Inspector-General to effectively undertake their statutory role and enable a transparent assessment of whether investment in irrigation efficiency and other measures have been effective.

Critical human needs and water quality

Arrangements for defining and delivering critical human water needs are inadequate. This is most evident in the northern Basin where water quality in towns such as Walgett and Wilcannia has been compromised for some time. There has been no systematic assessment of the drivers of poor water quality. Such a review would need to consider the potential impacts of upstream irrigation water use, domestic water quality, including the rules governing irrigation water allocations, carryover, and drought reserves in storage dams.

⁵ Assessment of river flows in the Murray-Darling Basin: Observed versus expected flows under the Basin Plan 2012-2019
<https://wentworthgroup.org/2020/09/mdb-flows-2020/2020/>

There is no Basin-wide agreement which mandates criteria for testing and reporting on town water supply and quality. This deficiency needs to be remedied. Water reforms in the Basin should be coordinated with National Water Grid Authority programs so as to develop water security infrastructure for Basin towns, including managed aquifer recharge, better water treatment and recycling facilities and off river storages where feasible.

Environmental water planning and management

There is a significant disconnect between the environmental obligations contained in the *Water Act* (and underpinned by international treaties, including the Ramsar Convention on Wetlands) and the rules that comprise the environmental water planning framework. This failure is perhaps most acutely reflected in the well-documented declining health of several icon sites, including the Coorong Lower Lakes and Murray Mouth, the Gwydir Wetlands and the Macquarie Marshes. More generally, the failure to relax constraints means that only 2% of wetlands in the southern MDB are receiving managed environmental flows each year,⁶ while populations of threatened flow-dependent species are not recovering⁷.

These trends are perhaps unsurprising when one considers that the very stream flow indicators that were used to establish environmental watering requirements for the Basin Plan have been ignored⁸. In any case, it is clear that environmental water planning and management has so far failed to meet the core environmental (and international) obligations set out in the *Water Act* and requires urgent review and reform.

We would accordingly invite the Productivity Commission to consider how the ongoing disjunct between these obligations on the one hand, and outcomes on the other, can be urgently remedied.

4. How well is the Plan responding to a changing climate? How should this be improved?

The Plan does not take into account, respond to, nor is able to adapt to the impacts of climate change in the Basin. This has been a longstanding criticism and is a fundamental flaw⁹. Accordingly, an amended Basin Plan is required to implement a suitable response to climate change. The delay in implementing the current Plan and the failure to address overallocation make this urgent task all the harder. Work to develop climate change adaptation mechanisms for the Basin should commence immediately and as a matter of urgency.

It is vital that the current Plan achieves its 3,200 GL target so that jurisdictions and communities can address climate change impacts and develop options for adaptation under conditions of reduced water availability.

The Productivity Commission is in error in focussing only on likely losses due to climate change. The direct losses are being exacerbated by current responses to climate change (e.g. expansion of farm dams) and other environmental changes (e.g. expansion of forestry). These 'risks to shared water resources' were known in 2006 when it was estimated a quarter of available water could be lost by 2030. A recent review of these risks outlines their significance and response options¹⁰. The Productivity Commission should consider means by which governments can manage these risks.

The Productivity Commission needs to show leadership and suggest ways in which the reduction of available water can be managed. The Wentworth Group included such options in our submission to the Productivity Commission 2018 review. While the Productivity Commission acknowledged that responding to climate change was important, the measures proposed were imprecise. We urgently need practical options for implementation.

⁶ Chen Yiwen, Colloff Matthew J., Lukaszewicz Anna, Pittock Jamie (2021) A trickle, not a flood: environmental watering in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 72, 601-619.

