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Productivity Commission
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Dear Commissioner,

Thank you for the opportunity to make to make this submission to the Productivity Commission inquiry into the effective implementation of the Murray Darling Basin Plan.

Yours faithfully,

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Directors, Slattery & Johnson



Submission to the Murray-Darling Basin Plan: Implementation review 2023

1 Introduction

Water reforms in the Murray-Darling Basin started in the 1990's. The Murray-Darling Basin Cap (Cap), agreed in 1995, aimed to limit extractions to the 1994 levels of development. The National Water Initiative, agreed in 2004, included commitments to statutory water planning with provisions for the environment, sustainable water use, the creation of water rights separate to land, the trade of water, and the inclusion of Aboriginal people in water planning and management.

The *Water Act 2007* and the *Basin Plan 2012* were intended to further these reforms by:

- setting Sustainable Diversion Limits,
- recovering water from irrigation for the environment to achieve the Sustainable Diversion Limit,
- providing for an integrated Basin-wide planning framework;
- considering climate change,
- providing for Critical Human Water Needs, and
- setting objectives and outcomes based on Aboriginal peoples' values and uses.

The benefits of sustainable water management, the establishment of Basin-wide governance arrangements, and improvements linking science, policy and management are clear.

Nevertheless, important aims and requirements of the Basin Plan have not been achieved. The lack of an effective limit on water use in the Northern Basin is a symptom of shortcomings of governance in the Basin.

State and Commonwealth governments lack the capacity and the powers to deal with the complexity of the task. This is exacerbated by unclear or disputed responsibilities among governments and government agencies.

This submission focusses on implementation of the Basin Plan in New South Wales (NSW), addressing:

1. Sustainable Diversion Limits,
2. Misrepresenting water recovery,
3. Water Resource Plans,
4. Climate change and extractions,
5. Critical Human Water Needs,
6. Aboriginal water,
7. The exclusion of Snowy Hydro from the Basin Plan, and
8. The effects of water trade policy.

2 Implementation of the Basin Plan

2.1 Sustainable Diversion Limits

The Sustainable Diversion Limit is the foundation of the Basin Plan. It is a progression of the Murray-Darling Cap and should represent an Environmentally Sustainable Level of Take. It determines the volumes of Water Recovery.

However, during the implementation of the Basin Plan the Sustainable Diversion Limit has been compromised in several ways. For example:

1. increasing the Sustainable Diversion Limit to include floodplain harvesting,
2. changing the Sustainable Diversion Limit outside the legislative process,
3. no accredited Sustainable Diversion Limit valley models, and
4. increasing water storage infrastructure without offsets.

2.1.1 Increasing Sustainable Diversion Limits to include floodplain harvesting

The Sustainable Diversion Limit under the Basin Plan is intended to include all forms of take (regulated rivers, unregulated rivers, floodplain harvesting, commercial plantations, hillside dams, and groundwater). This was an improvement on the Cap, which was limited to take from regulated rivers.¹

Floodplain harvesting is a significant form of take that, until 2022, had never been regulated, measured, or monitored in NSW. Unregulated floodplain harvesting has been considered, and treated as:

*...a freely available bonus to a farmer's licensed entitlement.*²

This was recognised as an equity issue by the Murray-Darling Basin Commission in 2000.³ That is, Northern Basin irrigators had access to unregulated water take, while southern irrigators did not. Regulating floodplain harvesting is a necessary and significant part of water reform.

However, the volumes that have been, or are proposed to be, issued, and how they have been incorporated into the Sustainable Diversion Limits, are problematic.

2.1.1.1 Volumes of floodplain harvesting

When the Basin Plan was made the estimated long-term annual average take by floodplain harvesting in five Northern NSW valleys was 46.3 gigalitres. This

¹ The Cap was intended to include the Barwon-Darling, which is an unregulated river. However, that Cap model was never finalised or accredited. Consequently, extractions in that valley have grown significantly since 1995.

