Submission Responding to the 2026 Murray-Darling Basin Plan Review Discussion Paper

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CONTENTS

About the Commissioner for the River Murray – South Australia 1

Opening Statement 2

Executive Summary 8

PART 1: BASIN PLAN AND PUBLIC INTEREST ENVIRONMENTAL OUTCOMES 10

1 Sustainable Diversion Limits must reflect an Environmentally Sustainable Level of Take 10

a. Current Sustainable Diversion Limits 10

b. Recent SDL assessments and associated eco-hydrological and climate modelling 11

c. Sustainable Diversion Limit Adjustment Mechanism 14

d. The rhetoric of complementary measures 17

2 Climate resilient 'held' environmental water 18

3 Genuine protection of planned environmental water 20

4 Addressing structural bias against environmental water 23

5 Simplifying and strengthening the Environmental Watering Plan 27

6 Constraints relaxation: a different pathway forward 29

PART 2: WATER RESOURCE PLANS 32

1 Legal status 32

a. Accreditation process 32

b. Enforcement 33

c. Standing provisions 34

2 Contents 35

PART 3: FIRST NATIONS RIGHTS AND INTERESTS 36

1 Context 36

2 Reform – moving beyond consultation, reviews and reports 39

PART 4: WATER QUALITY AND CRITICAL HUMAN WATER NEEDS 43

1 Context 43

2 Legal settings for water quality and critical human water needs 44

3 Constitutional considerations 45

4 Critical human water needs and South Australia's storage rights 46

5 Options for reform 46

a. Water Act and associated instruments 46

b. Options for reform – other 47

PART 5: GOVERNANCE TO SUPPORT BASIN PLAN OUTCOMES 48

1 Hydrological models 48
2 Federal funding agreements 52
3 Commonwealth Environmental Water Holder 53
PART 6: BROADER WHOLE OF GOVERNMENT APPROACH 55
1 Structural adjustment 55
2 Financial considerations 56
a. Unallocated funds for Basin Plan implementation 56
b. Using the Commonwealth Green Bond Program to support climate-resilient, high reliability buybacks 56
c. National Water Grid Fund 58

TABLES

Table 1: River channel EWR achievement 11
Table 2: Floodplain EWR achievement 11
Table 3: CLLMM barrage flow EWR achievement 12
Table 4: Entitlement reliability at start of water year (July) under different climate scenarios 19
Table 5: Allocated and unallocated budget for Basin Plan implementation 56

FIGURES

Figure 1: Environmental watering in the Southern Basin 28

CASE STUDIES

Case Study 1: Upstream Extractions, Hume Dam and the Construction of the Barrages 7
Case Study 2: What are the consequences for South Australia if the 300 GL of water is not delivered? 15
Case Study 3: From Robodebt to Robomodels (and Roboflows)? 51

About the Commissioner for the River Murray – South Australia

In late 2025, the South Australian Government announced my appointment as Commissioner for the River Murray – South Australia. As Commissioner, my role includes:

- Standing up for the health of the River Murray, including the Lower Lakes, Murray Mouth and the Coorong.
- Advocating for full delivery of the current Murray-Darling Basin Plan, including the final 450 gigalitres of water recovery required under the Plan.
- As part of Basin Plan and other review processes, advocating for outcomes that reflect an Environmentally Sustainable Level of Take (**ESLT**) in line with current statutory requirements.
- Assisting the South Australian Government to further improve the transparency of information provided about the management of the River Murray and the communication of River Murray related outcomes, directions and issues.

Consistently with my functions, I will be engaging closely with statutory reviews of both the Basin Plan and the *Water Act 2007* (Cth) (**Water Act**) with my work intended to complement that of the South Australian Government. Throughout this process, I will advocate strongly for the health of the River Murray, its floodplains and the Coorong, Lower Lakes and Murray Mouth, much of which was listed in January 2026 as a critically endangered ecological community under national environmental laws. In doing so, I will seek to advance the interests of the people of South Australia, many of whom depend on a healthy River Murray for their drinking water, industry, and recreation.

I have not forgotten the communities across the Basin who I have had the privilege to advise, represent and collaborate with over the years. I will continue to advocate in favour of Basin-wide laws and practices that address over-extraction, deliver sufficient water to the MDB's 16 Ramsar-listed wetlands, and provide you with safe drinking water, which is your human right.

To my First Nations friends and colleagues: I accepted this role on the proviso that I could continue to stand with you in your perennial fight for water justice. This starts with advocating for amendments to the Water Act and Basin Plan which properly recognise First Nations rights and interests. However, it also involves limits on extractions which allow Country to heal and thrive, notably the reinstatement of the thus far elusive ESLT. In the words of the late Ngarrindjeri Elder, Uncle Tom Trevorrow: [1]

> *The land and waters is a living body.*
> *We the Ngarrindjeri people are a part of its existence.*
> *The land and waters must be healthy for the Ngarrindjeri people to be healthy. We are hurting for our Country.*
> *The Land is dying, the River is dying, the Kurangk (Coorong) is dying and the Murray Mouth is closing.*
> *What does the future hold for us?*

Finally, I will continue to stand up for the rule of law. Now, more than ever, it is a measure of our commitment to democracy and must be vigorously defended. This is as true in relation to water law as any other area – after all, water is life, and to mismanage it is to court our own undoing, and that of many other species.

[1] Ngarrindjeri Nation, *Yarluwar-Ruwe Plan Caring For Ngarrindjeri Sea Country And Culture* (Plan, 2007) 5.

Opening Statement

Between the conception
And the creation …
Falls the Shadow

T.S. Eliot, The Hollow Men

Since the late 1800s, water reform in the Murray-Darling Basin (**MDB**) has been largely characterised by a now predictable set of features anchored in politics, relative power, and deal-making. Each 'deal' has invariably involved compromise intended to accommodate – albeit imperfectly – the interests of different states and their constituents.

However, as the most downstream state in a transboundary river system, South Australia has always been vulnerable to upstream priorities. This is reflected in the nature of the deals it struck throughout the twentieth century, with these being codified in various iterations of the River Murray Waters Agreement (**RMW Agreement**).[2]

Whilst South Australia was able to secure a fixed share of water from the River Murray to nominally support its population, industry and environment, the quid pro quo exacted by the upstream states of New South Wales (**NSW**) and Victoria was the right and ability to extract increasingly large volumes of water from the Murray and its tributaries for irrigation, the consequences of which continue to be felt in South Australia today.

A brief examination of this history is vital (see **Case Study 1**), not least of all because the upstream-downstream hydropolitics underpinning water sharing on the River Murray throughout the 1900s has continued to infect decision-making processes well into the new Millennium, prejudicing South Australia.

This is true notwithstanding a contemporary legal and governance framework – namely the Water Act and Basin Plan – explicitly designed to replace state-centric politicking with scientific evidence and a Basin-wide approach in the national interest. It is true notwithstanding overwhelming evidence about the ongoing impacts of over-extraction, which are now being exacerbated by the juggernaut that is climate change. Perhaps most disturbingly, it is true notwithstanding the very visible evidence – in the form of mass fish kills, drying riverbeds, shrinking wetlands and increasingly frequent algal blooms across the Basin – that the system we have created is precipitating, not reversing, ecosystem collapse and the destruction of Country.

While Minister Watt has shown admirable leadership in pursuing the 450GL of additional water recovery via voluntary buybacks, pressure is mounting from the usual quarters for the next iteration of the Basin Plan to follow this same trajectory, that is to say, to emerge out of a process of politicking and deal-making which pays lip service to environmental concerns whilst doing the least amount possible to disturb the status quo (that is, the vested interests of NSW, Victoria and Queensland (**QLD**)). The corollary of this approach would be ongoing misalignment between the reality we are living – namely increasing water scarcity, higher temperatures and higher rates of evapotranspiration – and Basin Plan settings.

These settings, and in particular the limits on extractions that were legislated in 2012, are based on the historical climate record from 1896 to 2009. In failing to develop extraction limits which considered future climate change (which has been extensively modelled at different scales),[3] the

[2] The RMW Agreement was first adopted in 1914. The parties to the agreement were the Commonwealth, NSW, Victoria and South Australia.
[3] CSIRO, *Water Availability in the Murray-Darling Basin* (Report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project, July 2008) 67.

Plan was ill-equipped to address a new, worst drought on record[4] which occurred a mere five years after its adoption – and which was followed by the worst bushfires in Australian history. I – and many others – have long contended that the limits on extraction mandated by the Plan are unlawful as they do not reflect an ESLT, including because they do not consider climate change.[5] This deficiency is exacerbated by rules in some state water legislation (notably in NSW) which are designed to maximise use for irrigation at the expense of town water supply and the environment, particularly during drought.[6] These rules are underpinned by opaque hydrological models owned and operated by upstream state governments and for which governance arrangements are entirely inadequate.[7]

In my 20 plus years practising as an environmental and water lawyer, I am yet to encounter a situation in which deliberate opacity and poor governance supported the general public's interest in a healthy, functioning environment, or First Nations rights and interests, or the protection of vulnerable species. Rather, it is my experience that they reflect vested interests, regulatory capture, and a strong desire to maintain the status quo. In this particular instance, that status quo is continued, unsustainable levels of consumptive use in NSW which is superficially masked by a façade of environmental sustainability – although I am told that the fish at Menindee take little comfort in this façade.

In the end – with or without the façade of environmental sustainability – the result is the same: the river either does, or does not, get the water it needs. The fish either do, or do not, get the water that they need. Birds reproduce, or don't. Black box trees on floodplains are watered and survive, or are dehydrated by government policy, and die. Communities can access clean drinking water for domestic purposes and their stock, or they can't.

The comments above are general but draw on specific examples of decline and degradation from across the Basin. In some instances, this deterioration is happening slowly;[8] in others, it appears to be accelerating.[9] Sometimes – as was the case with the mass fish kill at Menindee in 2019 – it is a combination of prolonged over-extraction coupled with climate change and rapidly developing local conditions.[10]

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[4] The Tinderbox Drought became the worst drought on record across parts of the MDB. See Anjana Devanand et al, 'Australia's Tinderbox Drought: An extreme natural event likely worsened by human-caused climate change' (2024) 10(10) *Science Advances*, 3 <https://www.science.org/doi/10.1126/sciadv.adj3460>.

[5] See, eg, South Australia, *Murray-Darling Basin Royal Commission* (Report, 29 January 2019); Emma Carmody, 'The Silence of the Plan: Will the Convention on Biological Diversity and the Ramsar Convention be Implemented in the Murray-Darling Basin?' (2013) 30(1) *Environment and Planning Law Journal*.

[6] This is discussed in Part 1, sub-section 3(c).

[7] This is discussed in Part 5, sub-section 1.

[8] See, eg, James U Van Dyke et al, 'Conservation Implications of Turtle Declines in Australia's Murray River System' (2019) 9 Scientific Reports 1998 (documenting the gradual, decades-long decline of three freshwater turtle species in the Murray River catchment, with population aging consistent with chronic low recruitment); Scotte D Wedderburn, Thomas C Barnes and Karl A Hillyard, 'Shifts in Fish Assemblages Indicate Failed Recovery of Threatened Species Following Prolonged Drought in Terminating Lakes of the Murray-Darling Basin, Australia' (2014) 730 Hydrobiologia 179 (documenting failed recovery of threatened fish species and simplification of fish communities in the Lower Murray after prolonged drought); Mark Lintermans et al, 'Troubled Waters in the Land Down Under: Pervasive Threats and High Extinction Risks Demand Urgent Conservation Actions to Protect Australia's Native Freshwater Fishes' (2024) 300 Biological Conservation 110843 (finding 37 per cent of assessed Australian freshwater fish species threatened with extinction).

[9] See, eg, Richard Kingsford, Gilad Bino and John Porter, 'Continental impacts of water development on waterbirds, contrasting two Australian river basins: Global implications for sustainable water use' (2017) 23(11) *Global Change Biology*, 4958; Australian Academy of Science, *Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019* (Report, 18 February 2019).

[10] Australian Academy of Science, *Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019* (Report, 18 February 2019).

South Australia, situated as it is at the end of a large river system, is no stranger to this deterioration. The Lower Murray was recently classified as a critically endangered ecological community under federal environmental laws,[11] with ongoing over-extraction and river regulation identified as key drivers of its decline. [12] Similarly, the Sustainable Diversion Limit (**SDL**) Assessment for the SA Murray that was released alongside the Basin Plan Discussion Paper identifies that it is 'at risk'. However, it is important to be clear about attribution: the SA Murray is subject to upstream extractions in NSW, Victoria and QLD, which unsurprisingly exceed extractions in South Australia by many orders of magnitude. It is also disadvantaged by the lack of progress to relax operational rules and physical constraints in NSW and Victoria which limit the volume of water that can be delivered across the border and onto floodplains and to the Coorong, Lower Lakes and Murray Mouth system (**CLLMM**).

It is worth pausing to consider relative levels of long-term extraction under the Basin Plan, especially in light of the issue of attribution raised above. In South Australia, they are limited to 630 GL/year on average, 544 GL/year of which is from the Lower Murray. By way of contrast, extractions in the Victorian Murray and its tributaries are limited to just over 2,994 GL/year and the NSW Murray and its main tributary, the Murrumbidgee River, to 3,686 GL/year.[13] In summary, South Australia is entitled to extract less than one tenth of the water extracted by Victoria and NSW in their parts of the Murray and its tributaries. These figures do not take into account extractions in the northern Basin component of NSW, which are limited to 2,342 GL/year under the Basin Plan.[14]

When NSW opines that it has done 'all of the heavy lifting' in relation to water recovery for the environment, it seems to conveniently forget that it also does a great deal of the heavy extracting – with all of the consequences for ecosystems, species, water quality and Country that necessarily follow. It also forgets that South Australia introduced a cap on extractions from the River Murray in 1969[15] – some 28 years before the Basin-wide Cap was introduced under the Murray-Darling Basin Agreement. South Australian irrigators have had little choice but to become more efficient and to do more with less water due to upstream over-extraction – with this continuing to the present day.

As noted above, extraction limits under the Basin Plan (or SDLs) are not based on the complete climate record and certainly do not consider future climate change. The Tinderbox Drought of 2017 to 2019 is an example of how quickly the future becomes the present, and the risks that we incur by continuing to live in a state of what I call 'hydrodenialism'. The Basin Plan Review Discussion Paper (**Discussion Paper**) does little to relieve my concerns in this regard, stating that '[t]he Authority is not proposing changes to the SDLs to respond to a wide range of plausible 2050 climate futures'.[16] This does little to assist South Australia, for which climate change impacts are projected to include reduced and more variable inflows to the River Murray, hotter conditions coupled with increased evaporative demand, a higher risk of longer, more extreme droughts,

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[11] The listed critically endangered ecological community is known as 'River Murray downstream of the Darling River, and associated aquatic and floodplain systems' and is listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**).

[12] Department of Climate Change, Energy, the Environment and Water, *Approved Conservation Advice for the River Murray downstream of the Darling River, and associated aquatic and floodplain systems* (Advice, 16 January 2026) 67.

[13] These are all expressed as a long-term average limit on extractions. The figures do not include the Lower Darling, the SDL for which is 37.4GL. Current SDLs are published here: 'Current diversion limits for the Basin', *Murray Darling Basin Authority* (Web Page, 2025) <https://www.mdba.gov.au/water-use/water-limits/current-diversion-limits-basin>.

[14] 'Current diversion limits for the Basin', *Murray Darling Basin Authority* (Web Page, 2025) <https://www.mdba.gov.au/water-use/water-limits/current-diversion-limits-basin>.

[15] Government of South Australia Murraylands and Riverland Landscape Board, *Water Allocation Plan for the River Murray Prescribed Water Course* (Plan, 27 April 2023) 17.

[16] Discussion Paper, 33.

changing extremes and water quality degradation.[17] It is also sobering to consider that we are now closer to 2050 than we are to the year 2000 – which was the beginning of the Millennium Drought.

This begs the question: if the Millennium Drought was eclipsed in severity in the Northern Basin by a drought that occurred within 5 years of the Basin Plan's adoption; if we have been gathering evidence for decades about the impacts of climate change in the Basin;[18] and if 2050 is only 24 years away – when will be the right time to bring extraction limits into line with the reality of global warming? Or is the unstated policy one of climate-induced attrition for the environment and water users alike? In making this statement, I note that Australian law does not recognise any right to compensation for reductions in water allocations that are caused by climate change, leaving farmers to absorb and manage this risk.

This issue in particular highlights the urgent need for a whole-of-government approach to water management in the MDB. Water laws and policies cannot address complex socio-economic issues – including the prospect of climate-induced stranded assets – by themselves. And while structural adjustment is easier said than done, it is nonetheless more sensible and more humane for governments to explicitly support, where appropriate, structured and dignified transitions than it is to implicitly endorse the gradual attrition of assets and vulnerable businesses. Agriculture is a vital part of Australian society and our overall economy. However, if our water sources are to continue to support the sector and future generations of farmers, it must logically occur within the context of our hydrological and climatic reality.

I sought feedback from a farmer on the preceding two paragraphs. He agreed with the analysis, but with the following caveat: not only is this process of attrition well underway, it is moving upstream and beyond the traditional 'forgotten people' of downstream geographies. These downstream folks – the collateral damage of upstream over-extraction – are being joined by growing numbers of people further up the river who are struggling to maintain viable businesses as allocations inevitably diminish as water becomes scarcer in a changing climate.

Before continuing, I must clarify one point regarding the biophysical impacts of climate change. When parts of the system do collapse – which some say is already occurring[19] – climate change will likely be the tipping point, not the long-term cause. The underlying driver will be – is – persistent over-extraction, which in turn leaves our rivers vulnerable to the impacts of global warming.[20] I call this the 'over-extraction-climate nexus', while others more commonly describe it as impaired resilience (which reduces the ability of natural systems to absorb disturbances, adapt and continue functioning).[21]

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[17] South Australian Submission responding to the Discussion Paper, Chapter 3.

[18] See, eg, Roger Jones et al, *Future impacts of climate variability, climate change and land use change on water resources in the Murray Darling Basin* (Report for CSIRO Atmospheric Research, July 2002); CSIRO, *Water Availability in the Murray-Darling Basin: A Report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project* (Report, November 2008).

[19] Dana Bergstrom et al, 'Combating ecosystem collapse from the tropics to the Antarctic' (2021) 27(9) *Global Change Biology,* 1692.

[20] Long Chu et al, 'Effects of long-term meteorological trends on streamflow in the Northern Murray-Darling Basin (MDB), Australia 1981–2020', (2025) 58 *Journal of Hydrology: Regional Studies*; R. Quentin Grafton et al, 'Resilience to hydrological droughts in the northern Murray-Darling Basin, Australia' (2022) 380(2238) *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*; Rebecca Doble et al, 'An Overview of Groundwater Response to a Changing Climate in the Murray-Darling Basin, Australia' (2024) 32 *Hydrogeology Journal*, 59.

[21] R. Quentin Grafton et al, 'Resilience to hydrological droughts in the northern Murray-Darling Basin, Australia' (2022) 380 (2238) *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*; Matthew Johnson et al, 'Rising water temperature in rivers: Ecological impacts and future resilience' (2024) 11(4) *WIREs Water*.

Against this backdrop, I'd like to return to an earlier point regarding current SDLs under the Basin Plan. To reiterate: these do not, in my legal opinion, reflect an ESLT. Accordingly, any attempt to 'triage' parts of the environment due to climate impacts *prior* to reinstating a sustainable level of extraction is cynical at best, and unlawful at worst.[22] This is not to suggest that decision-making under climate change will not involve trade-offs. Of course it will. However, the starting point ought to be – as the Water Act requires – an ESLT. Failure to do so isn't a mere technical breach: it subverts the rule of law and imperils the very ecosystems which underpin our prosperity.

Further, the solution is not to retrofit the Water Act to bring it into line with a sub-optimal Basin Plan. Apart from the constitutionally fraught nature of such an exercise (and the subsequent likelihood of litigation), it would be a clear admission by the Commonwealth Government that it had given up on the river, on caring for Country, and on the use of independent science in environmental decision-making.

But even without a legal imperative, there is still a moral one to leave future generations with something other than a carcass of a river accompanied by a paper trail documenting our astonishing cognitive dissonance. There is nothing original about this thought: it is embedded in First Nations lore[23] and embodied in the western legal principle of 'intergenerational equity', which in turn forms part of the well-established concept of 'ecologically sustainable development.'[24]

While improvements under the current Basin Plan are real and important,[25] they are nonetheless relatively modest and will remain so unless course correction is prioritised over political expediency. This will involve a number of steps, starting with an acknowledgement that several Sustainable Diversion Limit Adjustment Mechanism (**SDLAM**) 'offset' projects will not be delivered and that the assumed 'water savings' associated with these failed projects will need to be replaced with real water for the environment.[26] Attempts to devise yet another scientifically dubious – and expensive – political fix in lieu of buying this licenced water would not only fly in the face of common sense, but would be an environmental disaster, including for South Australia.[27]

Similarly, while amendments to the Water Act in 2023 introduced new provisions regarding First Nations values and interests, they did not extend to tangible rights, the protection of cultural flows in water resource plans (**WRPs**), or the elevation of cultural knowledge in water planning and management. In this sense, they did not meaningfully implement the United Nations Declaration on the Rights of Indigenous Peoples (**UNDRIP**) or contribute to Closing the Gap targets and outcomes. There is now an opportunity to move beyond objectives, consultation, reviews and reporting to actual justice for First Nations peoples and Country.

If this submission is direct in its tone and expresses concern about the consequences of political compromise, it is not for lack of admiration for the Water Act, which I consider for the most part to be a fine piece of environmental legislation – albeit one that requires a spring clean in places, and which must be amended to advance the rights and interests of First Nations peoples. Having

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[22] *Water Act 2007* (Cth) ('Water Act') ss 4, 23.

[23] Terri Janke et al, *Australia State of the Environment 2021* (Report, 2021), Country and Connections <https://soe.dcceew.gov.au/indigenous/environment/country-and-connections>.

[24] Ecologically sustainable development is underpinned by the following principles: precautionary principle, inter-generational equity, biodiversity conservation, improved valuation of environmental costs, and integration of long-term sustainability into decision-making.