⁷ Ryan, A., Colloff, M.J., Pittock, J. (2021) Flow to nowhere: the disconnect between environmental watering and the conservation of threatened species in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 72, 1408–1429.

https://www.researchgate.net/publication/351736562_Flow_to_nowhere_the_disconnect_between_environmental_watering_and_the_conservation_of_threatened_species_in_the_Murray-Darling_Basin_Australia

⁸ Wentworth Group of Concerned Scientists (2019) Water Flows in the Murray–Darling Basin: observed versus expected <https://wentworthgroup.org/2019/02/mdb-flows/2019/>

⁹ Pittock, J., Williams, J., Grafton, R.Q. (2015) The Murray–Darling Basin plan fails to deal adequately with climate change. *Water* 43, 26–30. https://www.researchgate.net/publication/282636368_The_Murray-Darling_Basin_Plan_fails_to_deal_adequately_with_climate_change

¹⁰ Alexandra, J. (2023) Climate risk assessment in the MDB – a review. *Australasian Journal of Water Resources* 27, 18–30. <https://doi.org/10.1080/13241583.2022.2157107>

5. How well is the Plan addressing the interests of Aboriginal people?

The *Water Act* and Basin Plan fail to address Aboriginal water rights and interests. The current \$40 million program to support Indigenous Basin communities has made no progress since November 2018 and Ministers, governments and the MDBA have failed to meet the requirements of the Basin Plan in respect to Aboriginal communities.

Water Resource Plans have been finalised and submitted to MDBA for accreditation, with three NSW WRPs accredited against the views of Indigenous groups (MLDRIN, NBAN and Consultants). The MDBA over-ruled those recommendations stating NSW had met the minimum requirements and provided NSW an extra two years to consult with Indigenous groups. We have raised this issue with members of the MDB Ministerial Council asking that they review all accredited Water Resource Plans in light of what has occurred.

Governments, especially NSW, have not worked with Indigenous communities to identify and include: 1) the objectives and outcomes for water management relevant to Indigenous people, as required under Clause 10.52(1); 2) having regard, as required (Clause 10.52(2)) to social, spiritual and cultural values of Indigenous people relating to water resources and their use; 3) Clause 10.54: water resource plans must be prepared having regard to the views of Indigenous people with respect to cultural flows.

We believe that the next Plan needs to address Aboriginal water rights and interests as a matter of urgency. More support is needed to build capacity of Indigenous land and water ranger programs to manage wetland Country.

6. How well has community consultation and engagement been conducted? How can this be improved?

Earning and maintaining the trust of Basin communities that are impacted by changes the Basin Plan delivers remains a significant challenge for governments and agencies, including the MDBA.

Governments need to provide clear and transparent information and policy direction in order to gain and maintain public trust. This must involve furnishing communities, Aboriginal people and other stakeholders with opportunities to contribute to decision-making that impacts them and the places that they value, as well as to identify alternative approaches to delivering the Plan. To this end, there are established, regional natural resource management agencies with the skills, expertise, and experience that the Commonwealth and state governments can partner with and build on.

Given the challenges associated with delivery of the Basin Plan, the Productivity Commission could make a strong case for the devolution of certain aspects of its implementation to regional, community-focused natural resources management agencies and other appropriate bodies. These bodies could help to address complex local issues, complementing the work done by centralised government agencies such as the MDBA. Such a change in approach may help to restore community trust and allow for consideration of alternative, untried approaches to Basin Plan implementation.

7. What lessons should be learned from programs aimed at helping communities adjust to the Plan?

Wentworth Group recommended in our 2017 Review of Water Reform in the Basin¹¹ that governments should adopt a community-centred approach to address impacts of the Plan and work in partnership with communities to identify, address and prioritise responses to create a sustainable and resilient future while addressing water over-allocation in the Basin. The failure of the Basin Plan to date could at least in part be attributed to the failure by governments to adopt or trial such an approach

8. Does the implementation of the Plan reflect a commitment to the best available scientific knowledge? How well is this knowledge communicated? What improvements should be made?

The *Water Act* requires the Plan to be based on 'best available science' but does not contain a definition of it. However, what constitutes best available science has been clearly defined elsewhere¹². In the report of the Murray–Darling Basin Royal Commission, Commissioner Brett Walker stated: '...the requirement for decisions to

11 Wentworth Group (2017) Review of Water Reform in the Murray-Darling Basin. <http://wentworthgroup.org/wp-content/uploads/2017/12/Wentworth-Group-Review-of-water-reform-in-MDB-Nov-2017.pdf>

12 Ryder, D., Tomlinson, M., Gawne, B., Likens, G.E. (2010) Defining and using 'best available science': a policy conundrum for the management of aquatic ecosystems. *Marine and Freshwater Research* 61, p. 823. https://www.researchgate.net/publication/248887821_Defining_and_Using_'Best_Available_Science'_A_Policy_Conundrum_for_the_Management_of_Aquatic_Ecosystems

be made based on the best available science is rare in a legislative context, and to be treasured¹³. Accordingly, matters of science and fact are removed from the scope of Ministerial direction, requiring independence by the MDBA. However, the MDBA has failed to disclose its science publicly and in a manner that permits scrutiny, testing and replication by the scientific community¹⁴.