² Blair. (2015). Water Sharing Plan for the Gwydir Regulated River Water Source 2016, Appendix 3: State floodplain harvesting principles, Section 2 (3). Sydney: NSW Government. <https://legislation.nsw.gov.au/view/pdf/asmade/sl-2015-629>

³ Murray-Darling Basin Ministerial Council. 2000. *Review of the Operation of the Cap: Overview report of the Murray-Darling Basin Commission*. <https://collection.sl.nsw.gov.au/record/74VvovKEmG3g>

volume was used to calculate the Baseline Diversion Limit and therefore, the Sustainable Diversion Limit.

In 2022 and 2023 the NSW Government issued floodplain harvesting Water Access Licences (WALs) for the NSW Border Rivers, Gwydir, Macquarie and Barwon-Darling valleys. It is yet to issue WALs on the Namoi ([Table 1](#)).

Table 1: *Floodplain harvesting volumes issued or proposed to be issued in NSW.*

Valley	Volumes (ML)
Volume of WALs issued	
Gwydir regulated	104,663
Gwydir unregulated	13,125
NSW Border Rivers	51,665
Macquarie	48,911
Barwon-Darling	51,322
Total volume of WALs issued	269,686⁴
Volume of WALs proposed to be issued	
Lower Namoi	54,750
Upper Namoi	85,070
Total volume of WALs proposed to be issued	139,820⁵
Total volume of floodplain harvesting WALs	409,506

Floodplain harvesting has never been measured. The 46.3 gigitalitres of floodplain harvesting used to calculate the Baseline Diversion Limit was considered to be an under-estimate when the Basin Plan was made.^{6,7}

The Murray-Darling Basin Cap is still legislated and floodplain harvesting is required to be within valley Cap Limits.⁸

The NSW Government claimed that floodplain harvesting take was determined by reference to the valley Cap limit.⁹ However, the Cap volumes were

⁴ WaterNSW. (2023). NSW Water Register: Information about a water source – Total number of water access licences and water usage for a water source. <https://waterregister.waternsw.com.au/water-register-frame>

⁵ Department of Planning and Environment. (2022). *Namoi: Floodplain harvesting in water sharing plans*. https://www.industry.nsw.gov.au/_data/assets/pdf_file/0011/545609/report-to-assist-community-consultation.pdf

⁶ MDBA. (undated). *Title: Floodplain Harvesting*. Obtained under FOI request 115 (MDBA)

⁷ MDBA. (2020). *Email: FW: Urgent information needed for MinCo – FPH*. Obtained under FOI request 115 (MDBA)

⁸ Slattery & Johnson. (2021). *Licensing floodplain harvesting in Northern NSW: analysis and implications*.

<https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=76066>

⁹ NSW Department of Planning and Environment. (2022).

https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/509323/floodplain-harvesting-entitlements-for-the-gwydir-regulated-river-system-model-scenarios-report-may-2022.pdf

misrepresented in that process. This was done differently for each valley. Two examples are:

- representing an unofficial ‘Cap scenario’ as the official Cap valley limit, (where the Cap Scenario is higher than the official Cap), to claim that floodplain harvesting volumes are within Cap (Gwydir regulated),¹⁰
- representing the long-term average take for General Security and Supplementary water as lower than the long-term average take estimated in the official Cap, to create room within the official Cap for floodplain harvesting volumes (Namoi regulated).^{11, 12}

Floodplain harvesting WALs in NSW have been issued in excess of the legal Cap valley limits.

2.1.1.2 *Increasing take through the floodplain harvesting licensing conditions*

The conditions on issued floodplain harvesting WALs allow:

- take up to 5 times the value the WAL in any year,
- 500 percent carryover,¹³
- take without debit from the river during periods of announced ‘uncontrolled flows’ for regulated valleys.^{14,15}

Uncontrolled flows are flows in the river. They have historically been available for extraction under a Supplementary WAL, with take debited from the account balance. This condition allows additional extraction under a Floodplain Harvesting WAL, without debiting take from the account balance.¹⁶ It will mean that some extractions will not be accounted for and will be outside the Sustainable Diversion Limit.