[25] DEW (2024) *South Australia's evaluation of environmental outcomes under the Basin Plan (2024)*: Approach and Summary, South Australian River Murray Water Resource Plan Area. Department for Environment and Water, Adelaide.

[26] This is addressed in Part 1, sub-section 1(c) of this submission.

[27] See Case Study 2 in this submission.

researched other transboundary systems around the world, I also believe that we have a strong foundation in place for negotiating and implementing the next round of reforms.

However, for the Act to fulfill its promise of restoring the health of the Basin's rivers, aquifers and floodplains, the Basin Plan must do more than deliver modelled outcomes on paper. While paper rivers can survive on words alone, real rivers and real Country cannot. Real rivers and real Country need more than the illusion of world's best practice – they need processes and rules that are aligned with the hydrological and climatic reality of the MDB. They also need people with power to imagine two possible futures: one in which the decisions that they make now condemn our rivers and the species and communities that depend upon them to certain decline, and another in which their decisions contribute to the long-term health and prosperity of the Basin.

It's their choice – and will be their legacy.

Case Study 1: Upstream Extractions, Hume Dam and the Construction of the Barrages

After the RMW Agreement was entered into by the Commonwealth, NSW, Victoria and South Australia in 1914, an ambitious program of capital works began. These included Hume Dam, construction for which commenced in 1919 and ended in 1936. Each state jurisdiction had a particular reason for supporting the project.

South Australia embraced its construction as it would enable its fixed share of water from the River Murray to be stored, thereby providing security against upstream diversions. In other words, its support was inextricably linked to its vulnerability as a downstream jurisdiction.

NSW and Victoria advocated for the project as it would underwrite the expansion of irrigation in each state. This was particularly important given the variable nature of rivers in the MDB and the very real risk of drought, both of which constitute risks for irrigated agriculture.

However, in 1931, the River Murray Commission advised that Hume Dam and associated extractions would reduce flows into South Australia, thereby increasing salinity in the Lower Murray. The solution was to either reduce extractions in NSW and Victoria and increase flows down the river to dilute the saline water (and export it through the river's mouth), or to construct five barrages to quarantine saline water at the end of the system and prevent its otherwise inevitable migration upstream.

Put differently, the alternative to more flows into South Australia was to engineer a solution to an environmental problem which was itself caused by an engineered structure further upstream.

Unsurprisingly, this was considered the more palatable of the two options, and the barrages were built. NSW and Victoria's extractions – underpinned by a new 3000 GL storage dam completed in 1936 – could continue to grow, while South Australia could protect the lower reaches of the river from saline intrusion.[28]

However, the barrages have not ultimately proven to be a remedy to upstream extractions and their impacts on South Australia, including the CLLMM. Rather, they have become a monument to upstream-downstream hydropolitics, and South Australia's vulnerability as the most downstream jurisdiction in the Basin.

In 2026, South Australia has little choice but to operate them as there are insufficient freshwater flows down the Murray to address salinity and associated environmental problems, particularly in the CLLMM.[29] However, increased environmental flows are still critical in order to restore the health of the Lower Murray and its floodplains and to improve the health of the CLLMM.

[28] Chris Guest, *Sharing the Water: One Hundred Years of River Murray Politics* (Murray-Darling Basin Authority, 2019), 78-79.

[29] 'Locks, weirs, barrages and storages', *Government of South Australia, Department of Environment and Water* (Web Page, 2026) <https://www.environment.sa.gov.au/topics/water-and-river-murray/basin-river-murray-lakes-and-the-coorong/about-the-river-murray/locks-weirs-and-storages>.

Executive Summary

In January 2026, the Macquarie Marshes Ramsar site in the Northern Basin and the Lower Murray River in the Southern Basin were listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**). [30] In each instance, prolonged, unsustainable levels of extraction and river regulation have contributed to their decline. While the Macquarie Marshes are most vulnerable to diversions within the Macquarie catchment,[31] the state of the Lower Murray River in South Australia is inextricably linked to upstream extractions in NSW and Victoria. This is hardly surprising: the combined, permissible extractions in the Southern Basin component of these two upstream states is ten times that of South Australia.[32]

The next iteration of the Basin Plan therefore comes at a critical juncture, with these two listings making it abundantly clear that attempting to erode or merely preserve the status quo is not a credible, moral or lawful option. This is reinforced by updated modelling, according to which not a single measure of ecosystem health in South Australia – for the river channel, the Ramsar listed Riverland site and extended floodplain or the Ramsar listed CLLMM – will be met under the 3,200 GL water recovery scenario *under a repeat of historical climate conditions*.[33,34] This is what happens when political compromise collides with reality; when we forget that the physical laws of nature will not bend to accommodate words on a page, and that that the prosperity of future Australians depends on our generation's capacity to act with wisdom and care, today.

Against this backdrop, and while I recognise the important progress that has been made towards recovery of the additional 450 GL of water for the environment, a 3,200 GL Basin Plan should be understood as a floor, not a ceiling, not least of all because *it will not maintain ecosystem health in South Australia under a repeat of historical climatic conditions, let alone in a changing climate*. A non-negotiable component of this floor is the estimated 300 GL of water recovery that will not be 'offset' under failed SDLAM projects. The evidence makes it abundantly clear that abandoning recovery of this water is to abandon the Lower Murray entirely – to say nothing of the CLLMM and its communities and fishing industry. To repeat: this is not a reality that can be massaged – or even wrestled – into submission by bargaining and pacts. It is a reality that must be confronted, and addressed, in line with best-available scientific knowledge if the next version of the Basin Plan is to provide us with more than the consolation of illusion.

While this submission is frank in its assessment of the ongoing injustice suffered by the environment, First Nations peoples and downstream communities, it is also optimistic, not least of all because the Water Act provides a strong foundation upon which to construct the next iteration of the Basin Plan. This foundation must not be taken for granted: it is no small feat to create the legal architecture for a transboundary river system, especially one as developed and contested as the MDB. But paper foundations, however impressive, will not suffice in a changing

[30] The Lower Murray is part of a critically endangered ecological community known as 'River Murray downstream of the Darling River, and associated aquatic and floodplain systems'. The Macquarie Marshes is an endangered ecological community.

[31] C M M Steinfeld and R T Kingsford, 'Disconnecting the Floodplain: Earthworks and Their Ecological Effect on a Dryland Floodplain in the Murray–Darling Basin, Australia' (2013) 29(2) *River Research and Applications* 206.

[32] 'Current diversion limits for the Basin', *Murray Darling Basin Authority* (Web Page, 2025) <https://www.mdba.gov.au/water-use/water-limits/current-diversion-limits-basin>.

[33] DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of hydro-ecological consequences for the Coorong, Lower Lakes and Murray Mouth, South Australia*. DEW Technical report 2026/05, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.

[34] DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of Hydro Ecological Consequences for the Murray Chanel and Floodplain, South Australia*. DEW Technical report 2026/04, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.

climate. This submission accordingly offers a considered set of recommendations designed to build upon this foundation. The opportunities are real, if we choose to seize them.

The Commonwealth's Green Bond Program offers a compelling financing mechanism for the acquisition of high-reliability, climate-resilient water entitlements, to say nothing of the $1 billion plus remaining in the Basin Plan budget. Constraints relaxation, long stalled by political inertia, can be unlocked through a combination of genuine financial incentives, independent facilitation, and appropriately structured contracts with landholders. First Nations water rights, for too long dressed in the language of aspiration to avoid the obligations of justice, can be given genuine legal expression through a new chapter in the Basin Plan with enforceable provisions at every level of the water planning hierarchy. Water quality and critical human water needs (**CHWN**) can be addressed through inter-governmental processes and binding commitments in WRPs. Hydrological models, currently opaque and poorly governed, can be brought within a proper accreditation and transparency framework. Federal funding agreements, which have too often transferred public money without adequate accountability, can be redesigned to deliver verified outcomes in all instances.

These and other recommendations have been presented in this submission consistently with my obligation to 'stand up for health of the River Murray, including the CLLMM', but also in pursuit of a Basin Plan that respects the rule of law and reflects the hydro-climatic reality of the MDB. A river in decline is a society in decline. That so many love this river and yet it continues to struggle is not a paradox – it is a failure of governance. We may be the last generation with the power to correct that failure. Let us not waste it.

PART 1: BASIN PLAN AND PUBLIC INTEREST ENVIRONMENTAL OUTCOMES

1 Sustainable Diversion Limits must reflect an Environmentally Sustainable Level of Take

a. Current Sustainable Diversion Limits

The Water Act acknowledges that the rivers, aquifers and floodplains of the MDB are over-allocated and over-extracted and that it is necessary to return a sufficient volume of water to the environment to reverse this inherently unsustainable trajectory.[35] This 'sufficient volume of water' is known as an ESLT and was purposefully defined to prohibit extractions which would compromise the environmental and productive base of water resources across the Basin.[36]

The obligation to reinstate an ESLT must be read in tandem with another, key requirement: that in developing the Basin Plan, the MDBA and the Minister must implement the Convention on Biological Diversity and the Ramsar Convention on Wetlands, and act on the basis of best-available scientific knowledge and socio-economic analysis.[37]

I have written extensively about these obligations, and to that extent do not wish to exhaustively re-litigate my views in this submission.[38] However, and in summary, it is my legal opinion that the current version of the Basin Plan does not properly implement Australia's obligations under these international environmental treaties; is not based on best-available science; and does not mandate SDLs which reflect an ESLT, including because it does not take into account the full climate record or future climate change.[39] Rather, the Basin Plan was the product of political compromise which, for all of its purported pragmatism, did not magically render it lawful or capable of addressing the problem that it was designed to solve: over-allocation and over-extraction of our water resources.

This purpose has not yet been realised and will not be realised if we do not move beyond the façade of environmental sustainability. All living systems exist within certain biological parameters, exceedance of which will inevitably result in their degradation and eventual demise. The rivers, wetlands and aquifers of the Basin are no exception, with multiple signs pre and post Basin Plan indicating that these thresholds are being crossed and that systems are collapsing. This further reinforces what best-available science tells us: that current extraction levels are not sustainable and do not comply with the core requirements of the Water Act.

The recent listing of the Lower Murray as part of a larger critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) and finding in the MDBA's recent SDL assessment that it is 'at risk' reinforces this conclusion. It is also reinforced by the MDBA's updated modelling for a fully implemented Basin Plan (3,200 GL equivalent), according to which none of the environmental watering requirements

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[35] Water Act, ss 3(d)(i), 23(1).
[36] Ibid, s 4 (definitions).
[37] Ibid, ss 21(3), 21(4)(b).
[38] See, eg, Emma Carmody, 'The Silence of the Plan: Will the Convention on Biological Diversity and the Ramsar Convention be Implemented in the Murray-Darling Basin?' (2013) 30(1) *Environment and Planning Law Journal*; Emma Carmody, 'The Unwinding of Water Reform in the Murray-Darling Basin: A Cautionary Tale for Transboundary River Systems' in Cameron Holley and Darren Sinclair (eds), *Reforming Water Law and Governance: From Stagnation to Innovation in Australia* (Springer, 2018); Emma Carmody (on behalf of the Environmental Defenders' Office), *Submissions to the Murray-Darling Basin Royal Commission*, 20 September 2018.
[39] The CSIRO advised the MDBA in 2011 that 'the modelling [for the 2,800 GL/year scenario] indicates that the proposed SDLs would be highly unlikely to meet the specified ecological targets even in the absence of future climate change.' See Bill Young et al, *Science review of the estimation of an Environmentally Sustainable Level of Take for the Murray–Darling Basin* (Technical Report for CSIRO, 2012) 30. Note that approximately 2100 GL/year of water has been recovered.

(**EWRs**) for South Australia (for the river channel, floodplains or CLLMM) will be met under this water recovery scenario.[40]

b. Recent SDL assessments and associated eco-hydrological and climate modelling

i. EWRs are not met under Basin Plan full implementation scenario

A rigorous assessment of whether the current SDLs reflect an ESLT requires evidence that the water being delivered under Basin Plan implementation is actually sustaining the ecological values it was designed to protect. EWRs – the quantified hydrological regimes needed to sustain the ecological values of South Australia's Priority Environmental Assets (**PEAs**) at a low level of risk – provide exactly that evidence. Where EWRs are consistently not met, this indicates both that Basin Plan implementation is falling short and that the SDLs underpinning it are insufficient to constitute an ESLT. The MDBA's own Basin Plan Review modelling outputs demonstrate that, under every scenario assessed, this threshold is not being reached. This is demonstrated in Tables 1 to 3 below, which summarise target versus modelled EWRs for each scenario.[41]

Table 1: River channel EWR achievement

EWR	Target	Pre-Basin Plan	BP2024	BPFI
IC1 (Baseflow)	95%	**50%**	**67%**	**76%**
IC2 (Small fresh)	75%	**23%**	**30%**	**33%**
IC3 (Large fresh)	65%	**16%**	**21%**	**22%**
IC4 (Bankfull)	45%	**13%**	**16%**	**18%**

Table 2: Floodplain EWR achievement

EWR	Target	Pre-Basin Plan	BP2024	BPFI
FP1 (Low-level inundation)	60%	**20%**	**21%**	**23%**
FP2 (Moderate inundation)	45%	**20%**	**22%**	**23%**
FP3 (Extensive inundation)	35%	**14%**	**17%**	**17%**
FP4 (Large overbank)	25%	**16%**	**17%**	**17%**
FP5 (Extreme overbank)	15%	**8%**	**9%**	**12%**

[40] DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of hydro-ecological consequences for the Coorong, Lower Lakes and Murray Mouth, South Australia*. DEW Technical report 2026/05, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.
DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of Hydro Ecological Consequences for the Murray Chanel and Floodplain, South Australia*. DEW Technical report 2026/04, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.
[41] The three scenarios are: pre-Basin Plan; Basin Plan as implemented in 2024; and Basin Plan fully implemented (3,200 GL equivalent).

Table 3: CLLMM barrage flow EWR achievement

EWR	Target	Pre-Basin Plan	BP2024	BPFI
CLLMM1 (Base connectivity)	100%	**43%**	**52%**	**51%**
CLLMM2 (Enhanced flows)	50%	**32%**	**37%**	**38%**
CLLMM3 (Sustained high flows)	33.3%	**20.3%**	**27%**	**29%**
CLLMM4 (System flushing)	14%	**7%**	**8%**	**11%**

It is important to note that the aforementioned discrepancies between targeted outcomes and modelled, expected outcomes are not marginal shortfalls or results within acceptable uncertainty ranges. Further, as South Australia depends on flows that come across the border to sustain its river and floodplains, it is impossible to divorce unmet indicators of basic ecosystem health from upstream extractions and constraints.

ii. Modelling adjustments – cost borne by the South Australian environment

Perhaps the most significant and least examined issue in the Basin Plan Review modelling is the substantial reduction in the volume of environmental water reaching South Australia under the current model compared to the 2012 modelling, with this being attributed to model recalibration. This is discussed in more detail, below.

Under the Basin Plan Review modelling, the mean annual end-of-system flows under 'without development' conditions are now estimated to be almost 2,000 GL lower than the Authority previously calculated.[42] This reduction flows directly through into all Basin Plan implementation scenarios. The practical effect is significant: the modelled mean annual flow to South Australia under a fully implemented Basin Plan is 1,300 GL lower than the equivalent 2,750 GL scenario from the 2012 Basin Plan modelling. For the CLLMM, the mean annual barrage flow under a fully implemented Plan is around 1,240 GL lower – and this reduction exceeds 1,000 GL/year in more than 70 years of the 129-year modelling period. The minimum annual barrage flow has decreased by approximately 500 GL.[43]

The MDBA attributes this to three modelling improvements: recalibration of Northern Basin models (inflows overestimated by around 200 GL/year); recalibration of the Murrumbidgee model (local inflows overestimated by around 500 GL/year); and a more detailed representation of River Murray floodplain losses, particularly at Barmah-Millewa Forest (adding 200–300 GL/year in modelled losses).[44] While these may be legitimate modelling improvements, a sufficiently

[42] MDBA, *The SDL Assessment: Surface Water Technical Methods* (Report, February 2026), B-4.
[43] DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of hydro-ecological consequences for the Coorong, Lower Lakes and Murray Mouth, South Australia*. DEW Technical report 2026/05, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.
DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of Hydro Ecological Consequences for the Murray Chanel and Floodplain, South Australia*. DEW Technical report 2026/04, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.
[44] MDBA (2026) *Comparison of 2012 Basin Plan and Initial Basin Plan Review Outputs: MDBA Hydrological Analysis Technical Report*. Murray-Darling Basin Authority, Canberra, 10 April 2026.

detailed technical report has not been published to enable independent assessment of the modelling thereby making it difficult to form a view either way. In any case, and assuming that the recalibration itself is defensible, what follows from it most certainly is not.

That is, it is assumed that it is the environment and South Australia that will bear the cost of these modelling adjustments, with the Discussion Paper explicitly stating the following:

> *Given that our understanding of the Coorong, Lower Lakes and Murray Mouth (CLLMM) system has significantly improved since 2012, it is clear some Basin Plan environmental outcomes may not be feasible and need to change. It appears that flows alone will not be sufficient to keep the Murray Mouth open. More work is needed with Basin governments to further understand this issue.*[45]

Logically – and legally – if flows have been over-estimated in up-stream catchments then this should have consequences for how that smaller pool of water is shared between the consumptive pool and environment – both locally and downstream. Maintaining the same level of consumption from a smaller volume of water does not readily translate into an SDL or SDLs that reflect an ESLT. This must be factored into any SDL assessment of upstream catchments and broader consideration of ESLT requirements across the Basin.

iii. Consequences for the Coorong, Lower Lakes and Murray Mouth system

As the most downstream significant ecological site in the Basin, the CLLMM receives whatever water remains after all upstream demands – consumptive and environmental – have been met, making it inherently vulnerable to reductions in flow.[46] A reduction of 1,240 GL/year in mean annual barrage flows is not an abstraction: it is the difference between the Coorong having some salinity management, fish passage and Ruppia productivity, and it descending into the hypersaline, ecologically degraded state that pre-Basin Plan conditions produced.[47] To reiterate: the barrage flow EWRs are not achieved under a fully implemented Basin Plan *under historical climate conditions which by definition, no longer apply*.[48]

South Australia's position is clear: it would be unreasonable for the environment – and particularly the CLLMM, which is a Ramsar-listed wetland protected under international law – to exclusively bear the consequences of modelling deficiencies that informed the original SDLs. Put simply, if the water available to the environment under full Basin Plan implementation is materially less than was assumed when the SDLs were set, a lawful ESLT assessment cannot simply allow the Lower Murray and CLLMM to bear that burden. It must properly consider what the overestimates in upstream catchment modelling mean for the SDLs that apply in those catchments.

iv. Climate change modelling

For the Basin Plan Review SDL assessment, the Authority translated the 2025 CSIRO hydroclimate projections into simplified sets of two scaling factors – one for the Northern Basin and one for the Southern Basin, applied across just two broad seasons – which were then used to proportionally reduce historical inflow sequences rather than being inputted directly into the

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[45] Discussion Paper, 26.

[46] This is essentially acknowledged in the SDL Assessment for the Lower Murray, which states at p. 6 that the 'initial assessment has identified flow as a leading driver of this outcome, characterised by insufficient freshwater flows, ongoing constraints to delivery of flow, reduced lateral connectivity and inadequate flows to maintain an open Murray Mouth (without needing dredging).'

[47] DEW (2026). *Basin Plan Review 2026 Water Recovery and Climate Future Scenarios: Assessment of hydro-ecological consequences for the Coorong, Lower Lakes and Murray Mouth, South Australia*. DEW Technical report 2026/05, Government of South Australia, Department for Environment and Water, Adelaide, *in press*.

[48] Ibid.

river system model.[49] As this approach treats future climate as a proportional reduction of the historical record, it fails to represent the projected changes in seasonal variability, extreme event intensity or flood sequencing that are most consequential for ecological outcomes. At such a coarse spatial and temporal resolution, inflows to individual sub-catchments, tributaries and headwater areas will likely be systematically mischaracterised. The MDBA itself acknowledged these limitations, advising Basin States the approach was 'initial and broadbrush'[50] and explicitly not recommended for assessing local hydrological responses – before proceeding to use it for precisely that purpose. In important respects, the methodology is less sophisticated than the CSIRO's 2008 Sustainable Yields Project[51] and arguably does not constitute best available science for the purposes of an ESLT determination.

v. Sustainable diversion limits do not reflect an environmentally sustainable level of take

The evidence points to the following four conclusions. First, the updated modelling for a fully implemented Basin Plan suggests that current SDLs do not reflect an ESLT as no EWR is met under this scenario *even under historical climate conditions*. Second, it is unlawful for the environment to absorb the consequences of modelling revisions, particularly given the inherently vulnerable state of the Lower Murray and CLLMM to up-stream over-extraction and climate change. The Water Act unequivocally requires SDLs to reflect an ESLT; it does not authorise the modification of scientifically rigorous indicators of ecological health to accommodate modelling errors. Third, the MDBA needs to produce updated climate modelling for ESLT assessment which captures sub-catchment variability and extreme event sequencing, and which applies hydroclimate projections directly rather than through coarse scaling. Finally, this modelling must explicitly assess CLLMM impacts – and be subject to independent peer review before being used for any regulatory purpose.

c. Sustainable Diversion Limit Adjustment Mechanism

The SDLAM was incorporated into the Basin Plan and Water Act as part of a broader compromise, allowing the original 2,750 GL reallocation of water to the environment to be adjusted upwards or downwards within a 5% limit (enabling it to operate within a 2,100 GL to 3,200 GL range).[52] In practice, it has primarily been used to try and reduce the volume of water to be recovered for the environment in the Southern Basin via 'supply measure projects' intended to achieve equivalent ecological outcomes with less water recovery.[53] These projects were to be counterbalanced by investment in irrigation efficiency works, redirecting water saved through improved on-farm practices to the environment without diminishing the farmer's productive capacity.

