WENTWORTH GROUP
OF CONCERNED SCIENTISTS

Environmental Justice Australia

Submission for SDLAM Draft Determination report

October 2026

The Wentworth Group of Concerned Scientists and Environmental Justice Australia welcomes the opportunity to review and provide a joint submission to the Murray-Darling Basin Authority (MDBA) on the Sustainable Diversion Limit Adjustment Mechanism (SDLAM) Draft Determination 2026 report.

Summary

In October 2026, the Murray–Darling Basin Authority determined that just under half of the 39 environmental water offset projects proposed by Basin states under the Murray–Darling Basin Plan will not be completed to the required standard by the statutory deadline of 31 December 2026, despite legislation passed in 2023 giving the states more time to complete these projects.

The projects that are expected to be completed were estimated by the MDBA to deliver only around 340 GL/yr of the 605 GL/yr in annual water saving that were originally anticipated by the MDBA. This leaves a shortfall of approximately 265 GL/yr from the 3,200 GL/yr Basin Plan target. The final reconciliation of the projects and their water savings is due later in 2026.

Further, there is no evidence to demonstrate that the offset projects proposed are on track to deliver outcomes equivalent to 340GL of environmental water, especially given evidence showing that the offset mechanism is not scientifically rigorous[1].

The failure of the offset mechanism to guarantee measurable outcomes, combined with the shortfall, has had and continues to have significant consequences for the Basin and for the credibility of the Basin Plan. Because of the failed projects, there are:

- More and increased degradation of freshwater ecosystems and declines in river ecosystem functions;
- Continued uncertainty for communities, irrigators and other stakeholders about the final Basin Plan outcomes; and
- Poor value for money from significant public expenditure.

For more than a decade, the irrigation industry has benefited from water that the Basin Plan effectively assumed would be offset by equivalent environmental benefits from SDLAM projects. Those environmental benefits and their services, and many of the projects themselves, have not materialised as promised. The result is a prolonged deficit in environmental water and a corresponding lack of delivery of the environmental outcomes promised under the Basin Plan.

After these extensive delays and unrealised environmental water offset projects, communities and wetland ecosystems of the Basin cannot afford further uncertainty. The priority now must be to

[1] Lyons K, Pittock J, Colloff MJ, Yu Y, Rocheta E, Steinfeld C (2023) Towards a scientific evaluation of environmental water offsetting in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 74, 264–280. https://doi.org/10.1071/MF22082

Suite 4, 3B Macquarie Street, Sydney NSW Australia 2000

Telephone: +61 2 9251 3811 Email: information@wentworthgroup.org ACN 128 963 431

promptly deliver the 3,200 GL/yr Basin Plan in full, as promised, and achieve the environmental outcomes it was established to provide. The Basin Plan should be urgently amended to reduce SDLs commensurate with the failed offset projects, the shortfall water recovery should be legislated and sufficient budget should be prioritised. No further delays or new offset projects should be permitted. This is the only way to ensure the failure of the last twelve years to achieve targeted Basin Plan outcomes is not repeated.

Policy born from political compromise

The Murray-Darling Basin Plan was established in 2012 to set sustainable limits on water extraction and return up to 3,200 GL/yr of water to the overallocated river system.

The Basin Plan includes a mechanism to allow states to offset the water recovery amount by implementing projects which achieve equivalent environmental outcomes with less water (Chapter 7 of the Basin Plan).

The SDLAM was a political compromise. It offered an alternative to further water buybacks by allowing one of every five litres to be substituted[2] with the promise of projects they claimed would deliver equivalent environmental benefits.

As of 30 June 2026, 14 of the 39 projects put forward by the States had been withdrawn by the Basin Officials Committee (BOC), 19 had been amended, four remained unchanged, and two were referred to the Authority for consideration. The Authority then undertook its own review of the remaining measures and excluded three projects on the basis that it was not satisfied they would be operational by 31 December 2026. The reconciliation assessment therefore proceeded on the basis of 22 supply measures.[3]

The completed projects will deliver only around 340 GL/yr of the 605 GL/yr estimated supply contribution, leaving a shortfall of approximately 265 GL/yr in environmental water recovery. The final reconciliation is due later in 2026.

There are clear consequences if the shortfall is not rectified:

- Less water in rivers for maintaining important freshwater ecosystems and functions;
- Missed environmental outcomes;
- Greater pressure on already stressed river systems;
- Ongoing uncertainty for stakeholders about final recovery amount;
- Increased pressure on rivers (e.g. Darling/ Baaka) during dry periods; and
- Waste of taxpayer funds.