The proposed conditions on the WALs yet to be issued for the Namoi are:

- 500 percent carryover in the Lower Namoi, and
- 300 percent carryover in the Upper Namoi.¹⁷

¹⁰ Slattery & Johnson. (2021). *Licensing floodplain harvesting in Northern NSW: analysis and implications*. <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=76066>

¹¹ NSW Department of Planning and Environment. (2022). *Floodplain harvesting entitlements for the Namoi Valley river system*. https://www.industry.nsw.gov.au/_data/assets/pdf_file/0006/545910/model-scenarios-report.pdf

¹² NSW Department of Infrastructure, Planning and Natural Resources. (2005). *Namoi River valley: IQQM Cap Implementation Summary Report*. https://water.dpie.nsw.gov.au/_data/assets/pdf_file/0008/353645/namoi-river-valley-iqqm-cap-implementation-summary-report.pdf

¹³ Carryover means that if water is not available to take in any year the right to extract that volume is carried forward to subsequent years, up to five times the annual take.

¹⁴ WaterNSW. (2023). *NSW Water Register: Information about a water source: Water access licences (including conditions) for a water source*. <https://waterregister.waternsw.com.au/water-register-frame>

¹⁵ For example, NSW Government, (2022). *Water Sharing Plan for the Gwydir Regulated River Water Source 2016 (NSW)*, Clause 44. <https://legislation.nsw.gov.au/file/2015-629.pdf>

¹⁶ For example, NSW Government, (2022). *Water Sharing Plan for the Gwydir Regulated River Water Source 2016 (NSW)*, Clause 44. <https://legislation.nsw.gov.au/file/2015-629.pdf>

¹⁷ NSW Department Planning and Environment. (2023). *Namoi Valley floodplain harvesting licensing and rules*. [https://water.dpie.nsw.gov.au/plans-and-programs/floodplain-management/Floodplain-harvesting-licensing/namoi-valley-floodplain-harvesting-licensing-and-rules#:~:text=Floodplain%20harvesting%20\(unregulated%20river\)%20access%20licences%20%E2%80%93%20rule](https://water.dpie.nsw.gov.au/plans-and-programs/floodplain-management/Floodplain-harvesting-licensing/namoi-valley-floodplain-harvesting-licensing-and-rules#:~:text=Floodplain%20harvesting%20(unregulated%20river)%20access%20licences%20%E2%80%93%20rule)

Take from floodplain harvesting WALs in New South Wales in any year could be as high as 1,878 gigalitres, in addition to the extra water being allowed to be taken from rivers during Supplementary flows.

2.1.2 Changing the Sustainable Diversion Limit outside the legislated process

Increasing the floodplain harvesting volume from 46.3 gigalitres to 409 gigalitres requires a change to the Sustainable Diversion Limit. The MDBA has explained that it intends to increase Sustainable Diversion Limits by the licensed floodplain harvesting volumes.¹⁸

The Water Act 2007 and the Basin Plan 2012 provide for amendments to the Basin Plan, and therefore the Sustainable Diversion Limit.^{19, 20} This process includes:

- preparing a plain English summary of the amendment, including scientific knowledge and socio-economic analysis supporting the amendment,²¹
- at least an eight-week period of public consultation,²² and
- having regard to climate change, connectivity of surface and groundwater, the outcomes of environmental watering and the effectiveness of environmental works and measures.²³

An amendment to the Basin Plan can be subject to a disallowance in either house in the Australian Parliament.

However, the MDBA has stated that the Sustainable Diversion Limits can be changed without a Basin Plan amendment. The Murray-Darling Basin Authority maintains that:

- the numeric estimates of the Baseline Diversion Limits included in Schedule 3 of the Basin Plan are non-binding,
- the Sustainable Diversion Limit is the residual of the Baseline Diversion Limits described in Schedule 3 of the Basin Plan and the Water Recovery targets set out in Schedule 2 of the Basin Plan,
- there is a constant relationship between the Baseline Diversion Limit and the Sustainable Diversion Limit,

%20summary&text=Take%20limit%3A%203%20ML%20per,unit%20share%20at%20any%20time.&text=Initial%20a
vailable%20water%20determination%20of%201%20ML%20per%20unit%20share.,-
Available%20water%20determination

¹⁸ Slattery & Johnson. (2021). *Licensing floodplain harvesting in Northern NSW: analysis and implications*.