The SDLAM has been controversial since its inception, being seen by many as an expensive steel-and-concrete fix[54] that would not deliver the environmental outcomes required for the Southern Basin, including South Australia. These concerns have proven to be well-founded, with efficiency works delivering a mere 4 GL of water out of 450 GL by 2022,[55] prompting the Commonwealth

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[49] Murray-Darling Basin Authority, *River System Modelling Technical Report*. MDBA publication no. 10/26, February 2026, pp. 155.
[50] In correspondence.
[51] CSIRO (2008). *Water availability in the Murray-Darling Basin*. A report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project. CSIRO, Australia. 67pp.
[52] 5% of the overall Basin-wide extraction limit or SDL, which is currently modelled to be 10,945 GL/year.
[53] Such as infrastructure delivering water directly to a floodplain in lieu of natural overbank flows (which would require more water).
[54] Or rules-based projects that in some cases, simply optimised modelled outcomes with little demonstrable, real-world changes.
[55] See Murray-Darling Basin Authority, *Environmental water recovery estimates as at 30 September 2022* (Report, 2022) <www.mdba.gov.au/sites/default/files/publications/summary-water-recovery-estimates-sep-2022_0.pdf>.

Government to amend the Water Act in 2023 to remove the limit on direct buybacks and to strengthen the obligation to deliver the additional 450 GL of water. Supply measure projects have proven to be equally fraught: while Basin states originally put forward 'water offset' projects equating to 605 GL, over time it became clear that many of these projects were not feasible.[56] In making this comment, I note that South Australia has delivered its projects on time and within budget (with one final project to be delivered by the end of 2026).[57]

It is apparent that a significant number of supply measure projects in NSW and Victoria will not go ahead or will need to be rescoped, resulting in a likely shortfall of approximately 300 GL (although the precise figure will be confirmed by the end of 2026).[58] If this 300 GL of 'water offsets' is not available, then this water must be recovered and delivered to the environment to ensure that intended environmental outcomes actually materialise, including in South Australia. Further, this failure amounts to a breach of the Water Act,[59] with the self-evident remedy being the acquisition by the Commonwealth of this volume of water entitlements in the relevant catchments for subsequent management by the CEWH.[60]

Indeed, for the 3,200 GL equivalent scenario to have any integrity - and to have any hope of delivering the ecological outcomes modelled for this water recovery scenario (including for South Australia) – this is the only serious course of action. Attempting to devise another expensive 'paper fix' to appease NSW and Victoria would, yet again, undermine the intent of the Water Act and deliver a serious blow to the Lower Murray and the CLLMM. This is particularly true given the 3,200 GL equivalent scenario does not take into account climate change and does not, in my legal opinion, represent an ESLT. Reducing this figure by over 10% is an entirely unacceptable outcome, particularly in the wake of the Lower Murray being listed as a critically endangered ecological community under the EPBC Act.

Case Study 2: What are the consequences for South Australia if the 300 GL deficit in the bridging the gap target due to failed SDL offset projects, is not delivered?

Failure to recover the remaining 300 GL of water recovery committed to under the Basin Plan and required under the Water Act would have serious, compounding consequences for South Australia's environmental, cultural, social and economic interests. These are not speculative outcomes – they are well-documented responses to insufficient flows in a river system already under sustained pressure from upstream over-extraction and climate change.

System resilience in a changing climate

A 3,200 GL Basin Plan, including recovery of the 300 GL SDL offset shortfall, is the absolute bare minimum volume of water recovery required for drought resilience in South Australia, including because it does not take into account climate change. In that sense, it must be understood as a floor, not a negotiable ceiling.

Critically, environmental water deliveries during low-flow periods provide the buffer that prevents temporary stress from becoming permanent ecological damage. Without the full 300 GL, that buffer is materially reduced. As climate change increases the frequency and severity of droughts, each low-flow

[56] See, eg, Murray-Darling Basin Authority, *2023 Annual Assurance Report on SDLAM* (Report, July 2023).
[57] Murray-Darling Basin Authority, *Sustainable Diversion Limit Adjustment Mechanism Register of Measures* (Report, December 2025) <https://www.mdba.gov.au/sites/default/files/publications/sustainable-diversion-limit-adjustment-mechanism-register-of-measures.pdf>.
[58] Basin Plan, ss 7.11, 7.21.
[59] Water Act, s 23(1). Commissioner Walker of the Murray-Darling Basin Royal Commission also concluded that s 7.20(2) of the Basin Plan is ultra vires, that is beyond the power of the Water Act, as it permits calculations of SDLs to be calculated on projected outcomes associated with as-yet incomplete supply measure projects which have not delivered any actual 'water savings' or equivalent ecological outcomes.
[60] This is a function of the inter-operability of the Water Act (ss 23, 23(1)) and the Basin Plan (Chapter 7).

period will impose greater harm than the last – producing a step-change pattern of degradation in which each drought lowers the recovery baseline until cumulative damage becomes irreversible.

The CLLMM

The CLLMM is one of the most significant points of exposure. The South Lagoon is already under ecological pressure; without adequate freshwater inflows, conditions will deteriorate beyond the bounds of natural variation – constituting a failure of Australia's Ramsar Convention obligations that cannot be remedied through managed infrastructure alone.

The Coorong also sustains a commercially and culturally significant estuarine fishery. Extended drought and reduced flows directly threaten that fishery's viability, with downstream effects on regional tourism, associated industries, and communities whose livelihoods and cultural identity depend on a functioning estuary.

Floodplains and wetlands

Regular overbank flows are essential to floodplain and wetland function – driving nutrient cycling, sustaining vegetation, and underpinning ecosystem productivity. Reduced water recovery will diminish both the frequency and extent of these flows. Ecosystems beyond the reach of regulators and pumps – including creek lines and billabongs across a substantial portion of the River Murray floodplain – will receive inadequate inundation and progressively deteriorate. A drying climate will amplify each successive step-change in condition, with diminishing prospect of recovery between drought events.

Native fish populations

Recovery of native fish populations across the MDB depends on the frequency and scale of high-flow events, which drive spawning, enable connectivity between populations, and support juvenile recruitment. A water recovery shortfall reduces both the frequency and magnitude of these events, leaving populations fragmented and key species' long-term viability compromised – with consequences across the following areas:

- Environmental: ongoing decline or limited recovery of key species
- Cultural: reduced capacity to practise cultural fishing and maintain associated knowledge systems
- Social: reduced recreational fishing and diminished First Nations cultural fishing practices
- Economic: erosion of local economies dependent on fishing and river tourism

Connectivity and broader system health

River connectivity is fundamental to system function – maintaining fish movement corridors, nutrient transport, dissolved oxygen levels, and the ecological processes that underpin long-term productivity. Reduced water recovery compromises connectivity with consequences across all dimensions:

- Environmental: disrupted nutrient cycling and ecosystem productivity
- Cultural: impacts to cultural values and connection to Country
- Social: reduced river amenity and community connection
- Economic: declining system health undermining the sustainability of water-dependent industries

Conclusion

The recovery of the 300 GL SDL offset shortfall is not a discretionary environmental measure. It is the minimum commitment required to maintain a functionally viable river system capable of sustaining ecological processes, supporting dependent communities and industries, meeting international obligations, and preserving cultural and recreational values.

Non-delivery does not defer these outcomes – it forecloses them. Under a changing climate, the window for effective intervention narrows each year, and the consequences will fall disproportionately on South Australia and its environment and communities.

d. The rhetoric of complementary measures

Opponents of additional water recovery for the environment frequently argue that rivers require 'more than flows' and accordingly advocate for 'complementary' management actions such as invasive species control and the re-vegetation of riparian zones *in lieu of* additional environmental water.

In reality, the ecological health of the MDB depends on the delivery of sufficient volumes of water, at the right time, and for an appropriate duration – a hydrological regime that reflects, to the extent practicable, the natural flow variability to which its ecosystems and species have adapted[61] – alongside other natural resource management interventions. In other words, the latter is not a substitute for the former, and to suggest otherwise is entirely misleading. Further, while one can certainly express a personal or political preference for 'complementary measures' over additional water recovery, this preference is not to be confused with scientific evidence regarding environmental flow requirements for rivers, wetlands and water-dependent species. Nor is it to be presented as lawful implementation of the Basin Plan.

Further, it would be disingenuous to abandon the core purpose of the Water Act and Basin Plan – namely to return sufficient flows to the MDB so as to reinstate an ESLT – and instead focus on areas of natural resource management that fall under entirely different legislative schemes. While integrated catchment management is an eminently sensible proposition, it will not be achieved by distraction theatrics that ultimately deprive water-dependent ecosystems and species of appropriate flows. The overall objective should be to deliver an ESLT under the Basin Plan, *and* to manage invasive species,[62] re-vegetate critical corridors,[63] remove or modify weirs to improve water quality and habitat for fish,[64] and so on, under relevant legislative and policy settings.

Importantly, management of Country (land and water) by Traditional Owners should be prioritised and funded under the Basin Plan as part of Basin jurisdictions' commitment to facilitating self-determination across the MDB.[65] This is distinct from the rhetoric of 'complementary measures', which as noted above is based on a false dichotomy designed to reduce environmental flows to the detriment of Country, including in South Australia.

Recommendations

- The Basin Plan must be amended to mandate SDLs that reflect a genuine ESLT, incorporating the full historical climate record and future climate projections.
- Climate modelling for SDL assessments must capture sub-catchment variability and extreme event sequencing, apply hydroclimate projections directly rather than through coarse scaling, and explicitly assess CLLMM impacts. All modelling must be subject to independent peer-review before use for any regulatory purpose.

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[61] Murray-Darling Basin Authority, *Basin-wide Environmental Watering Strategy* (Strategy, November 2019), 29 <https://www.mdba.gov.au/sites/default/files/publications/basin-wide-environmental-watering-strategy-second-edition.pdf>.

[62] South Australia EPA, 'Invasive Species', *State of Our Environment 2023* (Web Page, 2023) <https://soe.epa.sa.gov.au/environmental-themes/land/state-of-our-land/invasive-species>.

[63] See, eg, 'Revegetating waterways and riparian areas', *NSW Government* (Web Page, 2025) <https://www.nsw.gov.au/regional-and-primary-industries/natural-resource-management/protecting-waterways-on-farms/guide-to-revegetating-waterways>.

[64] Christopher Bice et al, 'Putting the "river" back into the Lower River Murray: quantifying the hydraulic impact of river regulation to guide ecological restoration' (2017) 141(2) *Transactions of the Royal Society of South Australia*, 108 <https://www.tandfonline.com/doi/abs/10.1080/03721426.2017.1374909>.

[65] This is discussed in more detail in Part 3 of this submission.

- Where upstream catchment modelling revisions reduce the estimated volume of water available, those revisions must have direct consequences for the SDLs that apply in those catchments. The environment and South Australia cannot be made to bear the cost of modelling adjustments and errors.
- Any attempt to triage parts of the environment prior to reinstating an ESLT is unlawful and accordingly cannot be undertaken.
- The approximately 300 GL shortfall arising from failed supply measure projects in NSW and Victoria must be recovered through the acquisition of water entitlements in the relevant catchments.
- Complementary measures must not be treated as a substitute for environmental flows. Both must be pursued in parallel with one another.
- Weir modification to improve water quality and fish habitat should be funded and prioritised in appropriate locations.

2 Climate resilient 'held' environmental water

While current SDLs do not reflect an ESLT, 'business as usual' buybacks will not suffice. The current portfolio of licensed, or held, environmental water (**HEW**) is weighted too heavily towards lower security entitlements which receive lower seasonal allocations during periods of water scarcity, with this being fundamentally problematic in a changing climate.[66]

Recent modelling undertaken as part of the Murray-Darling Basin Sustainable Yields project assessed entitlement reliability over different temporal scales (historical, 2030 and 2050). In summary, 'the river system modelling indicates that climate change may cause widespread reductions in entitlement reliability across the MDB, with the greatest reductions emerging under the drier hydroclimate pathways.' [67] The modelling also estimated potential impacts on the reliability of general security entitlements in the Macquarie and Murrumbidgee catchments in NSW and low reliability shares in Victorian catchments[68] under a fully implemented Basin Plan[69] and median climate scenario (warmer/drier). [70] The results are summarised in the table, below.

The results – which again are for a median rather than more extreme hydro-climatic scenario – paint a sobering decline in likely allocations for lower security entitlements (which constitute the bulk of entitlements in NSW in particular). This is consistent with hydro-climatic modelling by the CSIRO, which further suggests that:

> *The variability in the future hydroclimate will remain high, with long wet periods and long dry periods continuing to occur against a background of declining rainfall and runoff trend. The downward shift in the mean annual runoff would be reflected in more frequent and severe droughts. Under the median projection, 3-year hydrological droughts experienced in the historical climate would occur up to twice more frequently in the future.*[71]

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[66] Expressed as a long-term diversion limit equivalent. See: 'Water Holdings', *Commonwealth Environmental Water Holder* (Web Page, 31 March 2026) <https://www.dcceew.gov.au/cewh/manage-water/basin/water-holdings#commonwealth-environmental-water-holdings>.

[67] Murray-Darling Basin Authority, *Murray-Darling Basin Sustainable Yields: River System Modelling Technical Report* (Report, February 2026) 73.

[68] Goulburn, Broken, Campaspe and Loddon.

[69] 3,200GL/year or equivalent scenario.

[70] Murray-Darling Basin Authority, *Murray-Darling Basin Sustainable Yields: River System Modelling Technical Report* (Report, February 2026) 75-79.

[71] Francis Chiew et al, *Hydroclimate trends and future projections in the Murray-Darling Basin* (CSIRO Technical Report, December 2022) 5.

Table 4: Entitlement reliability at start of water year (July) under different climate scenarios

Catchment / entitlement type	100% allocation (years out of 129)			≥50% allocation (years out of 129)		
	Historical	2030	2050	Historical	2030	2050
Macquarie *General security*	10	10	10	35	30	30
Murrumbidgee *General security*	**0**	**0**	**0**	55	45	30
Victorian (GBCCL) *Low reliability*	30	25	20	70	55	50

While this is of obvious concern for all entitlement holders, the particular focus of this part of my submission is the significance of these findings for the Commonwealth Environmental Water Holder (**CEWH**)'s portfolio of HEW. HEW is the central mechanism by which environmental flows have been increased under the Water Act and Basin Plan. The fact that this portfolio – which in volumetric terms is already well below an ESLT – is dominated by lower security entitlements is extremely concerning. Put simply, allocations will continue to diminish over time, which means that diminishing volumes of managed environmental flows will be available to maintain the health of our rivers and floodplains.

This is not a minor technical point – it goes to the very heart of water reform in the MDB and if left unaddressed, will have a significant impact on the Lower Murray and CLLMM which depend on environmental flows under the Basin Plan to prevent further catastrophic decline. To illustrate this point, the only water flowing through the barrages in South Australia during the Tinderbox Drought was HEW.[72] If less – rather than more – environmental water is available in a changing climate, the ramifications will be severe for South Australia and will likely manifest as longer periods of low flows, species decline, impaired water quality and more frequent freshwater algal blooms.[73]

Against this backdrop, work must begin now to reconsider, and potentially restructure, the CEWH's portfolio of HEW to ensure that it is both sufficient in volume *and* genuinely climate resilient. However, these measures must be supplemented by a range of other interventions which are discussed throughout this submission and include: the protection of planned environmental water (**PEW**);[74] expanded rules which protect base flows down the length of rivers and between catchments, with this being critical for the maintenance of water quality, the prevention of algal blooms and the provision of habitat for fish in particular;[75] appropriate drought reserves in public reservoirs; [76] improved multi-year management of environmental water,

[72] Dianne Flett et al, *Commonwealth environmental water sustaining Murray–Darling Basin ecosystems: 10-year (2014–24) retrospective* (Basin-scale Synthesis, Commonwealth Environmental Water Holder's Flow Monitoring, Evaluation and Research Program, June 2025) vii.

[73] Richard Kingsford et al, 'A Ramsar Wetland in Crisis — the Coorong, Lower Lakes and Murray Mouth, Australia' (2011) 62(3) *Marine and Freshwater Research*, 255; Kane Aldridge, Luke Mosley and Rod Oliver, 'Water quality of the Coorong, Lower Lakes and Murray Mouth' in Luke Mosley et al (eds) *Natural History of the Coorong, Lower Lakes, and Murray Mouth Region (Yarluwar-Ruwe)* (University of Adelaide Press, 2018) 253; Aleicia Holland et al, *Synthesis of Blue Green Algae (Cyanobacteria) bloom knowledge and analysis of recent trends in the Murray Darling Basin* (Report prepared for Murray-Darling Basin Authority, April 2023).

[74] Discussed below in sub-section 3 of this submission.

[75] Discussed below in Part 2, sub-section 2 of this submission.

[76] Discussed below in sub-sections 3 and 4 of this submission.

particularly to support critical watering events for Ramsar sites;[77] and improvements to river operations,[78] governance arrangements for the CEWH[79] and governance arrangements for hydrological models.[80]

The issues raised in the preceding paragraph traverse legal, governance, technical and operational matters, highlighting the need for systemic improvements to support Basin Plan implementation in a changing climate, and to deliver more than modelled 'paper water'. As noted in the Opening Statement of this submission, '[r]eal rivers and real Country need more than the illusion of world's best practice – they need processes and rules that are aligned with the hydrological and climatic reality of the MDB.'

Recommendations

- The CEWH's portfolio must be restructured away from lower-reliability entitlements toward higher-reliability, climate-resilient entitlements as a matter of priority.

3 Genuine protection of planned environmental water

There is well justified concern amongst many stakeholders – as illustrated by the examples below – regarding the potential and actual attrition of PEW, with this serving to reduce the quantum of environmental water available across the Basin. As PEW is often not volumetrically quantified (as is the case in NSW, where a portion of it is characterised as the water that is left over after extractions),[81] it is particularly vulnerable to being undermined by climate change[82] and sub-standard governance, including of hydrological models. This illustrates the interconnected nature of issues raised in this submission, and the need to properly address each of them in order to implement the Basin Plan and deliver actual – rather than modelled or hypothetical – improvements to our rivers and floodplains, including at the end of the system in South Australia.

a. Structural legal deficiency

PEW – the non-licensed share of water available for the environment under water sharing plan rules – constitutes the bulk of environmental water in our rivers and is the 'baseline water' upon which the Basin Plan is built. Insufficient guardrails under the Water Act, Basin Plan and state water laws (in particular in NSW – as well as Victoria) leave PEW vulnerable to surreptitious erosion which in turn undermines the intent of the Water Act: to implement Australia's international obligations under the Ramsar Convention and Convention on Biological Diversity, and to reinstate an ESLT.

At the heart of this problem lies the inter-relationship between two provisions of the Water Act: one that defines PEW, and one that purports to protect it. I will address each of these in turn. First, the expansive definition of PEW in the Act fails to adequately constrain how this concept is defined in state legislation. More specifically, it does not include any qualitative criteria, merely

[77] Discussed below in sub-section 5 of this submission.

[78] Discussed below in sub-section 4 of this submission.

[79] Discussed below in Part 5, sub-section 3 of this submission.

[80] Discussed below in Part 5, sub-section 1 of this submission.

[81] PEW is defined in s 8(1)(a) of the *Water Management Act 2000* (NSW) as: "Water that is committed by management plans for fundamental ecosystem health or other specified environmental purposes, either generally or at specified times or in specified circumstances, and that cannot to the extent committed be taken or used for any other purpose."

[82] Francis Chiew et al, 'Estimating climate change impact on runoff across southeast Australia: Method, results, and implications of the modelling method' (2009) 45(10) *Water Resources Research* <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2008wr007338>.

defining it as (and I paraphrase) water that is preserved for the environment either generally or only at specified times and in specified circumstances.[83]

Consequently, loose definitions of PEW under state legislation which do not guarantee that PEW is protected in all circumstances – as is the case in NSW – are effectively validated by the Water Act. Second, section 21(5) of the Act provides that the 'Basin Plan must ensure that there is no net reduction in the protection of planned environmental water from the protection provided for under the State water management law of a Basin State immediately before the Basin Plan first takes effect.' However, if the level of protection under these state laws immediately prior to the Basin Plan's adoption was sub-optimal, then ongoing protection under the Basin Plan will also be sub-optimal. To reiterate, this undermines the intent of the Basin Plan, which is to build a credible framework for enhancing, rather than reducing, environmental flows.

b. The deficiency in practice – NSW

By way of example, in NSW PEW is essentially the water that remains after extractions, as well as flow rules specified in the relevant water sharing plan (**WSP**) (and sometimes as a condition on an entitlement).[84] In some instances, this is supplemented by an environmental water account which may specify a volumetric amount to be delivered to a Ramsar site, for example. Broadly speaking, these concepts provide the baseline that must be 'protected' on an ongoing basis under the Basin Plan. However, both versions of PEW are susceptible to being undermined, as illustrated by the analysis and case studies, below.

In the first instance, PEW is, in theory, the water that remains once permissible extractions under the long-term average annual extraction limit (**LTAAEL**)[85] have been made. However, yearly compliance checks of the LTAAEL have not been systematically undertaken until recently (and not at all for unregulated systems, other than the Barwon-Darling),[86] with this amounting to nothing more than one model scenario being compared to another model scenario to determine if there has been growth in use.[87] This process is vulnerable to error as first, it is unclear whether the modelled scenarios used have been fully updated each year to accurately reflect current levels of development (that is, current extractions), second, because modelled estimates of extractions are not a good substitute for actual, metered data and third, (and relatedly), because governance of these models is entirely opaque.[88] Thus the framework designed to assess whether 'the water left over' for the environment is 'protected' and thus complies with the requirements of the Water Act is fundamentally flawed.

c. Drought reserves and PEW – NSW

To this inherently deficient process we can add rules in WSPs for drought reserves which are likely to further erode PEW in drought conditions. Specifically, some WSPs specifically base drought

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[83] Water Act, s 6.

[84] For example: translucency rules; end of system flow rules; resumption of flow rules; discretionary stimulus flow rules; cease-to-pump rules; restrictions on supplementary take during uncontrolled flow events.

[85] This is the term used for extraction limits in water sharing plans (**WSPs**) in NSW. Note that the LTAAEL is not based on any objective scientific criteria regarding ecosystem health and does not take into account climate change.