In particular, the impacts of climate change were not accounted for in the setting of ESLTs and SDLs in the Plan. This was deemed unlawful¹⁵. The 2020 Basin Plan Evaluation states: 'At the time of the Basin Plan's development, the CSIRO advised the MDBA that while climate change was a known risk, the Basin Plan should use the longest possible climate record for hydrologic modelling to encapsulate a range of climate conditions (Chiew et al. 2009). Guided by this advice, the 114-year climate history (1895–2009) was used as the climate baseline for the Basin Plan modelling'¹⁶. This statement is false. The CSIRO advice was to use recent climate data: 'The climate sequence used for modelling over the period of implementation of the first Basin Plan (next 10–15 years) should be based on scenarios ranging from the recent climate over the past 10–20 years (a very dry scenario, although drier conditions are possible) and future climate scenarios obtained using the daily scaling method described'¹⁷.

Modelling recent climate would have resulted in lower estimates of water availability and thus required lower SDLs, which would have been politically contentious to implement but more realistic. The failure to use best-available science for the determination of the ESLTs and SDLs is 'contrary to the letter and the spirit of the *Water Act*'¹⁸. Since the publication of the report of the Murray–Darling Basin Royal Commission, the MDBA have not rectified this failing, as recommended by the Royal Commission.

The impact of this failure has been to effectively deny the impacts of climate change on water availability in the Basin for over a decade, thus creating an enormous cost in terms of wasted opportunity to address the issue of climate change and develop options for adaptation. This has created major challenges for the setting of the next round of ESLTs and SDLs in the lead-up to the review of the Plan.

The failure to use best available science raises a major cultural issue within MDBA, whereby science that supports existing policies is welcomed but that which critiques existing policy or creates problems is ignored or marginalised resulting in 'administrative capture' (and / or even the politicisation) of science, whereby scientists engaged by governments or the MDBA are urged to narrow or close down the scientific questions asked, and the evidence base so to support existing policies or to provide politically palatable advice¹⁹. Such a fundamental failure to understand the basis of science, what it is for, and how it should be used, indicates the need for cultural reform within MDBA including education and training on the roles and responsibilities for the use of best available science within the legislative context of the *Water Act*. Such reforms should include assessment of the role and effectiveness of the MDBA Advisory Committee on Social, Economic and Environmental Sciences (ACEES), whose deliberations and decisions are not subject to public scrutiny or accountability.

13 Walker, B. (2019) Murray–Darling Basin Royal Commission Report. Government of South Australia, Adelaide, p. 683.

<https://cdn.environment.sa.gov.au/environment/docs/murray-darling-basin-royal-commission-report.pdf>

14 Walker (2019).

15 Walker, B. (2019) Murray–Darling Basin Royal Commission Report. Government of South Australia, Adelaide, pp. 58, 247, 269.

16 MDBA (2020a) The 2020 Basin Plan evaluation. Murray–Darling Basin Authority, Canberra, p. 22.

<https://www.mdba.gov.au/sites/default/files/publications/bp-eval-2020-full-report.pdf>

17 Chew, F.H.S., Cai, W. and Smith, I.N. (2009) Advice on defining climate scenarios for use in Murray–Darling Basin Authority Basin Plan modelling. Murray–Darling Basin Authority, Canberra, p. 3.