<https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=76066>

¹⁹ Commonwealth. (2007). Water Act, Subdivision F.

<https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

²⁰ Commonwealth. (2012). Basin Plan 2012, Section 6.06. <https://www.legislation.gov.au/Details/F2012L02240>

²¹ Commonwealth. (2007). Water Act, Subdivision F.

<https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

²² Commonwealth. (2007). Water Act, Subdivision F.

<https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

²³ Commonwealth. (2012). Basin Plan 2012, Section 6.06. <https://www.legislation.gov.au/Details/F2012L02240>

- changes to the Sustainable Diversion Limits can be changed without adhering to the statutory processes outlined in the Water Act 2007 (Cth) or the Basin Plan 2012, and
- the Sustainable Diversion Limit can change at any time with 'best available information.'²⁴

These provisions mean that Sustainable Diversion Limits can be changed at any time by governments, without any scientific basis, public consultation, or Parliamentary scrutiny. The way the Sustainable Diversion Limits have been increased undermines the intent of the Basin Plan.

This is explained in a Slattery & Johnson submission to the NSW Select Committee Inquiry into Floodplain Harvesting: [Licensing floodplain harvesting in Northern NSW: analysis and implications](#).²⁵

It is the opinion of Bret Walker SC that changing the Sustainable Diversion Limits in the way described by the MDBA is unlawful, could be subject State, and Federal legal challenges. This opinion is included in *Supplementary Submission to the Select Committee on Floodplain Harvesting* (page 13).²⁶

The original and current Sustainable Diversion Limits are shown in [Table 2](#).

Table 2: *The original and current Sustainable Diversion Limits*

Jurisdiction	Original Sustainable Diversion Limit (GL)	Current Sustainable Diversion Limit (GL)	Increase (GL)
Queensland	1,379.9	1,456.9	77
Northern NSW	2,029.9	2,269.9	240
Southern NSW	3,325.3	3,757.3	432
ACT	47.6	53.4	5.8
Victoria	2,839.6	2,999.7	160.1
South Australia	515.9	628.7	112.8
Lachlan	570.4	578.3	7.9
Wimmera-Mallee	105.5	76.1	(29.4)
Total	10,814.1	11,820.3	1,006.2

Source: MDBA. (2023). *Current diversion limits for the Basin*. <https://www.mdba.gov.au/water-use/water-limits/current-diversion-limits-basin>

²⁴ Slattery & Johnson. (2021). *Licensing floodplain harvesting in Northern NSW: analysis and implications*. <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=76066>

²⁵ Slattery & Johnson. (2021). *Licensing floodplain harvesting in Northern NSW: analysis and implications*. <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-submission-details.aspx?pk=76066>

²⁶ Walker and Hartford-Davis. (2021). Joint memorandum of advice. <https://www.parliament.nsw.gov.au/lcdocs/submissions/76500/Southern%20Riverina%20Irrigators.pdf>

The Sustainable Diversion Limit has been increased, through the legislated process to amend the Basin Plan, by 675 gigalitres. This comprises 605 gigalitres through Supply Measure Adjustments and 70 gigalitres through the Northern Basin Review.

The Sustainable Diversion Limit has been increased, outside the legislated process to amend the Basin Plan, by an additional 331.2 gigalitres. This was not subject to any community consultation or Parliamentary scrutiny. As many NSW Water Resource Plans remain unaccredited, it is reasonable to assume the current Sustainable Diversion Limit does not include the new NSW floodplain harvesting volumes.

Because Sustainable Diversion Limits can now be changed at any time, without scrutiny or review, they are not limits. The Environmentally Sustainable Level of Take, water recovery targets, and the amount recovered have no secure basis and are eroded. Under these conditions the aims of the water reforms cannot be met.

2.1.3 No accredited Sustainable Diversion Limit valley models

Compliance with valley limits (Cap and SDL) is managed through a hydrological valley model.