[86] See for example the following in relation to the Barwon-Darling: '2019/2020 is the first year where a formal LTAAEL compliance check has been undertaken.' NSW Department of Planning, Industry and Environment, *A report on compliance with water sharing plan limits for the Barwon-Darling in 2019/2020* (Report, October 2021).

[87] A description of the modelled compliance process is provided here: 'Water Modelling-Modelled Data-Long-term average annual extraction limit (LTAAEL)', *NSW Government* (Web Page, 2026) <https://datasets.seed.nsw.gov.au/dataset/water-modelling-modelled-data-long-term-average-annual-extraction-limit-ltaael>.

[88] This is discussed in Part 5, sub-section 1 of this submission.

reserves on minimum inflows into the relevant storage dam up to 2004,[89] thereby excising the worst drought on record and associated record low inflows.[90] This appears to be designed to reduce impacts on consumptive water users, which is inconsistent with obligations under state water laws which require environmental water and critical human water needs (**CHWN**) to be prioritised over consumptive extractions.[91] Where inflows fall below the 2004 benchmarks – as they did during the Tinderbox Drought in some catchments – existing drought reserves for CHWN will be eroded more quickly than would otherwise be the case, with the inevitable consequence that both PEW and, in some instances, HEW, are compromised.

This is precisely what happened when the Macquarie and Cudgegong Regulated Rivers Water Sources WSP was suspended in July 2019,[92] thereby allowing the remaining environmental water allowance [93] stored in Burrendong Dam to be re-allocated to CHWN. This meant that no environmental flows could be provided to the Macquarie Marshes – a Ramsar-listed wetland – from either HEW or from the remaining environmental water allowance (a form of PEW) in the dam.[94] Put differently, environmental water was used to underwrite water for domestic and town purposes because the drought reserve appeared to have been calculated to minimise impacts on irrigation licences rather than prioritising protection of HEW and PEW. This is a clear example of an environmental account (a form of PEW) being undermined by inadequate water management practices, with these same practices also arguably jeopardising CHWN.

While work is ongoing in NSW to improve the method for calculating drought reserves based on improved inflow data and projections, it appears that the intention is to amend relevant WSPs to provide the Minister with discretion regarding the use of updated climate information when making decisions about the volume of drought reserves, and hence allocations for irrigation (with these two issues being inter-connected). In the words of the NSW Office of the Chief Scientist and Engineer:

> *The proposed approach for incorporating updated estimates of minimum inflows into the AWD [allocation] decision-making process changes this paradigm by moving to a risk-based approach which is inherently discretionary. In this context, decision-makers could be provided with climate-adjusted minimum inflow data and still choose a level of risk when determining storage reserves that doesn't accurately reflect potential future climate conditions nor different perspectives on an acceptable level of risk. This situation could potentially lead to over- (or under-) allocation of water, with adverse consequences for water users and/or the environment.*[95]

The proposed framework outlined above appears to favour higher levels of ministerial discretion with respect to the determination of drought reserves. If this decision-making framework is

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[89] For minimum inflows up to 2004, see: Water Sharing Plan for the Gwydir Regulated River Water Sources 2016, cl. 65(1); Water Sharing Plan for the Macquarie-Cudgegong Regulated Rivers Water Source 2016, cl. 83(1); Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016, cl. 55(1).

[90] These occurred during the Tinderbox Drought. See, eg, Emma Carmody, 'Are our water laws climate ready?' (Speech, 10th Legalwise Water Symposium in Sydney, 18 October 2019) <https://www.edo.org.au/2019/12/19/are-water-laws-climate-ready/>.

[91] *Water Management Act 2000* (NSW), ss 5(3), 9.

[92] By order of then Minister Pavey, published in the NSW Government Gazette on 4 July 2019.

[93] This is a form of environmental water account.

[94] '[W]ith the environmental water rules suspended in the Macquarie to reserve supplies for critical human needs and very limited supplies in Burrendong Dam, the normal environmental allowances to water the Macquarie Marshes have not been available in 2019–20. Use of some 70 gigalitres (GL) of environmental water has been suspended.' NSW Government Department of Planning, Industry and Environment, *Macquarie Marshes Drought Recovery Fact Sheet*, (Fact Sheet, 1 May 2020) <https://www.water.dcceew.nsw.gov.au/sites/default/files/2025-08/macquarie-marshes-drought-recovery-fact-sheet.pdf>.

[95] Office of the NSW Chief Scientist & Engineer, *Minimum Inflows Method Review Final Report* (Report, June 2025) 27.

adopted in relevant WSPs, there will be no guarantee that this discretion will be exercised for the purposes of establishing climate-ready drought reserves. In this sense, it will not necessarily provide any additional protection for PEW (or HEW or CHWN) than is currently the case.

d. Barmah-Millewa environmental allowance

Finally, the NSW Natural Resources Commission (**NRC**) has identified potential issues with the Barmah-Millewa[96] environmental allowance (**BM Allowance**)[97] which is a form of PEW provided for under the Murray and Lower Darling Regulated Rivers WSP 2016. Specifically, the NRC found that provisions in the WSP which enable consumptive users to borrow and payback water from the BM Allowance 'impacted on the availability of the allowance for environmental watering events'.[98] The NRC further found that while return flows of HEW are protected via Prerequisite Policy Measures (**PPMs**),[99] return flows of the BM Allowance are not protected which 'acts as a disincentive for the use of the allowance and potentially limits environmental outcomes that could be realised from re-use of the allowance.'[100]

Recommendations

- Included in recommendations for Section 4, below.

4 Addressing structural bias against environmental water

Legal and operational frameworks governing water management in the MDB have been built around the needs of consumptive users. Rules governing measurement, accounting and delivery of water were designed over decades with a single paradigm in mind: water extracted from a river through a fixed pump or irrigation infrastructure, for productive use, in predictable cycles. Optimal environmental water delivery operates on an entirely different logic – it is intermittent, ecologically timed, responsive (and as such, may not always be predictable or cyclical) and location-specific. For example, environmental flows in the Border Rivers are timed to native fish spawning and dispersal windows between October and April, while water is directed to specific sites such as the Macquarie Marshes and Gwydir Wetlands to support waterbird habitat and wetland vegetation, with delivery adapted in response to unplanned events such as the 2024 wetland fires in the lower Gwydir.[101]

Accordingly, the application of consumptive frameworks to environmental water without modification creates a structural bias that systematically disadvantages environmental delivery relative to consumptive use and leaves environmental water holders exposed to obligations that were never designed with their function in mind. This is exacerbated by water planning deficiencies which result in environmental water being used to compensate for poor risk management by in emergency circumstances.

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[96] Barmah-Millewa is a Ramsar site located on the NSW-Victorian border.

[97] This is in effect an environmental water account.

[98] Natural Resources Commission, *Review of the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* (Report, November 2024) 70.

[99] PPMs are policy measures designed to maximise the benefits of environmental water under the Basin Plan. The protection of 'return flows' is an example of a PPM. This allows environmental water that has been used at one site to be monitored and recredited to an environmental water holder. This allows the water to be re-used for environmental purposes further downstream rather than potentially extracted for consumptive purposes.

[100] Natural Resources Commission, *Review of the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* (Report, November 2024) 71.

[101] Commonwealth Environmental Water Holder, *Water Management Plan 2024–25* (Department of Climate Change, Energy, the Environment and Water, 2024) <https://www.dcceew.gov.au/sites/default/files/documents/cewh-water-mgt-plan-2024-25-full.docx>.

The following examples are not exhaustive but clearly demonstrate the nature and scale of this problem and the need for reform to ensure HEW – a significant public asset – can be optimised and used for its intended purpose at all times. Unresolved, these structural biases will continue to erode the environmental benefits of the Basin Plan, compounding an already unlawful departure from a genuine ESLT.

a. HEW losing its status as environmental water

In certain circumstances, HEW loses its status as environmental water and is reallocated to the consumptive pool for extraction, as demonstrated by the following examples.

i. Re-regulation of environmental flows

It is well established that some HEW loses its status as environmental water once it reaches a particular location, at which point it joins the consumptive pool and is available to be extracted for non-environmental purposes. The most commonly cited example of this phenomenon is HEW that is released from public storages in the Northern Basin but which is re-badged as consumptive water once it arrives at Menindee Lakes.[102] Indeed, since December 2020, more than 179.3 GL of environmental flows have reached the Lakes,[103] meaning a substantial volume of water recovered at significant public expense has lost its designated environmental purpose at what is a critical junction between the northern and southern Basin. Consequently, this water was not available to be used by the CEWH to achieve environmental outcomes in the Lower Darling River and River Murray.

A memorandum of understanding regarding this issue (referred to as 'water shepherding' at the time) was entered into between the Commonwealth and NSW Government in 2010,[104] with a draft policy framework on the subject released by the NSW Government in May 2012.[105] More recently, a north-south connectivity trial undertaken in 2024 resulted in 41 GL of HEW being protected and released into the Southern Basin as environmental water.[106] However, a trial does not constitute a permanent, legislated solution to what is a long-standing problem.

Further, section 10.27 of the Basin Plan explicitly requires WRPs in administratively separate but hydrologically connected systems to provide for coordinated environmental watering between the two areas. The intent of this is clear, and is currently not being implemented in the Northern Basin WRPs and NSW Murray and Lower Darling Surface WRP to the detriment of the CEWH, its environmental water holdings and the environment.

ii. Lapsing or suspension of state water sharing plans

Environmental water protection measures are contingent on the continued operation of state water sharing plans and water management plans. Where such plans are suspended, expire or are otherwise not in place, access to water in accounts can be restricted, including for HEW,

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[102] This is due to shared resource provisions in the Murray-Darling Basin Agreement (Part XII). These provisions govern how water that is held in certain storage dams linked to the River Murray is managed and shared between Basin jurisdictions.

[103] Letter from Dr Simon Banks (CEWH) to the Executive Director, Water Resources Strategy Department of Energy, Environment and Climate Action (Victoria), 19 January 2026.

[104] *Memorandum of Understanding in relation to shepherding of water for the environment, NSW Government and Commonwealth Government,* executed 14 July 2010 (Memorandum of Understanding).

[105] NSW Department of Primary Industries, Office of Water, *Proposed Arrangements for Shepherding Environmental Water in NSW* (Draft for Consultation, May 2012).

[106] NSW Department of Climate Change, Energy, the Environment and Water, 'Now is the time for an enduring solution to connect the northern and southern Basin' (Media release, 25 June 2024) <https://www.dcceew.gov.au/cewh/resources-media/news/enduring-solution-connect-northern-southern-basin>.

meaning that water saved for environmental use during dry times can be reallocated to meet other, high security needs. According to the CEWH:

> *Under the NSW Extreme Events Policy, during the extreme drought in 2019–20 remaining water supplies were quarantined to protect the supply of critical water needs. This affected most CEW holdings across the northern and central Basin including Queensland Border Rivers, Macquarie, Namoi, Peel and Lachlan. This action significantly restricted the CEWH's ability to provide environmental water during such a critical time. After quarantining, water orders were met in 'block releases', these releases increase the efficiency of the water delivery as less conveyance water is required to deliver these flows. However, these strategies give false cues to fish and other aquatic biota, which may perceive sudden, high flows from a bulk release as an opportunity to move into higher habitat or instigate a breeding event, only for the flows to subside quickly once consumptive delivery has been achieved. The timing of block releases is also prioritised to align with consumptive demands, lessening their value for environmental outcomes.*[107]

It is arguable that the scenarios described above are in part the product of the drought storage rules critiqued in Part 1, sub-section 3(c) of this submission. That is, the failure to set aside a sufficient volume of water for CHWN during drought resulted in HEW (and PEW) being used as a form of insurance for poor risk management.

b. Administrative barriers with environmental consequences

The CEWH has raised concerns about administrative arrangements for HEW within Basin jurisdictions which undermine its proprietary legal rights and its ability to deliver water consistently with its obligations under Commonwealth laws and policies.

Notably, it has identified issues with the proposed management of Victoria's share of protected environmental inflows at Menindee under the extended connectivity trial referred to above.[108] Relevantly, Victorian legislation does not permit the CEWH to hold or manage a water entitlement within Victoria's jurisdiction. The proposed mechanism therefore vests ownership and final decision-making authority for Victoria's 50% share of protected active environmental water in the Victorian Environmental Water Holder (**VEWH**) rather than returning it to the CEWH.

The practical consequence is that Commonwealth environmental water – recovered at public expense and protected through active management rules in the northern Basin – arrives at Menindee Lakes and re-emerges under a Victorian instrument held by a Victorian body, with no clear legal basis for that body to direct the water to downstream priority environmental assets in NSW and South Australia. These assets include the Lower Darling-Barka River, the Great Darling Anabranch, and the wetlands and ecosystems of the lower Darling region where the environmental need is significant, from which return flows could subsequently move into the wetlands and ecosystems of the River Murray, including to the Coorong and Lower Lakes.

An alternative arrangement – Victoria ceding its share via NSW to a CEWH-managed product – was identified as simpler, more transparent, and better supporting environmental outcomes locally and for the Basin but was not pursued as the primary mechanism. The result is that the CEWH, as the only water holder with a Basin-wide statutory responsibility for the protection and restoration of rivers and wetlands, is systematically separated from decision-making authority over its environmental water holdings in the Southern Basin.

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[107] Commonwealth Environmental Water Holder, *2024 Matter 7 Overview Report* (Report, October 2024) 91.

[108] Letter from Dr Simon Banks (CEWH) to the Executive Director, Water Resources Strategy Department of Energy, Environment and Climate Action (Victoria), 19 January 2026.

The CEWH has raised more general concerns about the requirement in some jurisdictions to transfer its environmental water holdings onto a state intermediary account before it can be delivered. It has argued that this additional step increases administrative burden, reduces its agility in responding to environmental windows, and at best limits its flexibility to manage the portfolio while undelivered water sits on partner accounts (and at worst means that it loses control of this water). The CEWH has suggested that direct management from Commonwealth accounts would be an improvement consistent with the CEWH's Basin-wide statutory responsibilities.[109]

c. Over-reliance on environmental water as an emergency water quality reserve

A further and increasingly significant dimension of the structural bias affecting HEW is its de facto deployment as an emergency water quality reserve across the MDB. This function is not provided for under the Basin Plan and was not contemplated when environmental water entitlements were acquired by the Commonwealth.

The pattern is most starkly illustrated by the February–March 2023 fish kill at Menindee. The NSW Lower Darling Environmental Water Allowance – a 30 GL reserve specifically designated for water quality management – was exhausted early in the emergency, leaving HEW as the only available instrument.[110] In response, 88 GL of Commonwealth environmental water was used to manage declining dissolved oxygen levels – more water delivered in a small number of months than the combined total of Commonwealth allocations delivered to the river in the several years prior.[111] Relying on HEW to such a significant extent to manage a water quality emergency exposes significant underlying problems in water sharing plans, including the absence of rules that provide for minimum flows at all times and which give effect to water quality targets set out in Chapter 9 of the Basin Plan.

Further, the aforementioned Menindee emergency is not an isolated event. In 2022–23 alone, over 300 GL of Commonwealth environmental water was used reactively to manage hypoxic conditions in the Mid Murray, Lower Murrumbidgee and Lower Darling–Barka rivers – approximately ten times the volume of the NSW Lower Darling Environmental Water Allowance that was exhausted during the Menindee emergency.[112] To reiterate: this is a structural, not exceptional, pattern, with the use of HEW to respond to water quality crises masking shortcomings in water planning frameworks and reducing water available for ecological outcomes. As climate change increases the frequency and severity of cease-to-flow events, this dynamic will worsen.

d. Accounting deficiencies

The CEWH has identified accounting deficiencies in two areas – transmission and channel loss and return flows – which expose its portfolio to potential or actual erosion, each of which is discussed below.

First, the calculation of in-channel and transmission losses for environmental water lacks a robust and transparent framework in a number of catchments. In the absence of consistent and reliable loss accounting, the CEWH cannot accurately determine what proportion of its portfolio reaches intended environmental targets, creating a material gap between ordered volumes and

[109] Commonwealth Environmental Water Holder, *2024 Matter 7 Overview Report* (Report, October 2024) 75-76.
[110] Commonwealth Environmental Water Holder, Submission to NSW Chief Scientist and Engineer, *Independent Review into the February–March 2023 Fish Deaths in the Darling–Baaka River, Menindee* (2023).
[111] Ibid.
[112] Commonwealth Environmental Water Holder, *2024 Matter 7 Overview Report* (Report, October 2024) 91.

demonstrated outcomes. This undermines both the integrity of performance reporting and the CEWH's ability to optimise water use decisions across its Basin-wide portfolio.[113]

Second, mechanisms to account for environmental water return flows – principally through Pre-requisite Policy Measures (**PPMs**) – are now widely adopted in the Southern Basin. However, many of the methods underpinning these mechanisms remain incomplete and their effectiveness is poorly understood. Where return flows are not accurately measured or attributed, there is a risk of systematic under-delivery of environmental outcomes that is not visible within existing reporting frameworks, creating accountability gaps that cannot be identified or corrected through routine monitoring.[114]

Recommendations

- The definition of PEW in the Water Act should be amended to ensure consistency across all Basin jurisdictions with a view to 'lifting the bar' to maximise its protection.
- The Minister should appoint an independent expert panel to inquire into the erosion of PEW and structural bias against HEW across Basin jurisdictions, and to recommend specific amendments to the Water Act, Basin Plan and Water Resource Plans to address identified deficiencies. The panel should be required to report by the end of 2026.
- All instances of PEW erosion and structural bias against HEW identified through that process – as well as those referred to in this submission – should be addressed as part of the Basin Plan reform package. Priority areas for reform include:
    - Drought reserve rules in all Basin jurisdictions should be amended to incorporate the complete climate record and best-available climate projections, with explicit statutory priority given to HEW, PEW and CHWN over consumptive use.
    - Water sharing plans (or equivalent plans or arrangements) across all Basin jurisdictions should be amended to incorporate enforceable water quality rules consistent with an updated Chapter 9, ensuring that water quality targets are met through dedicated reserves rather than the de facto deployment of HEW or PEW.
    - PPMs governing environmental water return flows should be reviewed and, where found to be incomplete or of uncertain effectiveness, replaced with robust, independently verified accounting methods that accurately attribute return flows to the CEWH's portfolio.
    - Environmental water accounting and performance reporting frameworks should be reformed to ensure that accounting deficiencies — including transmission losses and return flow attribution — are visible, auditable and capable of correction through adaptive management.
    - All Basin jurisdictions should amend administrative arrangements to permit the CEWH to manage and deliver environmental water directly from its own licences and accounts.

5 Simplifying and strengthening the Environmental Watering Plan

Environmental watering is governed by a complex web of laws and institutional and governance arrangements, with the specific arrangements that apply in the Southern Basin represented in

[113] Commonwealth Environmental Water Holder, Submission to the Department of Climate Change, Energy, the Environment and Water, *Statutory Review of the Role of the Inspector-General of Water Compliance* (February 2026).
[114] Ibid.

Figure 1, below.[115] The nested nature of the framework is too complex to implement effectively, a problem compounded by the absence of clear and enforceable linkages between the core elements of Chapter 8 of the Basin Plan (Environmental Watering Plan), represented in the right-hand column in Figure 1. More specifically, this is illustrated by the disconnect between the priority environmental assets (**PEAs**) and priority ecosystem functions (**PEFs**) identified in the Basin-wide Environmental Watering Strategy (**BW Environmental Watering Strategy**), the environmental watering requirements (**EWRs**) set out for those assets and functions in long-term watering plans (**LTWPs**), and the actual delivery of environmental water to meet those requirements in practice.

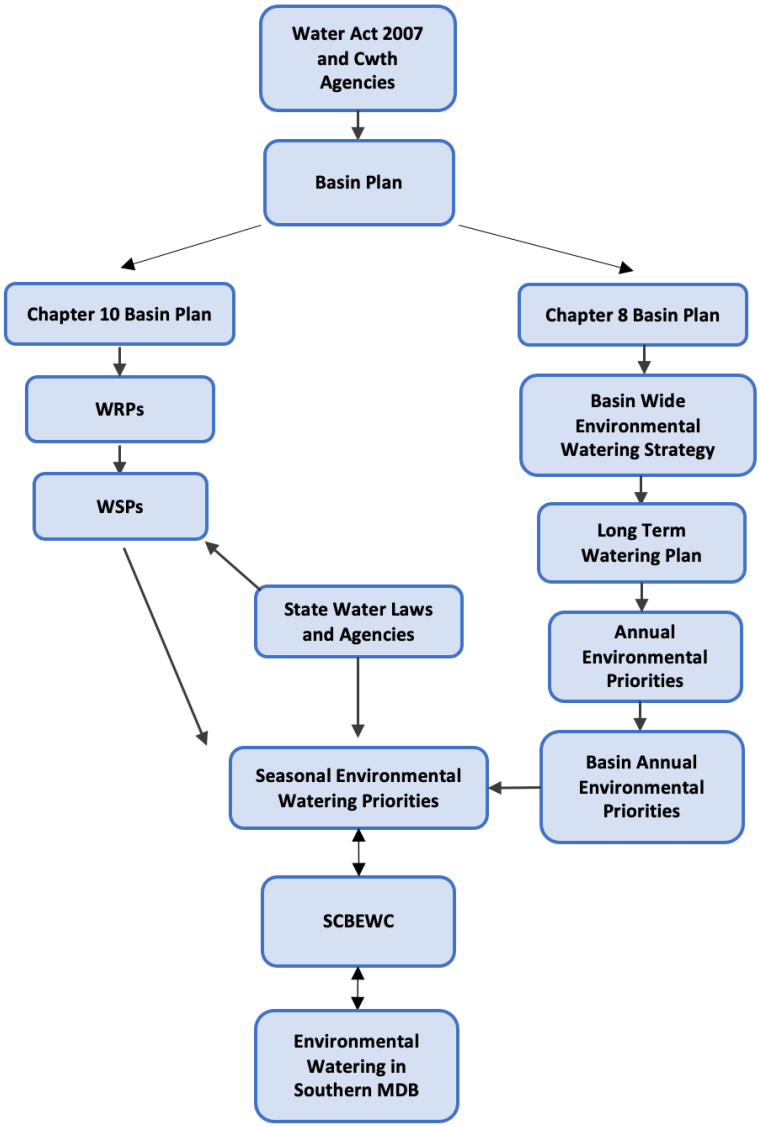


Figure 1: Environmental watering in the Southern Basin

The South Australian Government's submission responding to the Discussion Paper includes a detailed analysis of each element of the Environmental Watering Plan. Broadly speaking, it outlines challenges with the current framework and proposes options to streamline the number of documents and enhance its ability to support the achievement of key ecological outcomes. I

[115] Figure 1 has been reproduced from the following report prepared for the MDBA of which I was a co-author: Restore Blue Advisory Services and Garlett Group, *Independent Review of The Living Murray Indigenous Partnership Program* (Report, 2026) 20.

entirely support these recommendations and consistent with my opening comments, wish to particularly emphasise the importance of prioritising the use of environmental water to meet EWRs for PEAs and PEFs, and to meet end-of-catchment and end-of-system flow rules.