18 Walker, B. (2019), p. 25.

19 Colloff, M.J., Grafton, R.Q. and Williams, J. (2021) Scientific integrity, public policy and water governance in the Murray–Darling Basin, Australia. *Australasian Journal of Water Resources* 25, 121–140.

https://www.researchgate.net/publication/351103422_Scientific_integrity_public_policy_and_water_governance_in_the_Murray-Darling_Basin_Australia

RECOMMENDATIONS

- 1) That the following approaches be adopted by governments to achieve the existing water recovery targets:
 - partner and collaborate with Basin communities, helping them to identify opportunities for water recovery and support community development, economic diversification, and structural adjustment to mitigate adverse impacts and enable transitions to a more sustainable and resilient future;
 - purchase water entitlements from willing sellers and amend the *Water Act* to remove the 1,500 GL limit on buybacks on buybacks and purchase entitlements on the market. Emphasis should be on entitlements capable of delivering the ‘enhanced environmental outcomes’ according to Part 2AA of the *Water Act*;
 - use the temporary water market to address short-term shortfalls, address shortfalls or delays in permanent water recovery and environmental equivalence offsets, the Commonwealth Government should secure environmental water by purchase of temporary water allocations or by entitlement leaseback;
 - explore rule changes capable of resulting in verifiable reductions in consumptive use and deliver additional flows to achieve the objectives of the Plan; and
 - explore other mechanisms for ensuring water for the environment, including annual allocations, floodplain harvesting policies, constraints management, improved connectivity, and downstream flow targets.
- 2) That Basin Water accounting should be modernised to ensure that models used for compliance purposes are validated against observed river flows.
- 3) That timely, publicly accessible, transparent, and reliable water accounts be established, and modelling be developed to track water holdings, recovery, and use. Water accounts should include the basic feature of double-entry accounting.
- 4) That independent annual auditing and reporting be undertaken on the Basin and state water accounts and water recovered
- 5) That critical human needs for water be addressed with secure and reliable access to clean drinking water provided to all communities and regular, with Basin-wide annual testing and reporting of reliability of supply and quality.
- 6) That a systematic assessment of the drivers of poor water quality be undertaken by the MDBA and that such a review considers the potential impacts of upstream irrigation water use, domestic water quality, including the rules governing irrigation water allocations, carryover, and drought reserves in storage dams
- 7) That the complex and failing arrangements for environmental water planning be overhauled to address the major disconnect between international treaty obligations including the Ramsar Convention on Wetlands, environmental obligations under the *Water Act* and water planning under the Plan based on the stream flow indicators that were used to establish environmental watering requirements for the Basin Plan.

8) That the next Basin Plan address the issue of climate change and that work to develop climate change adaptation mechanisms for the Basin commence immediately as a matter of urgency in advance of the Basin Plan review.

9) That the Productivity Commission shows leadership and broadens its focus on the impacts and adaptation to climate change and considers how these risks could be managed and addressed by governments.

10) That the Productivity Commission investigates and reviews the cause of delays to the existing \$40 million Commonwealth program to support Basin Indigenous communities

11) That the Murray–Darling Basin Ministerial Council review the accreditation of all Water Resource Plans to ensure that they have considered and complied with Chapter 10, Part 14, Clauses 10.52(1), 10.52(2) and 10.54 of the Basin Plan.

12) That Aboriginal water rights, voices and interests are addressed as a matter of urgency in any review or revision of the current Basin Plan and any further Basin Plan.

13) That governments work to regain trust of Basin communities and work in partnership with them and regional natural resource management to provide opportunities to identify alternative, locally appropriate approaches to delivering the Plan.

14) That governments adopt a community-centred approach to address impacts of the Plan and work in partnership with communities to identify, address and prioritise responses to create a sustainable and resilient future while addressing water over-allocation in the Basin.

15) That the implementation of the Plan be based on the 'best available science" as required under the *Water Act* to address issues of transparency, accountability, reproducibility, assessment of uncertainty.

16) That the Productivity Commission makes recommendations for reforms of the roles and responsibilities of MDBA and the MDBA Advisory Committee on Social, Economic and Environmental Sciences (ACEES) to ensure that they are required to act and base their recommendations and decisions on the best available science as required under the *Water Act*.

17) That the MDBA be required to release fully and publicly and in a timely manner all commissioned science including data, recommendations and conclusions and report annually on all research commissioned and implications for the Plan and the management of the Basin.