The process for implementing the Murray-Darling Basin Cap included:

- a publicly available report describing the Cap model, including assumptions,
- an independent accreditation of the Cap model,
- a publicly available report describing the accreditation, including assumptions and performance,
- approval by the Murray-Darling Basin Authority (or former Murray-Darling Basin Commission),
- annual review of the Cap by an Independent Water Audit Group,
- in NSW, the model run number and long-term annual average extraction volumes were also included as a note in the relevant statutory Water Sharing Plans.

These controls preserved the rigour and integrity of the Cap model as a compliance tool, ensured transparency, and provided confidence in the management of the Cap.

These controls do not exist for the Sustainable Diversion Limit. There is no:

- publicly available report describing the Sustainable Diversion Limit model, including assumptions,
- independent accreditation of the Sustainable Diversion Limit model,
- inclusion of the quantified annual diversion limit or the model run number in the new NSW Water Sharing Plans.

There appear to be no clear controls in place to preserve the rigour and integrity of the Sustainable Diversion Limit as a compliance tool, ensuring rigour,

transparency and confidence in the management of the Sustainable Diversion Limit.

The risks of having no accredited valley limit model have been demonstrated by the growth in use in the Barwon-Darling. The Barwon-Darling has never had an accredited Cap model. The Murray-Darling Basin Ministerial Council agreed in 2010/11 that the valley limit should decrease from 174 gigalitres to 143 gigalitres. Instead, based on a new model run, the valley limit was increased by 9 percent to 189 gigalitres. The Baseline Diversion Limit for the Basin Plan was based on the unaccredited Barwon-Darling Cap model, and the Sustainable Diversion Limit increased by another 9 percent to 198 gigalitres.²⁷

This is explained in two research papers by The Australia Institute.^{28,29}

2.2 Increasing water storage infrastructure without offsets

A necessary part of managing a valley limit, such as the Cap or the Sustainable Diversion Limit, is to maintain a level of development, including storages, at a point in time. This does not preclude new development, but it does require that new development be offset by a reduction in development elsewhere.³⁰

Despite NSW's stated commitment to the Cap and the Sustainable Diversion Limit, the number and capacity of private storages in NSW has increased. The NSW government has made commitments to increase the number and capacity of public storages.

2.2.1 Private storages

One of the criteria for the Cap is the level of water supply infrastructure in place at 30 June 1994.³¹ A calculation of on-farm storages in the Northern NSW Murray-Darling Basin shows that on-farm storage capacity alone has increased 2.4 times since June 1994.³²

²⁷ Commonwealth. (2012). Basin Plan 2012, Section 6.06. <https://www.legislation.gov.au/Details/F2012L02240>

²⁸ Slattery, Johnson and Campbell. (2019). *Owing down the river*. <https://australiainstitute.org.au/report/owing-down-the-river/>

²⁹ Slattery & Campbell. (2019). *Submission: Barwon-Darling Water Sharing Plan Review*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/P699-Submission-to-review-of-Barwon-Darling-Water-Sharing-Plan-WEB.pdf>

³⁰ MDBA. (2020). *Submission – NSW Legislative Council – Portfolio Committee No. 7 Planning and Environment: Inquiry into the rationale for, and impacts of, new dams and other infrastructure in NSW*.

<https://www.parliament.nsw.gov.au/lcdocs/submissions/69285/0125%20Murray%20Darling%20Basin%20Authority.pdf>

³¹ Commonwealth. (2007). Water Act, Schedule 1 Murray-Darling Basin Agreement, Schedule E Cap on Diversions, Clause 2. <https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

³² Brown, Et. Al/ (2022). *An unsustainable level of take: on-farm storages and floodplain water harvesting in the northern Murray-Darling Basin, Australia*. <https://www.tandfonline.com/doi/abs/10.1080/13241583.2022.2042061?journalCode=twar20>

2.2.2 Public storages

In 2018 WaterNSW released a 20 Year Infrastructure Options Study Rural Valleys Summary Report.³³ This report includes many types of water management infrastructure, including new and enlarged storages. Only some of these works have projected storage volumes. The extra capacity from those projected volumes amounts to more than 11,000 gigalitres.