A clear prioritisation framework for environmental water delivery is essential to the Basin Plan's success. Without one, there is no reliable mechanism to ensure water reaches key sites – including declared Ramsar wetlands – in the volumes and timing required to maintain their ecological character. This is not merely a planning preference; it is a legal obligation. The Water Act is explicitly required to give effect to Australia's international agreements, including the Ramsar Convention, which obliges Australia to maintain the ecological character of listed wetlands.

Finally, the next iteration of Chapter 8 should streamline its various elements, resolve the structural disconnects identified above, and consolidate them into a single, coherent document. To that end, consideration should be given to amending Chapter 8 to provide that the BW Environmental Watering Strategy be prepared by the CEWH[116] – in consultation with the MDBA, Basin States and First Nations peoples – against specified criteria that embed the linkages between EWRs, PEAs and PEFs and flow targets.[117]

Critically, the Strategy should be adopted by the Minister as a legislative instrument. [118] This would transform it from a guidance document into a binding framework, reflecting the central importance of environmental watering to the Basin Plan's success and ensuring that its priorities carry genuine legal weight. Together with a strengthened governance framework for the CEWH, this would put the Commonwealth Environmental Water Holder in a strong position to fulfil its statutory purpose of protecting and restoring the Basin's environmental assets.

Recommendations

- Chapter 8 of the Basin Plan should be streamlined to remove unnecessary layers and to focus on core deliverables in particular under the BW Environmental Watering Strategy.
- The BW Watering Strategy should be prepared by the CEWH in consultation with the MDBA, Basin States and First Nations peoples, and adopted by the Minister as a legislative instrument.
- The BW Environmental Watering Strategy should ensure that environmental water is used to meet environmental watering requirements for priority environmental assets, priority ecosystem functions and end-of-system flow rules and should include a clear prioritisation framework for the delivery of environmental water to Ramsar-listed wetlands.

6 Constraints relaxation: a different pathway forward

Acquiring and protecting a sufficient volume of climate resilient environmental water is critical. However, this must be complemented by a range of additional factors if the Basin Plan is to be properly implemented, including addressing limitations on the delivery of environmental water.

These limitations, which are commonly known as 'constraints',[119] prevent river operators from releasing sufficient volumes of water from large storage dams to achieve an overbank flow and

[116] It is currently prepared by the MDBA. I am suggesting that it be prepared by the CEWH in consultation with the various, named parties in light of the fact that the CEWH is the custodian of environmental water.
[117] Some of these elements would need to be replicated in WRPs (for example, flow rules). See Part 2, sub-section 2 of this submission.
[118] This will require an amendment to the Water Act.
[119] Constraints can take the form of infrastructure (for example a bridge or road which would be flooded if the necessary volume of water is released to reach a wetland); rules which limit the flow rate per day in a particular part of a river (for

accordingly inundate ecologically significant floodplains (or wetlands) which are adjacent to river channels. This includes wetlands that have been designated as internationally significant under the Ramsar Convention on Wetlands, the protection of which forms part of Australia's obligations under international law.

It is well established that progress by NSW and Victoria in relation to constraints relaxation in their respective jurisdictions has been limited,[120] and that there has been an erosion of ambition with respect to flow rates originally proposed by the MDBA under the 2014 Constraints Management Strategy. This has a disproportionately large impact on South Australia, which depends on these upstream states to remove constraints to enable a flow rate greater than 40,000 ML/day at the South Australian border to enable overbank flows along the Lower Murray River and for the benefit of the CLLMM.[121]

Consideration of a different approach to the issue of constraints relaxation is clearly required. Properly implemented, constraints relaxation to enable the watering of wetlands on private land could constitute one of the most important ecosystem service schemes in the country. Payments and other incentives for these services, which benefit the broader public, should therefore reflect this significance. Private landholders should be properly incentivised via a combination of direct payments under contract and suitably attractive tax concessions under state and Commonwealth laws.

These and other recommendations to progress constraints relaxation are discussed in more detail, below.

a. Tax concessions

Currently, land that is classified as primary production is exempt from land tax in NSW and Victoria,[122] as is land on which a conservation covenant or equivalent agreement has been registered.[123] It is possible that the former exemption would continue to apply regardless of a partial and/or intermittent change in use (from primary production to environmental watering of floodplains), but this matter should be clarified by governments to provide landholders with certainty, and any necessary amendments should be made to the relevant legislation in each jurisdiction. With respect to the latter, this exemption recognises the public interest good associated with biodiversity conservation, as well as the potential reduction in land value (as a covenant constitutes a restriction on use). This provides a template for extending – to the extent required – the current land tax framework to unequivocally capture land with a registered easement for the purposes of environmental watering (with or without a conservation covenant).

Further, partial and complete stamp duty concessions under NSW and Victorian law currently apply to certain land transactions. I note that this currently includes the sale of primary production land within families (broadly defined),[124] as well as certain transactions by a joint government enterprise that has the function of allocating funds for water savings projects.[125] Against this backdrop, consideration should be given to partial or complete stamp duty

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example flow rules in the Goulburn River, which also apply to inter-valley trade for irrigation); and private properties (for which landholder consent is required prior to releasing an overbank flow which would water floodplains on or adjacent to these properties).

[120] Minister Rose Jackson introduced the *Water Management Amendment (Easements for Inundation) Bill 2025* into the Legislative Council which makes provision for the creation and transfer of easements in gross relating to inundation for environmental purposes.

[121] MDBA, *Constraints Management Strategy 2013-2024*, 42-3.

[122] *Land Tax Management Act 1956* (NSW), s 10AA; *Land Tax Act 2005* (Vic), ss 65-68.

[123] *Land Tax Management Act 1956* (NSW), ss 10(1)(p), 10(1)(p1); *Land Tax Act 2005* (Vic), s 86A.

[124] *Duties Act 1997* (NSW), s 274; *Duties Act 2000* (Vic), s 56.

[125] *Duties Act 1997* (NSW), s 284A.

concessions for transactions involving land that is encumbered with a registered easement for environmental watering.

Finally, capital gains tax (**CGT**) exemptions under federal legislation apply to a range of sales, including the disposal of land with a registered conservation covenant (where certain conditions are met).[126] Consideration should accordingly be given to creating CGT concessions for the disposal of land with a registered easement for environmental watering. Again, this would be in recognition of the public good associated with the easement and any potential impact on the value of the underlying asset.

b. Independent entity to progress negotiations

Engaging a suitably qualified, independent third-party entity to progress negotiations and contractual arrangements should also be considered. Negotiating with, and aggregating, thousands of landholders is an inherently complex and time-consuming exercise, particularly when it involves sensitive conversations about land use change, risk management, contractual arrangements and social buy-in. Engaging the right 'mediators' who have direct experience in similar circumstances, and who have a track record of building trust with landholders, will likely help expedite this difficult area of Basin Plan implementation.

c. Contractual arrangements

Contracts (for example in the form of easements) between government and landholders should appropriately apportion risk and should, within reason, protect landholder rights and interests rather than presumptively releasing governments from liability in the event of misadventure. Governments should also consider meeting the reasonable costs of landholders' participation in negotiations, including the (capped) cost of obtaining independent legal advice, with precedent for such arrangements existing in mining legislation.[127]

d. Engaging with financial institutions

Where land is leveraged, as is commonly the case, it may be necessary to ensure that banks are sufficiently apprised of the financial benefits and broader public good associated with environmental watering of wetlands on private property. This is particularly important given that some mortgagees may be reluctant to approve a change in land use if they are unclear about potential risks and benefits, notably the impact of such arrangements on future revenue streams. Structured government support in the form of education materials which outline the overarching legislative framework, risk management, the benefits of revenue diversification, and any applicable tax concessions, would therefore be beneficial.

e. Independent certification scheme

Consideration should also be given to the development of a certification scheme which recognises 'wetland friendly' farms, notably farms which are encumbered with easements for the purpose of delivering environmental water. A scheme of this nature would reward positive contributions to Basin Plan implementation and the health of the Basin's wetlands; it could also help to improve the public's perception of landholder involvement in environmental stewardship and Basin Plan implementation. There is significant precedent for schemes of this nature,[128] however, care would need to be taken to ensure that any scheme established for this purpose is properly governed, includes appropriate criteria for both certification and de-certification, and

[126] *Income Tax Assessment Act 1997* (Cth), s 104.47.
[127] See, eg, *Mining Act 1992* (NSW), Part 8, Division 2 (negotiating access arrangements and meeting reasonable costs).
[128] See, eg, Alliance for Water Stewardship; Fair Trade; B Corporation Certification.

that all claims regarding environmental, cultural and social benefits are underpinned by rigorous, defensible evidence.

f. Compulsory acquisition

As a final resort – and while I have a strong preference for voluntary arrangements - the Commonwealth should consider compulsory acquisition of easements, with this triggering just terms compensation obligations under the *Lands Acquisitions Act 1989* (Cth). This approach would be justified if NSW and Victoria do not meaningfully progress constraints within the next few years, and in light of the fact that the Water Act and Basin Plan are ultimately Commonwealth laws intended to implement Australia's international obligations under environmental treaties.

Recommendations

- Constraints proposals should be modified in line with the targets set by the MDBA in the 2014 Constraints Management Strategy.
- Land tax and stamp duty concessions should be extended to land encumbered with registered easements for environmental watering in NSW and Victoria.
- Capital gains tax concessions should be established for the disposal of land encumbered with a registered environmental watering easement.
- A suitably qualified, independent entity should be engaged to facilitate landholder negotiations, given the complexity and sensitivity of these arrangements.
- Contracts between government and landholders must appropriately apportion risk, protect landholder interests, and meet reasonable costs of participation including independent legal advice.
- Structured engagement with financial institutions should be undertaken to address mortgagee concerns about changes in land use associated with environmental watering easements.
- A certification scheme for farms that support environmental watering should be developed, with robust governance and defensible evidence requirements.
- As a last resort, where voluntary arrangements cannot be achieved within a reasonable timeframe, the Commonwealth should consider compulsory acquisition of easements under the Lands Acquisitions Act 1989 (Cth).

PART 2: WATER RESOURCE PLANS

1 Legal status

a. Accreditation process

While Water Resource Plans (**WRPs**) are not legislative instruments,[129] the decision to accredit a WRP is judicially reviewable by any party with standing, with this being a constitutionally enshrined right. Currently, the Minister must accredit a WRP if they are satisfied that it is consistent with the Basin Plan.[130] However, the Minister is not required to determine whether an SDL transposed from the Basin Plan and enlivened in the WRP is itself consistent with the requirements of the Water Act (for example the requirement for an SDL to reflect an ESLT and to be based on best-available scientific knowledge and socio-economic analysis). This means that

[129] Water Act, s 63. The exception is WRPs that are made by the Commonwealth under the aegis of its step-in powers – a power that has never been exercised. See Water Act, s 69.
[130] Water Act, s 63(6).

any defect in that foundational process automatically carries over into the accreditation of WRPs and is not in-and-of-itself readily reviewable. This structural deficiency is compounded by the fact that it is only the Basin Plan, not WRPs, that must be developed on the basis of best-available scientific knowledge and socio-economic analysis.[131]

Against this backdrop, and in the interests of improving accountability and consistency with the overall objectives of the Water Act, consideration should be given to improving the decision-making framework within which the Minister operates when accrediting WRPs, and to creating an explicit requirement for WRPs to be developed on the basis of best-available scientific knowledge and socio-economic analysis.

b. Enforcement

Further consideration should also be given to improving the mechanisms by which the provisions of WRPs can be enforced in Commonwealth courts, again in the interests of improving accountability and public trust in the operation of the Basin Plan and its related instruments. The Water Act currently provides that certain entities including but not limited to an agency of a Basin State must not do an act or fail to do an act that is 'inconsistent' with a WRP, with this wording being anchored in High Court jurisprudence regarding domestic treaty implementation.[132]

Within the context of WRP implementation, 'inconsistency' (as it is judicially construed)[133] may only arise where an act or omission is irreconcilable with a provision of a WRP. This is a relatively high threshold for enforcement action and to that extent consideration should be given to amending the Water Act to strengthen this wording so that it is more closely aligned with section 34(1). Section 34(1) requires Commonwealth entities to 'perform their functions, and exercise their powers, consistently with, and in a manner that gives effect to, the Basin Plan,' with this creating a stronger obligation than the obligation imposed on Basin State entities (public and private).

These drafting distinctions no doubt arise out of the well-ventilated findings of the High Court in *Melbourne Corporation v Commonwealth* (***Melbourne***) [134] and *Austin v Commonwealth* (***Austin***)[135] in which the Court clarified the limits of Commonwealth power in relation to state functions. Relevantly, *Austin* refined the doctrine originally espoused in *Melbourne*, noting that Commonwealth incursions into state affairs that impair the state's ability to function as a government (including by fettering the exercise of its powers) are unconstitutional, with discrimination against a state potentially exceeding this implied constitutional limit on Commonwealth legislative power.[136]

Within the context of enforcement of WRPs, it is arguable that replacing the negative construction ('must not act inconsistently with') with a positive construction ('must act consistently with')[137] would strengthen the obligation whilst respecting the boundaries articulated in *Melbourne* and *Austin*. Again, given the deficit of trust in decision-making processes underpinning the Basin Plan

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[131] Water Act, ss 21(3), 21(4)(b).
[132] *Commonwealth v Tasmania* (1983) 158 CLR 1, [1983] HCA 21; *Richardson v Forestry Commission* (1988) 164 CLR 261, [1988] HCA 10.
[133] *Project Blue Sky Inc v Australian Broadcasting Authority (*1998) 194 CLR 355.
[134] *Melbourne Corporation v Commonwealth* [1947] HCA 26, (1947) 74 CLR 31.
[135] *Austin v Commonwealth* [2003] HCA 3, (2003) 215 CLR 185.
[136] *Melbourne* originally divided these into two limbs: impairing a state's ability to function and discriminating against a state by imposing a particular burden on a state that does not apply to others. Austin absorbed the second limb into the first.
[137] *Project Blue Sky Inc v Australian Broadcasting Authority (*1998) 194 CLR 355. Specifically, the High Court considered that the 'consistent with' construction imposed a requirement to conform to the provision in question (as opposed to being irreconcilable with the provision – as per the Court's interpretation of 'inconsistent with').

and WRPs (reinforced by *Murray Lower Darling Rivers Indigenous Nations v Commonwealth* [2025] FCA 1029), serious consideration should be given to strengthening the enforceability of WRPs.

c. Standing provisions

The enforceability of WRPs would be materially enhanced by express standing provisions enabling third parties to access the Federal Court to remedy breaches of the Act and WRPs themselves. Three positions on the standing spectrum are available.

At one end sit open standing provisions of the kind included in the *Water Management Act 2000* (NSW) (**WM Act**)[138], which allow any person to commence proceedings to remedy or restrain a breach without demonstrating any personal, proprietary or special interest. Open standing reflects the legislative judgment that the public interest in compliance is sufficient foundation for any person to invoke the court's jurisdiction – a judgment with particular force in environmental and water resource legislation, where the interests affected by non-compliance are diffuse, cumulative and incapable of reduction to a specific legal interest held by any identifiable individual.

At the other end sits the common law special interest test established in *Australian Conservation Foundation v Commonwealth,* [139] which requires a demonstrated interest beyond mere intellectual or emotional concern.

The EPBC Act's 'interested person' formulation[140] occupies the intermediate position. It confers standing on individuals and organisations that either have interests affected by the relevant conduct, or have engaged in a series of activities for the protection or conservation of, or research into, the environment in the two years preceding the conduct or application. This formulation is administrable, objective, and has operated for twenty-five years without producing the vexatious litigation that opponents of extended standing invariably predict. The Samuel Review comprehensively rejected the proposition that the EPBC Act standing provisions had been misused,[141] and their retention in the 2025 reform package reflects settled legislative policy in Commonwealth environmental law.

Replication of the EPBC Act interested person formulation represents the minimum necessary extension of standing for Water Act reform and would ensure that both of Australia's main pieces of environmental legislation are equally justiciable. A Parliament with the courage of its environmental convictions would go further and adopt the open standing model – removing the threshold inquiry entirely. The NSW Land and Environment Court has administered open standing provisions under the WM Act and the *Environmental Planning and Assessment Act 1979* (NSW) without difficulty for decades. There is no reason why federal courts could not do the same.

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[138] *Water Management Act 2000* (NSW) (**WM Act**), s 336.
[139] *Australian Conservation Foundation v Commonwealth* (1980) 146 CLR 493.
[140] EPBC Act, ss 475 and 487.
[141] Graeme Samuel, *Independent Review of the EPBC Act – Final Report* (Final Report to the Department of Agriculture, Water and the Environment, October 2020) 12-13.

2 Contents

WRPs, which are provided for in Chapter 10 of the Basin Plan, are amongst the most important instruments in the Basin Plan framework, yet they are encumbered by inordinate length, unnecessary complexity, and a considerable volume of aspirational text that generates no legally enforceable rights or obligations. Accordingly, a streamlined document focused on core, enforceable obligations would be vastly preferable to thousands of pages of non-binding text that, in practice, no one reads.[142] Inclusion of these core components in an appropriately drafted form would support recommendations in this submission regarding protection of HEW and PEW, achievement of EWRs, connectivity, water quality, drought reserves and cultural flows.

These core components should include:

- SDL accounting and compliance;
- protection of HEW, PEW and CHWN;
- flow rules spanning the full flow regime – from low flows through to overbank flows – to facilitate longitudinal connectivity, [143] floodplain inundation,[144] and the achievement of environmental water requirements (**EWRs**); [145]
- flow rules to satisfy water quality targets;
- climate-informed drought reserve rules that explicitly prioritise the protection of HEW, PEW, and CHWN;
- binding provision for, and legal protection of, cultural flows; and
- meaningful, enforceable obligations for genuine engagement with First Nations peoples in water planning and management.

The rules proposed above would go a considerable way toward translating the Basin Plan's existing suite of non-binding targets and objectives for riverine and wetland health and water quality into binding, outcomes-focused provisions. This is of relevance to the objectives and targets in Chapter 8 (Environmental Watering Plan);[146] the targets in Schedule 7; the water quality targets in Chapter 9 and the water quality management plan (**WQM Plan**) which is prescribed in Chapter 10;[147] and the EWRs embedded in long-term watering plans.

Of particular importance is the elevation of First Nations rights from aspirational text to legally enforceable obligations. The existing Basin Plan provisions on Indigenous values, cultural flows, and engagement are among the weakest in Chapter 10[148] in terms of enforceability. First Nations peoples have the oldest and most enduring connection to the waters of the MDB, and their rights to water – including cultural flows – must be recognised through binding legal protections in WRPs, not merely acknowledged through narrative.

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[142] Including, as it turns out, the Minister. See *Murray Lower Darling Rivers Indigenous Nations v Commonwealth* [2025] FCA 1029.

[143] Including through hydrologically connected catchments that are otherwise managed separately. This would require rules in upstream instruments that consider the flow requirements of downstream catchments.

[144] This would require cease-to-pump provisions to apply to floodplain harvesting to enable ecologically significant wetlands to be inundated prior to diversions occurring.

[145] This would create a rules-based pathway to meet, to the extent possible, EWRs. Again, this would require consideration of downstream EWRs in upstream instruments. This is provided for in section 10.27 of the Basin Plan but is not necessarily enforced in current WRPs.

[146] Note that some of these rules would need to align to the proposed, revised version of the BW Environmental Watering Strategy. See Part 1, sub-section 5 of this submission.

[147] Basin Plan, s 10.33. The WQM Plan must be included in WRPs, but it includes non-binding targets.

[148] Basin Plan, ss 10.52–10.55.

Finally, these rules would supplement SDLs – which operate on a long-term average – with event-based tools. This is critical given that SDLs – which set limits over the long-term – are structurally insufficient to protect highly variable water resources from event-by-event attrition. Binding flow rules and protected cultural flow volumes together represent the minimum necessary complement to an SDL framework that was never designed to safeguard individual flow pulses, critical inundation events, or the water rights of First Nations communities.

Recommendations

- The Water Act should be amended to require the Minister to be satisfied that the SDL transposed into a WRP is itself consistent with the Water Act's ESLT requirements.
- The Water Act should be amended to expressly require WRPs to be developed on the basis of best-available scientific knowledge and socio-economic analysis.
- The enforcement obligation on Basin State entities should be strengthened from a negative construction ('must not act inconsistently with') to a positive one ('must act consistently with'), within constitutional limits.
- Standing provisions should be extended to replicate, at a minimum, the EPBC Act's 'interested person' formulation.
- WRPs must be streamlined and strengthened, removing aspirational and non-binding text and replacing it with core, enforceable obligations.
- These core enforceable obligations should cover: SDL accounting and compliance; protection of HEW, PEW and CHWN; flow rules spanning the full flow regime and designed to operate within and between hydrologically connected catchments; water quality rules; climate-informed drought reserves; binding cultural flow protection rules, amongst other rules concerning First Nations rights and interests.

PART 3: FIRST NATIONS RIGHTS AND INTERESTS

1 Context

Reform of the Basin Plan and the Water Act must be understood against the backdrop of historical and ongoing dispossession of First Nations peoples from their waters, and the structural, institutional and legal barriers that continue to impede water justice and self-determination across the MDB.