[2] SDLAM allowed almost one in every five litres (605 GL of 3,200GL, or 19%) of the water originally targeted for recovery under the 2012 Basin Plan to be replaced by promised environmental benefits from offset projects.
[3] MDBA, (2026), SDLAM Draft Determination report, p 13

This outcome was entirely foreseeable

For the past decade, the Wentworth Group (WG) and others have demonstrated major scientific shortcomings of SDL projects[4]. Our 2018 analysis of the package of offset measures proposed at that time against the necessary criteria found that only one project, the *South Australian Murray Key Focus Area*, would deliver the intended outcomes, based on information available at the time[5]. Twenty-five projects did not satisfy the criteria, and WG recommended that they should not be approved.

Floodplain works projects were a simplistic engineering response designed to divert water from river channels into a prescribed landscape to produce a limited suite of ecohydrological outcomes. Works projects did not address the wide range of water requirements for wetland and river health, creating risks for third parties and the environment that could reduce or cancel out any benefits.

These projects provide questionable value for money in terms of the volume of water saved for many individual projects[6]. The costs of the failure ultimately fall on Australian taxpayers.

The water offset mechanism is fundamentally flawed

A fundamental flaw in SDLAM reconciliation was that it measured projects, not outcomes. As Lyons et al. (2023)[7] demonstrated, a project being completed does not, by itself, demonstrate that the river or wetland has received an equivalent environmental benefit. The most significant project focused on Menindee was inadequately scientifically assessed and guaranteed to cause significant local environmental damage for relatively poorly defined environmental gains[8]. Flaws in the SDLAM evaluation processes meant that environmental benefits were likely to be overstated, risking further reductions in allocations of water for the environment, contrary to the objectives of the Basin Plan.

A related flaw was that water recovery was reduced before projects were completed and their environmental benefits demonstrated. For 12 years, hundreds of GL water each year therefore remained available for consumptive use, on the promise that offset projects would deliver equivalent

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[4] Lyons K, Pittock J, Colloff MJ, Yu Y, Rocheta E, Steinfeld C (2023) Towards a scientific evaluation of environmental water offsetting in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 74, 264–280. https://doi.org/10.1071/MF22082

[5] Wentworth Group (2018) Requirements of SDL adjustment projects to ensure they are consistent with the Water Act 2007, Basin Plan 2012, MDBA policies and intergovernmental agreements. (Wentworth Group of Concerned Scientists: Sydney, NSW, Australia) Available at https://wentworthgroup.org/2018/05/requirements-for-sdl-adjustment-projects/

[6] Ziang, P., Colloff, M.J. and Pittock, J. (2025) Enhancing river flows versus environmental engineering as contrasting approaches to wetland conservation in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 76(9), article no MF25013. https://doi.org/10.1071/MF25013

[7] Lyons K, Pittock J, Colloff MJ, Yu Y, Rocheta E, Steinfeld C (2023) Towards a scientific evaluation of environmental water offsetting in the Murray–Darling Basin, Australia. *Marine and Freshwater Research* 74, 264–280. https://doi.org/10.1071/MF22082

[8] Ford, Z., Jackson, S., Bino, G., Brandis, K., Kingsford, R., (2023) Scale, evidence, and community participation matter: lessons in effective and legitimate adaptive governance from decision making for Menindee Lakes in Australia's Murray-Darling Basin, Ecology and Society 28, https://doi.org/10.5751/ES-13594-280115

benefits to the river system. The Murray–Darling Basin Royal Commission[9] concluded that the mechanism was unlawful and had delayed the Basin Plan's intended environmental outcomes.

Finally, the offset method excluded residual risks, Basin-wide impacts and climate change. In a 2018 assessment of offset projects by the Wentworth Group, many risks were common to works projects including adverse water quality impacts, increases in carp and other pests, stranding of native fish and poorly defined governance arrangements.[4]

The method on which the notion of 'environmental equivalence' is based is legally questionable

The Basin Plan requires supply measures to achieve 'equivalent environmental outcomes as compared to the benchmark condition.'[10] This calculation operates in relation to a method set out in the relevant schedule to the Plan. The so-called 'environmental elements method' was devised as a technical expression of the contents of that schedule. Regardless of how well that 'method' conforms to what the schedule requires (including through reduction of environmental values to a 'highly simplified' version of 'scoring'), there is a real question as to whether the Authority can reasonably rely on this method as a basis for concluding ecological equivalence. This submission is based on two main legal grounds.