The Options Study demonstrates the focus of WaterNSW on increasing water storage and use, despite commitments to limit extractions to a Sustainable Diversion Limit.

While most of the works on the list will never be built, many communities that would be affected have spent large amounts of money and time to stop them, suffering great stress and anxiety. WaterNSW is proceeding with infrastructure projects that are not included in the Options Study, thereby avoiding any community consultation. One example is the enlargement of Gunidgera Weir on the Namoi River.

2.3 Misrepresenting water recovery

The implementation of the Basin Plan has been undermined by misrepresenting water recovery.

For example:

- including water that was not included in the Baseline Diversion Limit (eg., Macquarie-Castlereagh) because it was bought by NSW for the environment before 1 July 2009,³⁴
- including water that was not included in the Baseline Diversion Limit because it was not licensed or not used for irrigation at 1 July 2009 (eg., Murrumbidgee, Condamine-Balonne, Intersecting Streams),^{35, 36, 37, 38}
- using Long-Term Diversion Limit Equivalence (LTDLE) factors (also known as Cap Factors) that exaggerate the yield of recovered water and thereby the volume recovered, increasing progress towards the water recovery

³³ WaterNSW. (2018). 20 Year Infrastructure Options Study Rural Valleys Summary Report. WaterNSW.

³⁴ Hyde. (2019). *Email: RE: HPE CM: Are entitlements part of the BDL*. Obtained through Order for Papers – Floodplain Harvesting – Further Order (03/11/2021) <https://www.parliament.nsw.gov.au/lc/ordersforpapers/Pages/orders-for-papers-details.aspx?pk=80515>

³⁵ Slattery. (2018). *South Australia Murray-Darling basin Royal Commission: Submission*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/The-Australia-Institute-submission-to-the-Murray-Darling-Basin-Royal-Commission.pdf>

³⁶ Murray-Darling Basin Authority. (2019). *Review of the contribution of the Nimmi-Caira purchase to Basin Plan water recovery*. <https://www.mdba.gov.au/sites/default/files/publications/review-contribution-nimmie-caira-purchase-basin-plan-feb-19.pdf>

³⁷ Slattery & Campbell. (2019). *#Watergate's water mates*. <https://australiainstitute.org.au/report/watergates-water-mates/>

³⁸ Brown. (2020). *Email: RE: Toorale and BDL Calc*. Obtained through Order for Papers – Floodplain Harvesting – Further Order (03/11/2021) <https://www.parliament.nsw.gov.au/lc/ordersforpapers/Pages/orders-for-papers-details.aspx?pk=80515>

target through manipulation of numbers, not acquisition of real water (eg., all valleys in NSW),³⁹

- transferring the shared water recovery target from one valley to a different valley, keeping the Sustainable Diversion Limit constant and inflating water already recovered to equal the new water recovery target (eg., in NSW transferring the shared recovery target from the Gwydir and Macquarie into the Intersecting Streams and transferring the shared recovery target from the Border Rivers into the Warrego).^{40, 41, 42}

The term 'over-recovery' is used to describe circumstance in which the recorded environmental water purchased is higher than the water recovery target for a valley. Misrepresenting water recovery has created 'over-recovery' in some valleys.

The Commonwealth Government reports over-recovery in the Macquarie (38.2 gigalitres), Gwydir (5 gigalitres) and the Murrumbidgee (6.5 gigalitres). The Barwon-Darling is also possibly considered over recovered by up to 2.2 gigalitres.^{43, 44}

In these cases, 'over recovery' is an example of the NSW Government's intention to reduce the amount of water recovered for the environment, a position that has been accepted by the Commonwealth Government. This is supported by documents obtained through the NSW Parliament:

*Under our advice, our overarching principle is to minimise future buyback. MO [Minister's Office] was happy with the approach.*⁴⁵

*Our view was that MDBA should decide [the shared component of the SDL reduction] in a way that minimises recovery.*⁴⁶

2.4 Water Resource Plans in New South Wales

The Basin Plan requires that the States give effect to the Basin Plan through Water Resource Plans.