First Nations peoples hold inherent rights to their waters and, under their own laws and customs, obligations to protect, conserve and care for Country – obligations that long pre-date, and were not displaced by, colonisation. However, the legal and institutional frameworks that colonisation imposed have systematically denied First Nations peoples the rights, authority and resources necessary to exercise and protect Country, with this including rivers, wetlands, soaks, billabongs and aquifers across the Basin.

First Nations water dispossession is inextricably linked to land dispossession,[149] with this being both historical and ongoing. That is, it is not a discrete event, but a continuing condition produced and reproduced by frameworks that have failed to recognise First Nations rights and by institutions that were not designed to serve First Nations interests. Further, the separation of land

[149] Water rights originally formed part of land titles. When land and water were unbundled across MDB jurisdictions, the resulting separate, tradeable water entitlements were automatically assigned to the original landholder, the vast majority of whom were and are non-First Nations people and corporations.

and water into distinct statutory regimes is inconsistent with First Nations conceptions of Country, in which land, water, culture and ecology are inseparable, and has left many communities without water rights even where land rights have been secured.

The scale of this dispossession is reflected in the current baseline: First Nations peoples own just 0.17% of available surface water entitlements and 0.02% of total available groundwater entitlements across the MDB,[150] of which only 11% is classified as having 'relatively greater reliability'. Further, data from the MDB component of NSW shows that First Nations water holdings declined by 17.2% over 2009-2018.[151] This is not a marginal issue: while the separation of land and water may be anathema to First Nations conception of Country, communities lacking entitlements have no practical basis from which to exercise rights in relation to their own waters. It also renders them relatively powerless in public debates about water governance and management and in regional or local decisions about water use.

While the $100 million Aboriginal Water Entitlement Program (**AWEP**) is a welcome step in the right direction, in reality this is a relatively small amount of money given the price of water entitlements – which will likely continue to rise in response to climate change – and the fact that it will need to be shared amongst some 50 First Nations across the MDB.

Ongoing dispossession is actively maintained by structural, institutional and legal barriers that the current framework has failed to dismantle. The Water Act and Basin Plan are overwhelmingly oriented towards environmental outcomes, with cultural objectives able to be pursued only where they align with, or are accommodated after, environmental requirements are satisfied.[152] Cultural flows – water held and managed by First Nations peoples according to their own values and knowledge – are not formally recognised within the existing legal framework.

While the *Water Amendment (Restoring Our Rivers) Act 2023* (Cth) (**2023 Amendments**) introduced a stronger objects clause[153] and reporting obligations regarding engagement of First Nations in water planning,[154] these amendments do not elevate cultural knowledge that has been accumulated over millennia,[155] mandate tangible cultural outcomes, recognise and protect cultural flows, or provide mechanisms for the restitution of water.

The MDBA's obligation to 'have regard to' First Nations values and uses in environmental water planning[156] creates entry points for input but does not produce enforceable rights or guarantee substantive outcomes.[157] At an institutional level, water governance in the MDB operates through complex cross-jurisdictional frameworks that are largely inaccessible to First Nations communities, with no direct mechanism for First Nations representative bodies to provide formally weighted advice to the MDBA. Across all these dimensions, the prevailing approach to First Nations engagement has been consultation rather than genuine partnership, leaving the

[150] Hartwig, L.D., Markham, F. and Jackson, S. (2021). 'Benchmarking Indigenous water holdings in the Murray-Darling Basin: a crucial step towards developing water rights targets for Australia', *Australasian Journal of Water Resources*, 25(2), p. 98.

[151] Hartwig, L., Jackson, S., J. Smart & N. Osborne (2023) Water trading by Aboriginal organisations in New South Wales. Australia. *Journal of Rural Studies* 100, article no. 102997.

[152] Water Act, Part 6.

[153] Water Act, s 3(fa).

[154] Water Act, ss 84E, 85F.

[155] Moggridge, B.J. (2021). 'Indigenous water knowledge and values in an Australasian context', *Australasian Journal of Water Resources*, 25(1), pp. 1–3.

[156] Basin Plan, Chapter 8, ss 8.15(4)(e), 8.29(3)(g), 8.35(b)(iv).

[157] Jackson, S., Carmody, E., & Hartwig, L. (2021) Treading water on Indigenous water rights: the serious deficiencies of water allocation planning and management in NSW under the Murray–Darling Basin Plan. *Pandora's Box*, 72–97.

underlying distribution of entitlements, authority and resources unchanged and at risk of further loss.[158]

This structural position is inconsistent with Australia's obligations under international frameworks. UNDRIP,[159] endorsed by Australia in 2009, affirms First Nations peoples' rights to own, use, develop and control their traditional resources, including water, and their right to free, prior and informed consent (**FPIC**) in decisions affecting those resources.[160] These principles have not been substantively implemented in Basin water law or governance. Although the 2023 Amendments require future reviews of the Water Act and Basin Plan to consider opportunities to promote UNDRIP principles,[161] the existing framework does not give effect to FPIC, does not recognise First Nations decision-making authority over their own waters, and provides no pathway for the statutory restitution of water rights.

It is sometimes incorrectly stated that UNDRIP cannot be implemented in domestic law because it has not been 'ratified'. As only treaties are ratified[162] – and UNDRIP is a declaration – this is a non-sequitur. The correct question to ask is whether the external affairs power only mandates treaty implementation in domestic law, or whether its remit is more expansive. The answer is the latter: the High Court has held that its scope includes matters of 'international importance'.[163] Thus, the appropriate line of inquiry is whether the contents of UNDRIP satisfy the Court's conception of 'international importance,' or whether they are beyond scope. If the Commonwealth has reason to believe that First Nations rights as articulated in UNDRIP do not satisfy this test – notwithstanding the Declaration's broad endorsement by the United Nations General Assembly – then it should, in the interests of transparency and as an act of good faith, share the legal advice upon which it is relying.

The Convention on Biological Diversity (**CBD**) imposes further obligations: Article 8(j) requires Australia to respect, preserve and maintain First Nations knowledge, innovations and practices relevant to biodiversity conservation, [164] while Target 22 of the Kunming-Montreal Global Biodiversity Framework requires that First Nations peoples' rights over lands, territories and resources are respected and that they are able to participate fully and effectively in biodiversity-related decision-making.[165]

Given that environmental watering under the Basin Plan is directed at biodiversity and ecological outcomes, these obligations are directly applicable and their bearing on existing Basin governance arrangements has not been adequately assessed.

At a domestic level, Outcome 15 of the National Agreement on Closing the Gap – that Aboriginal and Torres Strait Islander peoples maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters – and its associated target of a 15% increase in Australia's landmass subject to First Nations legal rights or interests by 2030[166] provide a further

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[158] Hartwig, L., Jackson, S., J. Smart & N. Osborne (2023) Water trading by Aboriginal organisations in New South Wales. Australia. *Journal of Rural Studies* 100, article no. 102997.

[159] UNDRIP – the United Nations Declaration on the Rights of Indigenous Peoples – was adopted by the United Nations General Assembly on 13 September 2007 (144 votes in favour, 11 abstentions, and 4 against, including Australia). Australia reversed its position and endorsed the resolution in April 2009.

[160] United Nations Declaration on the Rights of Indigenous Peoples (2007), arts 25–27, 32.

[161] Water Act, ss 50(4A), 253.

[162] I note that treaties are sometimes accompanied by reservations and declarations, in which case these form part of the ratified instrument.

[163] *Koowarta v Bjelke-Petersen* (1982) 153 CLR 168; [1982] HCA 27.

[164] Convention on Biological Diversity (1992), art 8(j).

[165] Kunming-Montreal Global Biodiversity Framework (2022), Target 22.

[166] National Agreement on Closing the Gap (2020), Outcome 15 and Target 15a.

benchmark against which Basin Plan reform must be measured. I note that recent studies indicate public support for the redistribution of water to First Nations.[167]

Taken together, UNDRIP, the CBD and Closing the Gap establish a clear and consistent framework: one that requires genuine partnership and power-sharing, recognition of First Nations authority over Country, and measurable progress toward restitution of water rights. Reform of the Water Act and Basin Plan should treat implementation of these obligations as a legal and moral imperative rather than matters to 'consider'.

2 Reform – moving beyond consultation, reviews and reports

Consistent with the analysis included in the preceding section, it is my contention that the next iteration of reform must move beyond consultation, reviews and reports and embed tangible, justiciable rights consistent with UNDRIP and the CBD in the Water Act and Basin Plan and other subsidiary instruments. This must be informed by First Nations peoples' specific aspirations and be supported by appropriate funding and institutional realignment.

The reforms set out below are directed at the structural, legal and institutional barriers identified in the preceding section. They are intended to achieve substantive change, rather than further incremental adjustment to a framework that has, to date, failed to deliver water justice or meaningful self-determination for First Nations peoples across the MDB.[168]

a. Overarching legal framework

Self-determination and Nation building for First Nations peoples cannot be meaningfully realised within the context of existing legal frameworks. The Basin Plan Review is required to consider a range of matters relevant to First Nations water rights and interests, and it is my submission that the MDBA should use this opportunity to pursue structural reform in a substantive and comprehensive manner – not only in relation to specific sites or programs, but across the Basin as a whole, consistently with Australia's obligations under UNDRIP. It is also arguable that, as a $13 billion reform program, a materially greater share of Basin Plan funding should be directed to addressing First Nations water rights and interests (including rights to decision-making) than has hitherto been the case.

b. Amendments to the Water Act and a new chapter in the Basin Plan

The current Basin Plan contains no chapter dedicated to First Nations water rights, and no framework of enforceable benchmarks against which progress in this area can be measured. I would suggest the inclusion of a new chapter in the Basin Plan which addresses this lacuna (First Nations Chapter). This will require amendments to the Water Act.

The foundational recognition of First Nations water rights – including the right to hold water entitlements for cultural flows purposes and the benchmarks against which implementation is measured – should be embedded in the Water Act itself. The First Nations Chapter would then give effect to those provisions at the planning level, establishing the framework within which WRPs must operate. This three-tiered structure – Water Act, First Nations Chapter, WRPs – is

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[167] Jackson, S., Hatton-Macdonald, D. and R. Bark (2019) Public attitudes to inequality in water distribution: Insights from preferences for water reallocation from irrigators to Aboriginal Australians. *Water Resources Research* 55(7): 6033-6048; Zuo, A. & Wheeler, S. (2024) The Australian public's preferences for further environmental and cultural water recovery options in the Murray-Darling Basin. *Journal of Hydrology* 633,130983.

[168] Some of these proposed reforms were included in a report prepared for the MDBA of which I was a co-author. See: *Independent Review of The Living Murray Indigenous Partnership Program*. Restore Blue Advisory Services and Garlett Group, Sydney, 2026. CC by 4.0, pp. 66-69. See also *National Cultural Flows Project Reports*: <https://culturalflows.com.au/research/background-research-reports> (accessed 30 April 2026).

necessary to ensure that First Nations water rights carry enforceable legal weight at every level of the planning hierarchy.

At the Water Act level, minimum water recovery targets for First Nations cultural flows purposes should be mandated, providing the legislative foundation from which all downstream planning instruments must give effect. The First Nations Chapter should then establish clear benchmarks for the identification and protection of cultural flows through WRPs, together with reporting obligations disaggregated by Nation and catchment so that progress — or the absence of it – is visible and governments held publicly accountable.

WRPs would give operational effect to those benchmarks through binding rules. It is important to note that WRPs currently include provisions relevant to First Nations interests under Chapter 10, Part 14 of the Basin Plan. However, those provisions are largely oriented around consultation and non-binding obligations.[169] The First Nations Chapter benchmarks are intended to go materially further – translating the Water Act and Basin Plan-level recognition of First Nations water rights into binding, enforceable WRP rules that go beyond the consultative framework currently established by Chapter 10.

The First Nations Chapter should also establish a framework for First Nations-led cultural watering plans. Such plans should be developed by First Nations peoples themselves, reflecting their own knowledge, values and priorities for Country, and should carry formal legal weight in environmental watering decision-making. Government support for their development should be adequately and sustainably resourced.

A critical and complex question is how cultural watering plans should interact with the environmental watering framework. As a threshold matter, government support for the development of cultural watering plans should not be contingent on alignment with environmental watering objectives – cultural flows are an independent right, not a co-benefit of environmental watering. At the same time, cultural and environmental watering objectives may at times overlap, and the First Nations Chapter should establish mechanisms to enable co-designed and integrated delivery where this occurs, including with the CEWH. This represents an opportunity to move beyond the current arrangement, in which First Nations aspirations are accommodated only insofar as they align with pre-existing environmental objectives, towards one in which cultural and environmental watering are genuinely co-equal considerations. Careful consideration will need to be given to how this interaction is structured in practice, including through WRPs and any applicable environmental watering strategies.

Together, these elements would begin to shift the Basin Plan from a framework that has regard to First Nations interests as a secondary consideration and after other interests are satisfied, to one that treats them as a structural and enforceable component of Basin governance.

c. Water Resource Plans: cultural flows and self-determination

WRPs are the instrument through which the Basin Plan's First Nations chapter would be given effect at the local level. Importantly, they must go beyond identifying cultural flows needs and actively provide mechanisms that enable Traditional Owners to exercise their water rights in pursuit of self-determination. This is a materially different proposition from the current approach, which treats First Nations engagement as a consultative input into planning processes designed by and for others.

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[169] Jackson, S., Carmody, E., & Hartwig, L. (2021) Treading water on Indigenous water rights: the serious deficiencies of water allocation planning and management in NSW under the Murray–Darling Basin Plan. *Pandora's Box*, 72–97.

To that end, the Basin Plan should be amended to require WRPs to establish rules-based mechanisms through which Traditional Owners can exercise their water rights and, in partnership with their representative organisations, deliver cultural flows within each catchment. WRPs must also include specific protections for these flows to prevent them from being eroded by conflicting rules, practices and operating procedures.

This proposed reform is consistent with the Echuca Declaration and the work of the National Cultural Flows Research Project[170] and would represent a meaningful step toward embedding First Nations water rights within the Basin's planning architecture, rather than treating them as peripheral to it.

d. Genuine partnership and decision-making authority

The National Agreement on Closing the Gap commits governments to genuine partnership with First Nations peoples, characterised by an equal distribution of rights and decision-making power. The next iteration of Basin governance arrangements should be designed with this commitment as an organising principle rather than an aspiration. In practical terms, this requires identifying, in the short term, opportunities within existing frameworks for Traditional Owners to exercise real decision-making authority over their Country, while pursuing longer-term structural change in parallel. It also requires that resources be directed to First Nations communities to enable them to engage on a level playing field – not merely to be consulted. To do so will require resources to build or increase capacity to develop policy, influence the policies and programs of government agencies and other stakeholders and to actively undertake land and water management activities, including monitoring outcomes.

e. First Nations knowledge and cultural indicators

Environmental outcomes and cultural outcomes are not one and the same thing, even where they overlap. The development of cultural indicators, grounded in First Nations knowledge and developed by First Nations communities, is necessary to give effect to cultural values in water governance. As Professor Brad Moggridge and others have observed, Western legal and research paradigms have consistently failed to accord cultural knowledge equal, enforceable weight alongside Western scientific expertise, [171] and this failure only serves to compound dispossession. We would suggest that cultural indicators should be formally embedded in Basin Plan monitoring and evaluation frameworks and not treated as supplementary to ecological monitoring.

f. First Nations-led monitoring, evaluation and reporting

There is currently no formal First Nations-led framework for assessing outcomes under Basin programs relevant to First Nations peoples. We would suggest that this ought to be remedied, starting with Traditional Owners being appropriately supported to develop their own indicators and reporting frameworks against which program success can be measured. This is both a matter of self-determination and a practical necessity: without culturally grounded monitoring, evaluation and reporting, the Basin Plan cannot meaningfully assess whether it is delivering for First Nations communities.

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[170] Murray Lower Darling Rivers Indigenous Nations (2009). *The Echuca Declaration*.
MLDRIN, NBAN and NAILSMA (2018). National Cultural Flows Research Project: Final Reports.

[171] Moggridge, B.J. (2021). 'Indigenous water knowledge and values in an Australasian context', *Australasian Journal of Water Resources*, 25(1), pp. 1–3. DOI: 10.1080/13241583.2021.1935919; Weir, J.K., Morgain, R., Moon, K. and Moggridge, B.J. (2024). 'Centring Indigenous peoples in knowledge exchange research-practice by resetting assumptions, relationships and institutions', *Sustain Sci*, 19, pp. 629–645. DOI: 10.1007/s11625-023-01457-3.

g. Land and water management

First Nations land and water dispossession are inextricably linked, and the statutory separation of land and water into distinct regimes administered by different agencies is, as noted above, inconsistent with First Nations conceptions of Country. Consideration should be given, in a stepwise way, to how integrated land and water management opportunities can be created for First Nations communities – including, where appropriate, through mechanisms such as Indigenous Protected Areas or equivalent arrangements. I note that progress in this area would also contribute to Target 15a of the National Agreement on Closing the Gap.

h. Funding

It is manifestly clear that adequate, sustained funding is a precondition for the delivery of all other reforms proposed here. Funding is required not only for First Nations facilitators and coordinators, but also to support the capacity of communities to develop and lead their own projects on Country, and to engage meaningfully with technical water governance processes. I note that the Commonwealth's green bond program, which currently has $18.7 billion in bonds on issue,[172] represents a potential funding source for initiatives that deliver both environmental and cultural outcomes, and consideration should be given to whether it could be more actively drawn upon for this purpose. A strategy to secure and sustain adequate funding should, in my view, be treated as a priority — in its absence, the reforms proposed here will remain largely theoretical.

i. Training, capacity and language

Meaningful participation in Basin water governance requires significant investment in training and capacity-building for First Nations peoples across water law and policy, relevant scientific disciplines and business operations. In parallel, it is arguable that the language of water law and policy should itself be modified to better reflect First Nations values and conceptions of Country, which are currently poorly served by a technical lexicon that is alienating and inconsistent with First Nations notions of obligation to kin and Country. We would also suggest that First Nations facilitators and coordinators be entitled to adopt culturally relevant titles where they wish to do so, and that all non-First Nations staff working on programs that affect First Nations communities undertake meaningful cultural awareness training.

j. Goals, timeframes and accountability

The reforms proposed in this submission should be accompanied by specific, measurable goals and clear timeframes for implementation, and progress should be publicly reported against those goals. I note that, in the absence of a robust accountability framework, reform risks being absorbed into the procedural machinery of the Basin Plan without producing substantive change for First Nations communities.

Recommendations

- There should be a presumption in favour of implementing UNDRIP in the Water Act. If the Commonwealth has legal advice to the contrary, it should be made publicly available.
- The Water Act should be amended to include minimum water recovery targets for cultural flows.
- The Basin Plan should be amended to include a new chapter dedicated to First Nations water rights. The chapter should establish clear benchmarks for the identification and protection of

[172] Department of the Treasury (Australian Government) n.d., Green Bond Program, The Treasury, Canberra. Available online: https://www.aofm.gov.au/securities/green-bond-program (accessed 6 November 2025).

cultural flows through WRPs, with disaggregated reporting by Nation and catchment. It should also provide for the creation of First Nations-led cultural plans, with these being adequately resourced by governments.

- WRPs must include binding, rules-based mechanisms through which First Nations peoples can exercise their water rights and deliver cultural flows, with specific protections preventing erosion by conflicting rules or operating procedures.
- A framework should be established for co-designed delivery of cultural and environmental watering where objectives overlap on the basis that cultural flows are an independent right, not a co-benefit.
- Cultural indicators developed by First Nations communities must be formally embedded in Basin Plan monitoring and evaluation frameworks, not treated as supplementary to ecological monitoring.
- Opportunities for integrated land and water management for First Nations communities should be developed in a stepwise manner, including through mechanisms such as Indigenous Protected Areas. Investment in training, capacity-building and language accessibility must accompany all reform, including meaningful cultural awareness training for non-First Nations staff working on programs affecting First Nations communities.
- All reforms must be appropriately funded.

PART 4: WATER QUALITY AND CRITICAL HUMAN WATER NEEDS

1 Context

Water quality and CHWN overlap significantly and are accordingly addressed together in this part of my submission. Poor water quality affects both ecosystem health and access to water for a range of purposes, including CHWN, while CHWN itself engages questions about the quality, quantity and timing of water required to meet those critical needs. As an environmental and water lawyer, poor water quality is consistently reported as one of the most distressing issues facing communities across the MDB. Clients have communicated direct impacts on their ability to use the river for potable water, stock and domestic purposes, recreation and cultural practices.

These challenges not only have practical implications, they also have a very definite psychological impact and reinforce for many people that water quality and CHWN are not being appropriately prioritised by governments in water planning processes. Over the years, I have had mothers crying on the phone because they could not access safe water from the river to bathe their children, farmers expressing frustration at the apparent prioritisation of upstream extractions for irrigation over safe drinking water for their families and stock, and Elders lamenting that they are unable to transmit cultural practices to younger generations during algal blooms and periods of low and no flows.

Concerningly, research indicates that freshwater algal blooms and other water quality problems are likely to become more common in parts of the MDB, including along the River Murray, and that interventions are required to mitigate the increasing severity and frequency of these events.[173] As water quality is so strongly correlated to human well-being, falls within the scope of governments' assumed responsibilities, and is a derivative of various human rights enshrined in treaties to which Australia is signatory,[174] Basin jurisdictions will become increasingly exposed to the threat

[173] See, eg, Sara Beavis et al, 'Water quality risks in the Murray-Darling basin' (2023) 27(1) *Australasian Journal of Water Resources*, 85.

[174] Including, but not limited to, the *Racial Discrimination Act* 1975 (Cth) which implements the International Convention on the Elimination of All Forms of Racial Discrimination. Of further relevance is the Covenant on Economic,

of litigation in circumstances where they fail to appropriately adjust policy settings and implement reasonable measures to safeguard water quality.

Australia currently leads the world in climate mitigation litigation on a per capita basis,[175] with this trend likely to evolve to encompass climate adaptation and other, related cases, including those concerning access to potable water. While the ability to hold governments to account in court is a feature of our robust constitutional democracy, its use by desperate communities to defend basic human rights and ecosystem health is indicative of systemic policy and governance failings by agencies and elected officials. It is against this backdrop that the Commonwealth should consider how the next iteration of the Basin Plan contributes to tangible improvements in this important area of water management – for people and the environment alike.