First, 'environmental outcomes', for the purposes of the Water Act, are tangible, qualitative, real environmental phenomena or values,[11] and 'equivalence' between 'environmental outcomes' must, have some substantial tangible environmental benefit. 'Equivalent environmental outcomes' cannot, as a matter of construction, be based on modelled (scored) values, substantially disconnected from empirical data or observations. This conclusion is supported by the fact that no statutory definition of 'equivalent environmental outcomes' exists in the Act but definition of 'environmental outcomes' does and it refers to real ecological values, reflected in qualitative and, where available, quantitative ecological data. A construction that does not favour or concur with that definition risks undermining the coherence of the statutory scheme intended under the Act[12] or an unreasonable or absurd course of action.[13]

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[9] Walker, B. (2019) Murray–Darling Basin Royal Commission Report. Government of South Australia, Adelaide. Available at: https://cdn.environment.sa.gov.au/environment/docs/murray-darling-basin-royal-commission-report.pdf

[10] *Basin Plan 2012* (Cth), s 7.09(b), 7.15

[11] *Water Act 2007* (Cth), s 4 ('environmental outcomes')

[12] Proper construction requires that 'where a word is used consistently in legislation it should be given the same meaning consistently': Pearce *Statutory Interpretation in Australia* (LexisNexis, 10th ed, 2024), [4.7]. The legislature has not otherwise chosen to depart from the section 3 meaning of 'environmental outcomes' in any Basin Plan definition.

[13] Cf *Royal Commission Report*, page 297 (emphasis added):
'The Commissioner considers that compliance with sec 7.17(2)(a) requires additional substantive assessment beyond that of the modelling exercise already conducted under sec 7.15 and Sched 6. To interpret these provisions in any other way would leave sec 7.17(2)(a) redundant, with no work to do. Worse, it would substitute a knowing fiction for the fact of environmental equivalency. Modelling should never be preferred to empirical observation, when real environmental outcomes are at stake. However, sec 7.17 nonetheless requires environmental equivalence to be achieved by reference to the original modelling, by dint of the reference to the 'benchmark environmental outcomes'

Second, the Authority's state of satisfaction must be formed in the course of it acting of the basis of the best available scientific knowledge.[14] Reliance on the Ecological Elements Method to achieve a requisite state of satisfaction does not reflect the best available scientific knowledge.[15] This contention is grounded in the fact that:

- the Ecological Elements Method is a 'highly simplified'[16] and abstracted representation of complex ecosystems and ecological processes;
- the Ecological Elements Method proceeds on the basis of such high degrees of uncertainty that it provides a very limited knowledge base of questionable probative value;[17] and
- the Ecological Elements Method operates in the absence of empirical inquiries or investigations, or at best a highly attenuated dataset substantially removed from ecological realities or real-world observations.

Clarifying framing and description of adjustment

The Authority characterises the 265 GL/yr difference between the 2017 supply contribution (605 GL/yr) and the proposed reconciled supply contribution (340 GL/yr), as a volume that has been 'reopened', against the Bridging the Gap water recovery target. The shortfall is framed as representing an increase in the amount of recovered water needed to bridge the gap.[18] In terms of water accounting and policy, this conclusion may be correct (including that Basin States are further away from achieving the overall recovery outcome that was assumed when the SDLAM adjustment was first adopted). The practical and legal consequences of this reconciliation need to be distinguished. The legal consequence of a reduced supply contribution is that the SDL adjustment amount is re-calculated and the relevant SDLs are reduced accordingly. Less water becomes available for consumptive use because the anticipated supply contribution has not materialised. The Authority's use of the term 'reopened' should be understood and clearly expressed as *describing the policy implications of the reconciliation, rather than its legal effect*. The legal effect of the reconciliation is a reduction in the recognised SDL adjustment amount. Whether governments respond by recovering additional water or pursuing other policy measures is a separate question.

'All reasonable steps' to achieve 450 GL

The Draft Determination Report in effect links the SDLAM provisions with the achievement of 450 GL of water recovery under section 85AC of the Act. That 'up-water' amount is to be achieved (or at least contracted) by end 2027. This is not necessarily a problem. 'Reasonableness' of the Commonwealth actions to 'increase the volume of Basin water resources available for environmental

[14] *Water Act 2007* (Cth), subs 21(4)(b)
[15] Lyons et al (2023)
[16] Overton et al, *Development of the Murray-Darling Basin Plan SDL Adjustment Ecological Elements Method* (2014) Report prepared by CSIRO for the Murray-Darling Basin Authority), p 145; also at pp i, iv
[17] Royal Commission Report, page 304: 'Whilst it may be true that the methods used may be the best that the MDBA is capable of producing, it is nonetheless concerning that ecological reality is being claimed on the basis of favourable modelling, which produces at best only approximate and uncertain results.'
[18] Draft Determination Report, page 5

use' should be considered, given the reliance on this mechanism by the Authority to address water shortfalls under the SDLAM.

First, 'all reasonable steps' should target water purchases but also, potentially, land and water purchases. Other opportunities are not necessarily closed.[19] 'Reasonableness' should be include all feasible and prudent options and cost effectiveness. Given the purpose of the 450 GL is to address the historic and ongoing harm of overextraction of water resources, all plausible or available measures for this water recovery, including water purchases, are required unless there are feasible or prudent alternatives.[20]

Second, section 85AC requires the relevant increased volume of environmental water to be *available* for environmental use. In the southern MDB, that obligation practically requires implementation of constraints relaxation. Without those measures water for environmental use is not adequately able to be used for its purpose and benefit (i.e. the 450 GL). Constraints relaxation measures are integral to relevant 'reasonable steps.' They are already – and have long been – contemplated as part of the scheme of the Basin Plan and its implementation. In other words, failure to address constraints relaxation legally contradicts section 85AC.