2 Legal settings for water quality and critical human water needs

It is clear that a range of different factors affect water quality in the MDB, and that some of these factors are governed by Basin state legislation concerning, for example, diffuse and point source pollution, pesticides, health, and native vegetation clearing.[176] It is also clear that other factors, such as river infrastructure, affect water flow and velocity. For example, weirs exacerbate stagnation during low flows, creating conditions conducive to poor water quality and algal blooms – both of which have documented negative impacts on native fish populations.[177] While a multi-pronged, inter-governmental approach and associated funding is required to systematically address these various issues, settings under the Basin Plan must contribute to a broader, cooperative approach to water quality maintenance and improvement. Further, omissions or inadequacies under other areas of law and policy are not a justification for failing to do what is necessary and possible under the Basin Plan to ameliorate water quality for the environment and CHWN.

Currently, Chapter 9 of the Basin Plan – Water Quality and Salinity Plan – includes objectives and targets for water quality and salinity in the MDB which are non-binding. That is, there is no requirement to satisfy these provisions and as such, no direct legal recourse for failing to do so. Indeed, section 9.11 explicitly states that failing to achieve a target does not mean that (a) 'a person has acted inconsistently with the water quality and salinity management plan' or (b) 'a person is required to take particular action or refrain from taking particular action in response to the failure.' Under Chapter 10 of the Basin Plan, WRPs must include a water quality management

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Social and Cultural Rights and in particular Article 11 (the right to an adequate standard of living) and Article 12 (the right to the highest attainable standard of health). Relevantly, General Comment No. 15 of The UN Committee on Economic, Social, and Cultural Rights (2002) authoritatively defined access to drinking water and sanitation as a human right underpinning these two articles. See also the International Covenant on Civil and Political Rights, Article 6 (Right to Life) and General Comment No. 36 of the UN Human Rights Committee on the Right to Life (2018) which held that the right to water was a derivative of the right to life.

[175] Jacqueline Peel, 'Climate Litigation is on the Rise Around the World and Australia is at the Head of the Pack', *The Conversation* (online, 27 July 2023) <https://theconversation.com/climate-litigation-is-on-the-rise-around-the-world-and-australia-is-at-the-head-of-the-pack-210375>.

[176] See, eg, in NSW: *Protection of the Environment Operations Act 1997* (NSW) (regulating point and diffuse source water pollution); *Pesticides Act 1999* (NSW) (regulating the use of pesticides); *Public Health Act 2010* (NSW) (regulating drinking water quality and public health); *Local Land Services Act 2013* (NSW) and *Biodiversity Conservation Act 2016* (NSW) (regulating native vegetation clearing and biodiversity). In Victoria: *Environment Protection Act 2017* (Vic) (regulating point and diffuse source water pollution); *Agricultural and Veterinary Chemicals (Control of Use) Act 1992* (Vic) (regulating the use of agricultural and veterinary chemicals); *Safe Drinking Water Act 2003* (Vic) and *Public Health and Wellbeing Act 2008* (Vic) (regulating drinking water quality and public health); *Planning and Environment Act 1987* (Vic) and Clause 52.17 of the Victoria Planning Provisions (regulating native vegetation removal).

[177] Martin Mallen-Cooper and Brenton Zampatti, 'History, hydrology and hydraulics: Rethinking the ecological management of large rivers' (2018) 11(5) *Ecohydrology* <https://doi.org/10.1002/eco.1965>.

plan which similarly is comprised of non-binding objectives, targets and measures to address water quality issues.

Chapter 11, which deals with CHWN, focuses on the River Murray System and largely replicates existing arrangements in the Murray-Darling Basin Agreement. To that end, it does not create new obligations or provide for CHWN in other parts of the MDB, including the Darling-Barka River and its tributaries. In these areas, NSW and QLD are responsible for establishing appropriate arrangements for CHWN in their respective jurisdictions. Problems with drought storage and CHWN in NSW Northern Basin tributaries are discussed in Part 1(3)(c) of this submission and reinforce the need for reform.

The non-binding nature of the water quality objectives and targets outlined above, combined with the exclusion of the Northern Basin from the Basin Plan's CHWN provisions, is a long-standing source of concern for many communities, and understandably so. It is arguably time for the Commonwealth and Basin States to step up their ambition in relation to what is both a serious public health and environmental issue. This will require binding, substantive provisions traversing these two areas (water quality and CHWN in the Northern Basin). The following sub-sections step through some constitutional considerations and offer suggestions for reform in this area.

3 Constitutional considerations

Broadening the scope of Commonwealth legislation must begin with an inquiry into the constitutional validity of any such enterprise. In this instance, there is no constitutional barrier to implementing binding laws to protect water quality for environmental purposes, with this being underpinned by the external affairs power and the international environmental treaties which currently form the basis of the Water Act. For example, flow rules designed to maintain connectivity along and between river systems to reduce the likelihood of high salinity, algal blooms or fish kills are constitutionally supported as they confer clear benefits to water-dependent ecosystems and species. Similarly, there is no constitutional impediment to a dedicated water quality or fish kill reserve in, for example, Menindee Lakes. Insofar as poor water quality is correlated with poor ecological outcomes, it sits very squarely within the intent of Australia's international environmental obligations.

While these obligations provide the Water Act with the majority of its constitutional validity, in 2008 Basin States formally referred powers to the Commonwealth in relation to a discrete set of issues which were not considered to be clearly covered by the Constitution.[178] This referral included CHWN, with this being constrained by the specific wording approved by referring states.[179] Either these referrals could be extended so as to authorise stronger provisions in the Water Act and in turn its legislative instruments, or the Commonwealth could consider relying once again on the external affairs power and in this particular instance on the international rights-based treaties which it has signed and ratified. Specifically, the UN Committees linked to the International Covenant on Civil and Political Rights (**ICCPR**) and the Covenant on Economic, Social and Cultural Rights (**CESCR**) have each found that the right to water is derivative of specific rights articulated in each covenant. These are the right to life,[180] the right to an adequate standard

[178] Water Act, ss 9, 9A.

[179] See *Waters (Commonwealth Power) Act 2008* (NSW), s 3 (definition of 'referred subject-matters') and s 4(1)(a). Equivalent legislation was adopted in other Basin jurisdictions for the same purpose.

[180] International Covenant on Civil and Political Rights, Article 6. See General Comment No. 36 of the UN Human Rights Committee on the Right to Life (2018).

of living, and the right to the highest attainable standard of health.[181] Appropriate advice would need to be sought regarding the legitimacy of relying on these instruments.

In any case, one would hope that affected Basin jurisdictions would voluntarily agree – via an extended referral of powers and an associated inter-governmental process – to work with the Commonwealth on the development of a stronger framework for CHWN in the Northern Basin. Obstructing improvements to CHWN provisions to support the Darling-Barka River and its tributaries would constitute an extraordinary betrayal of these communities, including towns such as Walgett and Wilcannia which have large First Nations populations who continue to suffer as a consequence of inadequate water management practices.

4 Critical human water needs and South Australia's storage rights

While South Australia considers the framework for CHWN in the River Murray System to be largely fit-for-purpose, it has identified an inconsistency between the Water Act and the Murray-Darling Basin Agreement which requires investigation and resolution. Specifically, the Water Act designates CHWN as the highest priority water use,[182] yet the operational storage hierarchy applied in Southern Basin storages [183] subordinates South Australia's CHWN in certain circumstances. Relevantly, when these storages spill as a consequence of high inflows, South Australia's deferred Entitlement[184] is deemed to 'spill' first (with private carry-over being the first component of its deferred Entitlement to spill, followed by CHWN).[185] If the water that spills from the dam cannot be stored in a downstream reservoir, it is converted to environmental flows.[186] While this has clear environmental benefits, it potentially undermines South Australia's water security strategy which may include setting aside a portion of its entitlement to meet CHWN during times of future water scarcity. This may have significant consequences under climate change conditions.

5 Options for reform

a. Water Act and associated instruments

The current framework for CHWN in the River Murray System is anchored in over 100 years of codified water sharing arrangements between the Commonwealth, South Australia, Victoria and NSW. While it is not perfect and South Australia has concerns about the current deferred Entitlement rules, it is largely functional. This framework has also supported improvements in salinity management in the River Murray System. Having examined other transboundary water sharing and water quality improvement schemes – which themselves are not perfect but which have helped to arrest and reverse significant riverine decline – functional arrangements in transboundary systems tend to have a set or subset of specific of features. These features include a clear inter-governmental framework for political negotiation; a Basin-wide administrative body; codified and enforceable rules which apply in each affected state or country; a downstream state with leverage (usually public or private legal rights that can be litigated); appropriate funding

[181] International Covenant on Economic, Social and Cultural Rights, Articles 11 and 12. See General Comment No. 15 of the UN Committee on Economic, Social, and Cultural Rights (2002). The Committee emphasised that these articles gave rise to a derivative human right to access drinking water.
[182] Water Act, s 86A(1)(a), (b).
[183] Murray-Darling Basin Agreement, s 91; Schedule G.
[184] Under the Murray-Darling Basin Agreement, South Australia's annual share of the River Murray is 1850 GL. See section 88 (with volumes provided for each month). It can choose to defer some of this entitlement and store it in an upstream reservoir such as Hume Dam to provide for CHWN at a later date.
[185] This water is not re-credited to South Australia's account.
[186] Murray-Darling Basin Agreement, Schedule G, s. 17.

which incentivises cooperation and implementation; and an engaged civil society which pursues environmental objectives.[187]

Any attempts to improve water quality outcomes across the MDB and CHWN in the Northern Basin specifically should therefore carefully consider the various elements outlined above and build upon those which are already in place. Relevantly, dialogue and negotiation between governments are necessary conditions for reform. However, they are not, and have never been, sufficient to bring about enduring change for downstream communities and jurisdictions vulnerable to upstream extractions or pollution (as the case may be).

Codified, enforceable rules are also critical. Water resource plans provide one vehicle for this, and strengthening their content in the manner recommended elsewhere in this submission is a necessary step. However, WRPs alone are insufficient. Durable reform will require an intergovernmental process that builds the consensus and state commitment needed to support meaningful, binding rules. This will require an amendment of the Murray-Darling Basin Agreement itself, embedding binding rules at the level of the Agreement where they carry weight between Basin jurisdictions and are most resistant to unilateral departure.

Any such process must be time-limited and outcome-focused, with a clear commitment to deliver amendments to the Agreement rather than merely negotiate indefinitely. To the extent that these rules concern water management (for example flow rules and drought reserves), they would then need to be translated into rules in WRPs. The process should be supported by appropriately drafted and governed federal funding agreements (**FFAs**) which link milestone payments to tangible, audited outcomes. Proper accountability under FFAs must be prioritised to ensure that taxpayer dollars are used in all instances to deliver measurable results. Please refer to Part 5 of this submission for more specific comments regarding the drafting of these agreements.

b. Options for reform – other

Beyond the reforms achievable under the Water Act, Murray-Darling Basin Agreement and associated instruments, a parallel inter-governmental process is needed to develop and implement a basin-wide water quality improvement strategy addressing the significant drivers of degradation that fall outside the Basin Plan's regulatory reach. The Basin Plan is, by design, principally a tool for managing water quantity; it does not and cannot adequately address diffuse source pollution, agricultural runoff, land use change, or the cumulative water quality impacts arising from activities occurring at a catchment level under state jurisdiction. These are, nonetheless, major contributors to poor water quality outcomes across the Basin, including in the CHWN and downstream communities of the Northern Basin.

A dedicated intergovernmental strategy – developed under Ministerial Council and supported by a technical expert body with genuine cross-jurisdictional representation – would provide the appropriate vehicle to set shared water quality objectives, assign clear jurisdictional responsibilities, establish baseline monitoring and reporting obligations, and coordinate investment in on-ground works. Like the Agreement amendment process described above, any such process must be time-limited and outcome-focused, with milestones that are measurable and publicly reported. It should not duplicate or compete with existing Basin Plan mechanisms but rather complement them, filling the regulatory and strategic gaps that those mechanisms

[187] Gerald Kauffman, 'The Delaware River revival: Four centuries of historic water quality change from Henry Hudson to Benjamin Franklin to JFK' (2010) 77(4) *Pennsylvania History: A Journal of Mid-Atlantic Studies*, 432; Fenten, T., & Dieperink, C. (2024). Governance conditions for a successful restoration of riverine ecosystems: Lessons from the Rhine River Basin. *Water, 16*(20), 2983.

were never designed to address. Finally – and to reiterate – these measures are not a substitute for appropriate environmental flows, but a necessary complement to be developed and implemented in parallel to Water Act and Basin Plan processes.

Recommendations

- A time-limited, outcome-focused intergovernmental process with clearly measurable milestones should be implemented with a view to amending the Murray-Darling Basin Agreement to address water quality issues across the Basin and CHWN in the Northern Basin.
- A parallel time-bound, outcome-focused intergovernmental process must be established to develop a basin-wide water quality improvement strategy, addressing the major drivers of degradation that fall outside the Basin Plan's regulatory reach, supported by a cross-jurisdictional body of independent technical experts.
- Chapter 9 water quality objectives and targets and WRP water quality management plans must include enforceable obligations, not merely non-binding targets and measures.
- Evidence-based water quality reserves should be maintained in key public storages across the Basin.

PART 5: GOVERNANCE TO SUPPORT BASIN PLAN OUTCOMES

1 Hydrological models

a. Governance

It is not possible to manage large river basins – particularly a basin as developed and complex as the MDB – in the absence of hydrological models. It is therefore not surprising that hydrological models underpin many decision-making processes regarding water management across the MDB. However, in the absence of proper guardrails and governance arrangements, these models can – like any form of technology – be misused to the detriment of the rule of law which requires power to be exercised transparently and consistently with relevant legal frameworks. This misuse will be exacerbated where control of poorly governed technology – in this instance hydrological models – is concentrated in the hands of a small number of people within a small number of government agencies with little external, independent oversight. Together, these factors operate to erode the public's trust in the decision-making processes that apply to a particular area of public policy – in this instance, the management of Australia's largest river system.

The Australian community has made it clear that it wants governments to prioritise proper regulation and governance of technology, in particular artificial intelligence (**AI**).[188] However, it is arguable that these expectations extend to other forms of opaque technology that influence significant decision-making processes affecting other, significant areas of public policy. Further – and in the wake of the Robodebt scandal – Australians have made it abundantly clear that they have little trust in poorly governed technology being used to inform important decisions.[189] While Robodebt involved what I call 'zombie algorithms', the overarching concern remains the same: opaque technology lacking proper, independent oversight cannot be trusted, particularly where its use has a direct bearing on the public and the broader public interest.

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[188] Nicole Gillespie et al, *Trust, attitudes and use of artificial intelligence: A global study 2025* (Report, The University of Melbourne and KPMG, 2025); Michael Noetel et al, *Survey Assessing Risks from AI (SARA) 2025: Australian Public Attitudes Toward Al Risks and Governance* (Report, Ready Research and the University of Queensland, 2025).

[189] Tapani Rinta-Kahila et al, 'Algorithmic decision-making and system destructiveness: A case of automatic debt recovery' (2021) 31(3) *European Journal of Information Systems*, 313; Sarah Ball and Adam Hannah, 'Robodebt: Administrative harm and Australian social policy' (2025) 60(2) *Australian Journal of Political Science,* 141.

It is therefore concerning that the governance arrangements that apply to hydrological models used by Basin state jurisdictions and the MDBA are not just weak – they are, for the most part, non-existent. As intimated in the opening paragraph of this section, they are opaque; are not publicly available;[190] are used and controlled by a small number of technical experts; lack proper, external oversight or peer-review; and are not accredited[191] in any proper sense of the word (that is, against legally mandated criteria and by the Minister or the Minister's delegate on the advice of an independent expert panel).

Against this backdrop, it is not at all clear whether the models are developed and used to implement the specific obligations in relevant legislation, namely the Water Act, Basin Plan and relevant state water laws. That is, due to the governance deficiencies outlined above, it is not possible to verify whether they have been set up and are being run to achieve the environmental outcomes mandated by the Water Act, including for the Lower Murray and the CLLMM, or are being used inconsistently with the requirements of the Act, Basin Plan and other water legislation. This is not necessarily a criticism of the modellers themselves, who are technical experts, but of the inadequate governance frameworks within which they are working. To reiterate, the community expects – today more than ever – that technology be properly regulated and governed so that it is used consistently with the rule of law. It is very clear that this is not happening.

These observations are consistent with the findings of an independent panel charged with reviewing the SDL accounting framework underpinning compliance with SDLs in the MDB. The panel found that, amongst other things, '[m]odels used for resource assessment are 'black boxes' that lack transparency. Assumptions used in estimating resource use, developing and implementing models, articulating levels of confidence and sensitivity of model results need to be communicated explicitly.' [192] The panel made a series of recommendations designed to improve governance of SDL models and while the MDBA has developed a workplan known as the 'Mapping of Sustainable Diversion Limit Accounting (SDLA) improvement strategy 2020-2025', it is unclear whether the two items relating to model transparency have progressed.[193]

In any case, the overarching concerns that I have raised in this section have not been addressed, with consequences for public trust in government, the proper administration of our laws, and ultimately the health of the river itself. In the words of Lord Acton, one of the most distinguished British political theorists and thinkers of the 19th century, '[e]verything secret degenerates, even the administration of justice; nothing is safe that does not show how it can bear discussion and publicity.'[194] Lord Acton's comments are more relevant today than ever: as we rely more and more

[190] I note that the MDBA's Integrated River Modelling Uplift program was established in 2022 to integrate the Basin's 24 separate river models onto a common cloud-based platform, with the stated aim of improving both the technical interoperability of models across jurisdictions and the transparency of modelling inputs and outputs to decisionmakers and the public. The repository is available to Basin jurisdictions but not the broader public. While South Australia's Murray model is on the platform and open source to all other jurisdictions, the same cannot be said of NSW and Victoria's tributary models. That is, South Australia does not have access to these models despite the fact that they influence outcomes in the Lower Murray.

[191] I note that the hydrological models used for Cap compliance were subject to greater oversight than models used today, including oversight by an Independent Audit Group. See Murray-Darling Basin Agreement, Schedule E, cl. 15.

[192] Graeme Turner, Tom Vanderbyl and Saideepa Kumar, *Final Report of the Independent Panel's Review of the SDL Water Accounting Framework* (Report, 23 June 2019), 26.

[193] Murray-Darling Basin Authority, *Mapping of Sustainable Diversion Limit Accounting (SDLA) improvement strategy 2020-2025* (Report, April 2025). See Table 1: Activity 8 (Use of long-term averages for SDL compliance – data collation and risk assessment – status not reported) and Item 12 (Transparency of WRP hydrological models – status reported as 'for review'). I have been informed that South Australia has not yet been provided with any materials to review in relation to this matter).

[194] Lord Acton, letter (23 January 1861), published in Lord Acton and His Circle, ed. Abbot Francis Aidan Gasquet (1906), Letter 74.

on complex forms of technology to inform decisions about complex processes, we must ensure that they are properly governed, transparent, and working at all times to advance, rather than undermine, relevant laws and policies.

b. SDL accounting and compliance

Effective SDL compliance depends on a chain of interlocking requirements: suitable accounting methods, reliable data regarding water extractions, and transparent and robust models into which that data is fed. A deficiency in any one of these elements will undermine the integrity of compliance determinations as a whole. Of particular concern is the extent to which the models underpinning SDL compliance assessments are, in practice, neither transparent nor independently verifiable – a problem that has been acknowledged implicitly by the regulator but has not been addressed as a matter of systemic reform.

Relevantly, the 2022–2023 SDL Compliance Statement produced by the Inspector-General of Water Compliance (**Inspector General**) acknowledges that the uncertainties associated with modelled surface water take 'remain a concern for the community', and records that he commissioned independent research to 'identify levels of confidence in modelling figures' and clarify growth in use within the modelled proportion of water take.[195] That such research was necessary is itself significant: it reflects that the modelling framework underpinning compliance determinations did not, of itself, provide the regulator with sufficient confidence to robustly assess compliance.

The same statement encouraged NSW to make water account details publicly available in 'comprehensible' form, rather than referring stakeholders to 'highly technical reports' – an acknowledgement that the models and methods applied were not, in practice, accessible or interpretable by those outside the agency responsible for producing them.[196]

Finally, the aforementioned concerns are compounded by the treatment of floodplain harvesting, where the SDL compliance framework estimates the annual permitted take (**APT**) and the annual actual take (**AAT**) as the same number, being the long-term average, determined by a model.[197] That is, floodplain harvesting is effectively not measured at valley scale because the APT equalling the AAT cancel each other out in the determination of SDL compliance.[198] This undermines the integrity of the accounting and compliance process and raises important questions about the accuracy of estimates of actual take from floodplain harvesting. A similar critique is applicable to any form of take which is estimated and which is based on out-of-date or otherwise poor data, with these inaccuracies undermining the integrity of SDL compliance processes.

[195] Inspector-General of Water Compliance, *SDL Compliance Statement 2022–2023* (Statement, July 2024), v.
[196] Inspector-General of Water Compliance, *SDL Compliance Statement 2022–2023* (Statement, July 2024), 9.
[197] Basin Plan, s 6.08G.
[198] Inspector-General of Water Compliance, *SDL Compliance Statement 2022–2023* (Statement, July 2024), 4. See also Matt Colloff et al, 'Just another form of take: evaporation from irrigation storages and channels in the northern Murray–Darling Basin and the implications for water policy reform' (2026), *Australasian Journal of Water Resources*.

Case Study 3: From Robodebt to Robomodels (and Roboflows)?

The lessons of Robodebt are instructive. When consequential decisions rest on opaque models, unverified assumptions, and inadequate accountability structures, the results can be devastating – a risk the MDB can ill afford. And though the contexts differ markedly – one affecting welfare recipients, the other affecting rivers, ecosystems and water-dependent communities – the underlying governance failures are strikingly similar.

Robodebt was more than just a policy failure. It was a failure of democratic accountability, bureaucratic discretion and ethical governance.[199] Between 2015 and 2019, an automated data-matching system generated hundreds of thousands of false or incorrectly calculated debt notices. Despite being illegal and erroneous from conception, Robodebt continued to operate for over four years. Administrative law did not prevent or remedy the human impacts.[200] The Royal Commission into the Robodebt Scheme found that it was sustained by a lack of transparency and accountability, and – as the report memorably notes – 'venality, incompetence and cowardice.'[201]

The structural parallels with hydrological model governance in the MDB are difficult to ignore. In both cases, consequential decisions affecting the lives and livelihoods of Australians were driven by opaque technical processes – in Robodebt's case an automated matching algorithm, in the MDB's case models whose parameters, assumptions, calibration methods and sensitivity testing are not publicly disclosed or independently scrutinised. In both cases, affected parties had and have no genuine ability to understand, question or contest the outputs being used against their interests.

The Royal Commission's recommendations are instructive. It found that business rules and algorithms should be made available to enable independent expert scrutiny, and that a body should be established with the power to monitor and audit automated decision-making processes.[202] These principles apply with equal force to hydrological models. Yet no equivalent requirement for transparency or independent audit currently applies to the models used to make water management decisions in the MDB, including in relation to models used for SDL compliance.

In making this point, it is important to highlight the distinction between a compliance process on the one hand, and the ability for the Commonwealth compliance agency to access and fully interrogate the model used by a Basin state for SDL compliance purposes. The latter is not currently the case, which arguably undermines the integrity of the overall process.

There is also a critical point to be made regarding visibility. Robodebt's victims were identifiable people who could ultimately mobilise for redress. The victims of poorly governed hydrological models are harder to see – measured in diminished environmental water,[203] degraded wetlands, and ecosystems that have no direct voice or legal standing.

[199] Sarah Ball and Adam Hannah, 'Robodebt: Administrative harm and Australian social policy' (2025) 60(2) *Australian Journal of Political Science,* 141.

[200] Saabiq Chowdhury, 'Technology is never neutral: Robodebt and a human rights analysis of automated decision-making on welfare recipients' (2024) 30(1) *Australian Journal of Human Rights*, 20.

[201] Catherine Holmes, Royal Commission into the Robodebt Scheme (Final Report, 7 July 2023), 659.

[202] Ibid, xii – xxi.

[203] This can occur if, for example, models underestimate extractions and over-estimate water available for the environment. E.g. MDBA (2026) *Comparison of 2012 Basin Plan and Initial Basin Plan Review Outputs: MDBA Hydrological Analysis Technical Report*. Murray-Darling Basin Authority, Canberra, 10 April 2026.

Recommendations

- An independent accreditation regime must be established, with the Minister accrediting models in accordance with legally mandated criteria which should include considering the advice of an independent expert panel.
- All models, including those used for SDL compliance, should be subject to independent external peer-review before they can be used to inform decisions about water management in the MDB.
- The Inspector-General must have full access to, and the ability to independently interrogate, all models used by Basin States for SDL compliance purposes.
- Metered data must replace modelled estimates of extractions wherever possible to improve the integrity of SDL compliance processes.
- Hydrological models used for water management decisions in the MDB must be made publicly available.

2 Federal funding agreements

FFAs are the main mechanism by which the Commonwealth transfers funding to states to undertake certain activities that fall within, or overlap with, the state's constitutional jurisdiction. FFAs are accordingly the means by which the Commonwealth funds Basin States (who may in turn fund private entities) to implement various aspects of the Basin Plan. This includes funding to implement SDLAM projects, for irrigation efficiency works and for constraints relaxation, amongst other matters.

While the external affairs power provides a clear constitutional basis for enacting the Water Act and developing the Basin Plan, it does not overcome the constitutional prohibition on incursions into a state's affairs which would impair the ability of that state to function.[204] While this is a very high bar and does not prohibit many forms of Commonwealth intervention at the state level, it does mean that the Commonwealth must walk a tightrope when seeking to directly regulate a state government agency. Against this backdrop, FFAs are one of the most important tools available to the Commonwealth to encourage Basin States to engage in inter-governmental processes and Basin Plan implementation. Indeed, since the earliest days of the River Murray Waters Agreement, the Commonwealth has incentivised Basin States to progress negotiations and to finalise deals with funding (often for capital works). In the absence of Commonwealth funding, the River Murray Waters Agreement and its successor, the Murray-Darling Basin Agreement, would not have come into existence.

Given this context, it is difficult to overstate the fundamental importance of FFAs in Basin Plan negotiations and implementation. It necessarily follows that for these agreements to actually contribute to the implementation of the Plan, they must be well drafted and include appropriate guardrails to ensure that all money is appropriately spent and that funded projects are delivered. This is a foundational principle for any properly drafted commercial contract, but is particularly important given the amount of public money involved and what is at stake, notably the health of a strained river system under increasing pressure from climate change.

It is therefore concerning that following a formal inquiry, the Inspector-General identified significant shortcomings in the design, governance and delivery of the Northern Basin Toolkit

[204] This is discussed in more detail in Part 2, sub-section 1(b) of this submission.

(**Toolkit**) which was underpinned by several FFAs.[205] Relevantly, the Toolkit was the product of a trade-off which removed 70 GL of water from environmental flows in the Northern Basin in exchange for a range of projects that were supposed to deliver environmental outcomes.[206] As such, failure to deliver many of these outcomes is not merely a program management problem; it undermines the integrity of an already contested trade-off, with environmental water permanently foregone against environmental improvements that have not materialised.

The Inspector-General's inquiry report, released in April 2026, outlined a number of fundamental governance problems, including in relation to the underlying FFAs. Having reviewed these and several other FFAs for various aspects of Basin Plan implementation,[207] this is not surprising – but it is extremely concerning given the role that FFAs should play in steering Basin States towards cooperation and implementation of the Basin Plan. Notably, FFAs that I reviewed lacked the following basic elements typically found in properly structured contracts (with some of these also identified by the Inspector-General):

- appropriately sequenced milestone payments (rather, they were front-loaded prior to significant program delivery;
- no claw-back trigger to reclaim prior payment if the program is abandoned or materially under-delivered;
- no liquidated damages for failing to meet milestones in the absence of a reasonable excuse;
- no independent auditor or certifier to judge milestone achievement;
- no publicly available reports to enable the public to track program delivery; and
- no time-bound dispute resolution mechanism.

While many FFAs are undoubtedly honoured and projects delivered, agreements of this scale and complexity demand more than goodwill. Milestones must be precisely defined and sequenced, funding staged to reflect genuine delivery progress rather than planning activity, and financial consequences attached to non-delivery.

If Basin Plan implementation is to deliver verified outcomes for the environment and communities, FFAs must be properly scoped, drafted and governed. Given the issues ventilated in this part of my submission, this is not a marginal issue and must be addressed as part of broader reforms underpinning the next iteration of the Basin Plan.

Recommendations

- Federal funding agreements must be comprehensively reformed to include: staged milestone payments tied to genuine delivery progress; claw-back triggers for non-delivery or material under-delivery; liquidated damages for missed milestones without reasonable excuse; independent auditors or certifiers to assess milestone achievement; publicly available progress reports; and time-bound dispute resolution mechanisms.

3 Commonwealth Environmental Water Holder

While governance arrangements for the CEWH are strictly the purview of the Water Act review, I would like to make a few brief points on this topic as it has some bearing on the effectiveness of environmental watering in the MDB. The CEWH is now custodian of an $11 billion portfolio of

[205] Inspector-General of Water Compliance, *Northern Basin Toolkit Inquiry Report* (Report to the Australian Government Minister for Environment and Water, 14 April 2026).
[206] For further information about the Northern Basin Review see: 'Northern Basin,' *Murray-Darling Basin Authority* (Web Page, 2026) <https://www.mdba.gov.au/water-management/northern-basin>.
[207] FFAs are available online at: Council on Federal Financial Relations, 'Agreements', *Federal Financial Relations* (Web Page, n.d.) <https://federalfinancialrelations.gov.au/agreements>.

water rights for the environment, making it the largest single water entitlement holder in the MDB. The purpose of this portfolio of water is to deliver a public interest good, namely, to restore the health of the MDB's rivers and floodplains, including its 16 Ramsar-listed wetlands.

While the current governance arrangements – provided for in Part 6 of the Water Act – may have been appropriate when the Act was first adopted, it is now arguable that the CEWH would benefit from a more mature framework commensurate with the value of its asset base, its critically important public interest mandate, and the nature of the conditions within which it operates.

While each individual CEWH has acquitted themselves admirably since the role was first established, no private sector entity of equivalent asset scale would concentrate such a high degree of responsibility and fiduciary accountability in a single individual. Rather, comparable, private sector entities have boards, independent directors and investment and other committees which collectively provide the executive with strategic direction and overall support. Governance structures of this nature can – if well constituted – help the executive to navigate complex operating environments, manage crisis and generally place the organisation in the best possible position to succeed.

The CEWH functions within the context of legal frameworks and operating procedures which were originally established to support irrigated agriculture. The licenses it owns were originally licences used for irrigation, while storage dams from which environmental flows are released are operated on the basis of procedures that have in part evolved in response to the needs of this industry. The broader social context within which it operates is also highly contested, with certain individuals and organisations actively opposing the CEWH and environmental watering. Taken together, this creates a particular set of challenges which fetter the CEWH's ability to unapologetically fulfill its mandate.

Any change in governance would need to ensure that directors are provided with a clear, legally mandated duty to maximise environmental outcomes (in accordance with Chapter 8 of the Basin Plan and Australia's international legal obligations under the Ramsar Convention and Convention on Biological Diversity). This is vital to ensure that the CEWH's ability to fulfil its mandate is enhanced rather than undermined.

While these observations and recommendations are not intended to be exhaustive, it is nonetheless worth considering whether other models used in Australia (such as governance arrangements for the Clean Energy Finance Corporation or the Future Fund) provide any useful guidance (noting that the particular purpose of the CEWH would need to be carefully considered before designing a new structure).

Recommendations

- The CEWH's governance arrangements must be upgraded to reflect the scale of its asset base, its vital public interest purpose, and the complexity of its operating environment, including through the establishment of a board, independent directors and relevant committees.
- Directors must have a clear, legally mandated duty to maximise environmental outcomes in accordance with Chapter 8 of the Basin Plan and Australia's international obligations under the Ramsar Convention and Convention on Biological Diversity.
- Governance models such as the Clean Energy Finance Corporation or the Future Fund should be examined as potential reference points.

PART 6: BROADER WHOLE OF GOVERNMENT APPROACH

1 Structural adjustment

It is my view that resistance to delivering a Basin Plan which does more than merely slow the otherwise inevitable decline of our rivers and floodplains will continue in the absence of a broader approach which addresses over-allocation and supports transition in a changing climate. This broader approach should extend beyond the strict parameters of water policy and consider structural adjustment opportunities that enable evidence-based, voluntary transition opportunities for farming families and communities – whether or not these pathways involve farm exit. Such an approach must recognise the particular nature of irrigation trusts (and their equivalents), where ongoing infrastructure maintenance costs are the collective responsibility of all members. Fixed costs shared between a shrinking base of farmers place financial pressure on remaining irrigators, with the shared infrastructure potentially becoming unsustainable over time. It must also acknowledge that exit pressures in the MDB are shaped not only by water policy but by sustained financial stress, ageing farm operators, volatile input and commodity costs, and long-run demographic decline in irrigation-dependent regions.[208]

I am aware that this is not a straightforward proposition. However, and as noted in Part 1, subsection 2 of this submission, modelling indicates that allocations for general security licences are very likely to be significantly impacted by hotter, drier weather over the coming decades. There is no legal requirement for governments to compensate licence holders for reductions in allocations attributable to climate change,[209] meaning that the burden of adapting to harsher conditions will be borne by farmers.

This burden is further amplified by the structural problem of over-allocation – particularly in NSW – where too many licence holders are competing for a resource that is finite and ecologically strained. Climate change clearly did not create this underlying structural problem, but it is now exacerbating it by shrinking the pool of available water while the number of competing claims remains proportionately high. To these issues we can add an increasingly volatile global context which affects input costs, trade and commodity prices,[210] as well as the well-documented restructuring of agriculture in the MDB driven in part by the operation of water markets.[211]

While the prospect of transition and change is distressing and deeply contested, it is arguable that governments nonetheless have a role to play in developing and funding coherent regional strategies designed to help communities adapt to increasingly challenging climatic and economic conditions. Indeed, it would be considerably more humane for governments to fund a structured transition plan than to allow climate pressures, financial stress, and market forces to slowly and silently erode the viability of vulnerable landholders, with no prospect of compensation or meaningful assistance. Importantly, any such transition or structural adjustment plan should seek to address structural over-allocation, with this being fundamental to the success of the Water Act and Basin Plan.

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[208] Sarah Ann Wheeler and Alec Zuo, 'The impact of drought and water scarcity on irrigator farm exit intentions in the Murray–Darling Basin' (2017) 61(3) *Australian Journal of Agricultural and Resource Economics*, 404.

[209] Water Act, s 81(3A); Intergovernmental Agreement on a National Water Initiative (**NWI**), cl 48.

[210] See, eg, Sunny Kim Nguyen, 'What does 2025 hold for Australia's agriculture sector? Economic outlook and lending implications', *Moody's* (Web Page, 12 May 2025) <https://www.moodys.com/web/en/us/insights/lending/what-does-2025-hold-for-australias-agriculture-sector-economic-outlook-and-lending-implications.html>.

[211] Australian Competition and Consumer Commission, *Murray-Darling Basin Water Markets Inquiry: Final Report, Australian Government* (Report, March 2021) <https://www.accc.gov.au/about-us/publications/murray-darling-basin-water-markets-inquiry-final-report>.

Recommendations

- A structured, government-funded regional adjustment program must be developed for farming families and communities facing climate-induced and market-driven transition pressures.

2 Financial considerations

a. Unallocated funds for Basin Plan implementation

I note that the Discussion Paper highlights that Basin Plan implementation is now occurring within the context of a fiscally constrained environment. However, it is worth noting that a portion of the $13 billion plus that has been allocated to support the development and implementation of the Basin Plan remains unspent. Table 5, below, provides a breakdown of allocated and unallocated funds.[212]

Table 5: Allocated and unallocated budget for Basin Plan implementation

Funding Category	Original Commitment	Spent	Remaining Unspent
Water buybacks (entitlement purchases)	$3.30 billion	$3.30 billion	$0
On and off-farm water infrastructure subsidies	$6.70 billion	$5.38 billion	$1.32 billion
Community, industry, First Nations & other initiatives	$2.64 billion	$1.887 billion	$753 million
Environmental programs (incl. Northern Basin toolkit)	$1.075 billion	$892 million	$183 million
Total (these categories)	**$13.715 billion**	**$11.459 billion**	**$2.256 billion**

It is arguable that some of the unallocated budget for irrigation infrastructure subsidies should be reallocated to additional buybacks, particularly to address the shortfall that will inevitably arise under the SDLAM. Reallocation of this budget should also be in recognition of the fact that investment in infrastructure is not, at this point, a substitute for actual flows and that attempting to develop yet another 'water saving' scheme to shield NSW and Victoria from the additional water required to restore the health of the Basin is not acceptable.

b. Using the Commonwealth Green Bond Program to support climate-resilient, high reliability buybacks

I further note that the Commonwealth's Green Bond Program, which has $18.7 billion worth of bonds on issue, has been used to finance implementation of the Basin Plan, including to recover water for the environment in the MDB.[213] As such, Basin Plan implementation is an existing line

[212] See Department of Climate Change, Energy, the Environment and Water, 'Table of water reform funding in the Murray–Darling Basin' (Web Page, 6 February 2026) <https://www.dcceew.gov.au/water/policy/programs/water-reform/mdb-funding/table>.

[213] See Australian Office of Financial Management, *Green Treasury Bonds 2025 Allocation and Impact Report* (Report, February 2025). Allocations in 2022–3, 2023–4 – $871 million allocated to recovering 23.9 GL/year water for the MDB. Available online: Australian Office of Financial Management, 'Green Treasury Bonds', (Web Page, 6 November 2026) <https://www.aofm.gov.au/securities/green-bond-program>. As an aside, this equates to over $36,000.00 per ML of water recovered, which is extraordinarily expensive. It's unclear why this price was paid. It is currently possible to buy

for which issuances have already been made and accordingly would not incur additional 'set up' costs – a practical and important consideration given the administrative complexity of establishing new eligible expenditure categories under the Green Bond Framework.

I would further suggest that scaling up the use of the program to fund water recovery for environmental flows – in particular high reliability, climate-resilient entitlements – is a compelling proposition on fiscal, market grounds and environmental grounds.

From a fiscal perspective, the purchase of water entitlements produces a recognised, tradeable asset [214] carried on the Commonwealth balance sheet – rather than representing sunk expenditure. Unlike infrastructure spending, which depreciates over time, water entitlements fluctuate in market value, can be traded, and can generate returns through temporary allocation trading. This gives them a materially different fiscal character to program expenditure that, once spent, produces no balance sheet entry.[215]

From a market perspective, there is strong alignment with the investor base the government agency responsible for bond issuance, the Australian Office of Financial Management (**AOFM**), is actively seeking to develop. The AOFM has been explicit that attracting so-called 'deep green' investors – those with strict environmental screening criteria – is a key objective of the green bond program, and has acknowledged disappointment at the level of offshore participation in the inaugural 2024 issuance.[216] The recovery of high security, climate resilient entitlements to restore the rivers and wetlands of the MDB may help to address this gap, particularly as it directly addresses biodiversity outcomes that an increasing cohort of institutional investors are mandated to seek.[217] This will require governance deficiencies identified in this submission to be rectified, which is achievable with political will.

Further, Australia's green bond program currently skews heavily toward climate mitigation expenditure. [218] Adding substantive biodiversity content – anchored in government reform committed to recovering enough water to meet an ESLT and to reverse the listing of the Lower Murray under the EPBC Act – would differentiate the program in global capital markets and potentially attract investors who have not yet participated in our green bond program.

Taken together, these considerations suggest that expanding the use of the Green Bond Program to finance high quality, climate resilient water recovery under the Basin Plan is not merely fiscally

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permanent high security water in the Southern MDB for between $6,000 and $10,000 per ML. See, eg, Daisy Armstrong, 'Latest water update', *Elders* (Web Page, 22 April 2026) <https://elders.com.au/for-farmers/market-insights/latest-water-update/>.

[214] Trade of environmental water is possible within legal constraints designed to prioritise the environment. See Water Act, s 106.

[215] While water entitlements are clearly carried as assets in DCCEEW's audited financial statements under the *Public Governance, Performance and Accountability Act 2013 (Cth)* framework, their treatment in the broader ABS National Accounts remains an evolving area. The System of National Accounts 2008 framework – which governs national wealth measurement – requires assets to generate economic benefit, creating conceptual tension for entitlements held explicitly for ecological purposes. The ABS's experimental National Ecosystem Accounts, most recently updated in April 2026, are working toward better integrating environmental asset values into national wealth measurement, but these remain satellite accounts and are not yet reflected in headline national wealth figures. See Australian Bureau of Statistics, 'National Ecosystem Accounts, experimental estimates, 2022-23 Financial Year' (Web Page, 24 April 2026) <https://www.abs.gov.au/statistics/environment/environmental-accounts/national-ecosystem-accounts-experimental-estimates/2022-23>.

[216] Anna Hughes (CEO, AOFM), '50 Shades Greener' (Speech, Australian Business Economists luncheon, Sydney, 4 July 2024) <https://www.aofm.gov.au/publications/speeches/50-shades-greener>.

[217] 'Private finance for nature surges to over $102 billion', *United Nations Environment Program* (Web Page, 10 June 2024) <https://www.unepfi.org/themes/ecosystems/private-finance-for-nature-surges-to-over-102-billion/>.

[218] See AOFM Green Treasury Bonds Allocation and Impact Reports <https://www.aofm.gov.au/securities/green-bond-program>.

neutral – it is an opportunity to deepen the program, broaden the investor base, and deliver much needed climate resilient environmental flows across the MDB.

One further, important note: there is also an opportunity to use the Green Bond Program to fund land and water purchases in the MDB for divestment to Traditional Owners. Initiatives of this nature can not only improve biodiversity outcomes in the Basin but also support genuine self-determination.

c. National Water Grid Fund

The National Water Grid Fund (**NWGF**) offers a practical and already-operational pathway to address critical water security needs for remote and First Nations communities across the northern Basin, where access to clean, reliable drinking water remains unacceptably poor and water services in many communities continue to fall below Australian standards. The fund's dedicated First Nations Water Infrastructure Program has already exceeded its original $150 million commitment, with more than $193 million now invested across 43 projects supporting over 110 communities in six states and territories. It can support a range of interventions, from feasibility studies and business case development through to the construction of pipelines, water treatment plants, storage infrastructure, and distribution systems.[219]

Importantly however, investment in human water infrastructure through the NWGF is not a substitute for the broader work required to improve riverine health across the northern Basin and deliver an ESLT. These are complementary but distinct obligations — one addresses the immediate and urgent human right to safe water, while the other addresses the long-term ecological integrity of the river system upon which those same communities, their cultures, and their livelihoods ultimately depend. Treating infrastructure investment as a trade-off against environmental and cultural water commitments would be both a policy error and a false choice.

Recommendations

- Unallocated irrigation infrastructure subsidy funding should be redirected to additional water buybacks, particularly to address the SDLAM shortfall, in recognition that infrastructure investment is not a substitute for actual environmental flows.
- The Commonwealth's Green Bond Program should be used to finance high-reliability, climate-resilient water entitlement recovery.
- The Green Bond Program should also be used to fund land and water purchases in the MDB for divestment to Traditional Owners, supporting both biodiversity outcomes and genuine self-determination.
- The NWGF's First Nations Water Infrastructure Program should be expanded to address critical water security needs in remote and First Nations communities across the Northern Basin, as a complement to – not a substitute for – environmental and cultural water commitments.

END OF SUBMISSION

[219] 'First Nations Water', *Department of Climate Change, Energy, the Environment and Water* (Web Page, 16 March 2026) <https://www.dcceew.gov.au/water/national-water-grid/first-nations-water>.