Third, the obligation to take 'all reasonable steps' should be considered, give the *Water Act 2007* needs to meet Australia's international legal obligations. This includes Australia's requirement to act with 'all due diligence' obligations for international environmental requirements. A rigorous standard of due diligence should apply.[21]

Lack of genuine community consultation and support

EJA has worked closely with implementation of SDLAM projects, identifying lack of genuine consultation and consideration of community support for these projects.

This has forced community members and Traditional Owners to turn to legal recourse to ensure consultation requirements are met. Wadi Wadi Traditional Owner Vince Kirby, represented by Environmental Justice, successfully challenged two SDLAM projects – Nyah and Vinifera – on the basis that Traditional Owners were not properly consulted that the relevant approvals were made in error.[22]

The community and Traditional Owner opposition to individual projects, such as Nyah and Vinifera, indicates concern about alignment with the objectives of the *2007* (s 3(a) and s 3(f)) and 'enhanced' social outcomes required as under s 5.02(1)(c) or s 7.09(d) of the Basin Plan.

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[19] See Commonwealth Parliament Hansard *Water Amendment (Restoring Our Rivers) Bill 2023: Explanatory Memorandum*, waorb2023425.pdf, 3: '… it is necessary to expand the type of projects that can deliver the 450 GL target. This would allow a range of new measures to be used to deliver the target including, but not limited to, water purchases, land and water purchase packages, transferring over-recoveries (if applicable) and other projects. These new measures and projects would deliver water access entitlements to the Commonwealth to contribute towards the 450 GL target.'

[20] Cf *Friends of Merri Creek Inc v Meakins [2003] FCA 671* considering provisions in the now repealed Australian Heritage Commission Act 1975 (Cth) somewhat analogous to the 'all reasonable steps' duty in s 85AC.

[21] See for example ICJ Advisory Opinion on the Obligations of States with respect to Climate Change (2025), [280]-[300]

[22] Kirby v Secretary, Department of Premier and Cabinet [2026] VSC 673.

The Authority must ensure proper community consultation and Traditional Owner consent for these projects. Projects with significant opposition, such as Nyah and Vinifera, should be not only be excluded from reconciliation, but should be removed as SDLAM project options.

Recommendations – integrity, credibility and legality

The federal government has committed to implementing the Basin Plan in full, including delivery of 3,200GL/yr of additional water or equivalent outcomes. The 2023 agreement between Basin governments explicitly committed them to delivering the Plan in full, including completing the SDLAM program and providing additional measures to achieve the Plan's water recovery targets.

The Basin Plan needs to ensure there are sufficient volumes of water in the river system to secure the Basin's key environmental objectives. This requires several interrelated actions:

1. Immediately legislate recovery of the 265 GL/yr shortfall: The Basin Plan already provides for water offsets to be reconciled against what has been delivered, through a legislated requirement for an SDL adjustment commensurate with the shortfall. The legislation should be urgently amended, and no further extensions, delays or new offset projects should be allowed.[23] This will help ensure the failure of the last twelve years in meeting targeted Basin Plan environmental outcomes is not repeated over the next decade.

2. Recover real water to make up the shortfall, securing additional budget where necessary: Water purchases provide an established, cost effective and verifiable mechanism for environmental water recovery. The Commonwealth has now removed the previous legislative cap on water purchases and is already using voluntary water purchases as one of the principal mechanisms for delivering the Basin Plan's water recovery target. States should be responsible for covering these costs given their failure to deliver taxpayer-funded projects on time and to an appropriate standard, or at minimum, provide actual water to make up the shortfall.

3. Re-assess completed SDL projects based on actual rather than assumed outcomes. If the Basin Plan is to have integrity, every gigalitre credited to the environment must represent a real, additional and verifiable environmental benefit. An outcomes-based evaluation needs to be done urgently to estimate the environmental benefits and risks of the proposed projects at local and basin scale and a reconciliation made to adjust SDLs accordingly.

4. Accelerate and prioritise constraints relaxation over the next decade. Constraints relaxation is essential to complement the delivery of environmental water and ensure water reaches the wetlands and floodplains that need it. The program needs to be accelerated and adequately funded over the next decade.

5. Deliver 'complementary measures' such as carp screens, fishways, water quality management and thermal pollution control devices for river restoration, noting these measures should not be substituted for the recovery of environmental water.

[23] If any of the 22 projects fail to meet the required standard by 31 December 2026, MDBA will need to also urgently re-estimate the SDL determination.