³⁹ Slattery & Campbell. (2018). *Derivation of Long-Term Diversion Limit Extraction factors in NSW*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/The-Australia-Institute-Cap-Factors-submission-WEB.pdf>

⁴⁰ NSW Department Planning, Industry & Environment. (2018). *Intersecting streams – updated estimates of the BDL, LTDLE factors and the held environmental water recovered: Draft 2 October 2018 for discussion*. Obtained through Order for Papers – Floodplain Harvesting – Further Order (03/11/2021)

⁴¹ Brown. (2020). Obtained through Order for Papers – Floodplain Harvesting – Further Order (03/11/2021) Email: RE: Toorale and BDL Calc. <https://www.parliament.nsw.gov.au/lc/ordersforpapers/Pages/orders-for-papers-details.aspx?pk=80515>

⁴² Slattery & Campbell. (2018). *Moving Targets*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/P495-Moving-Targets.pdf>

⁴³ Slattery & Johnson. (2021). *Water recovery and 'over recovery' in the Macquarie valley*. <https://inlandriversnetwork.org/2023/02/24/water-recovery-and-over-recovery-in-the-macquarie-valley/#:~:text=The%20NSW%20Coalition%20government%20and,Wambuu%2FMacquarie%20and%20Gwydir%20catchments>

⁴⁴ The Barwon-Darling was 1.6 GL short on its water recovery target of 1.6 GL in May 2023. This does not include a floodplain harvesting WAL of 3.8GL that was issued to the NSW Water Minister in April 2023 (WAL 44773). Including this water towards water recovered could result in the Barwon-Darling being 'over-recovered' by up to 2.2 GL, depending on the Cap Factor used.

⁴⁵ Isaacs, M. (2019). Email: Unnamed Attachment. Sydney: NSW Parliament. Obtained under Standing Order 52

⁴⁶ Brown, A (2019). Email: Unnamed attachment. Sydney: NSW Parliament. Obtained under Standing Order 5

Water Resource Plans in NSW are over-arching plans. They consist of other plans, schedules, appendices, and various background and supporting documents.⁴⁷

The implementation of the Basin Plan has been undermined because:

1. NSW Water Resource Plans are not legislative instruments,
2. there are no quantifiable limits in NSW Water Resource Plans, and
3. there are no quantifiable limits in NSW Water Sharing Plans.

2.4.1 NSW Water Resource Plans are not legislative instruments

Water Resource Plans are accredited by the Commonwealth Water Minister under Section 63 of the Water Act 2007. However, NSW Water Resource Plans are not Commonwealth legislative instruments, and are not listed in the Federal Register of Legislation.⁴⁸

The decisions by the Commonwealth Water Minister to accredit the Water Resource Plans are legislative instruments.⁴⁹ The decisions to accredit the plans are listed on the Federal Register of Legislation.⁵⁰

The Water Resource Plans are not legislative instruments in NSW and no part of the Water Resource Plan is required to be legislated in NSW.⁵¹

That is, the NSW Water Resource Plans are not legally binding on the Commonwealth or NSW.

2.4.2 There are no quantifiable limits in NSW Water Resource Plans

Section 55 of the Water Act 2007 requires Water Resource Plans to be consistent with the Basin Plan, including:

*any long-term annual diversion limit for the water resources of the water resource plan area.*⁵²

Water Resource Plans submitted by NSW to MDBA to date do not include quantified annual diversion limits.

2.4.3 There are no quantifiable limits in NSW Water Sharing Plans

In NSW, Water Sharing Plans are one component of the Water Resource Plans. The NSW Water Sharing Plans are legislative instruments.

⁴⁷DPIE. (2021). *Planning Process*. <https://www.industry.nsw.gov.au/water/plans-programs/water-resourceplans/planning-process>

⁴⁸ Australian Government. (2021). *Federal Register of Legislation*. Accessed 11 May 2021, (<https://www.legislation.gov.au/Browse/Results/ByTitle/LegislativeInstruments/InForce/Wa/0/0/principal>).

⁴⁹ Commonwealth. (2007). *Water Act, Section 63(7)*. <https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

⁵⁰ Australian Government. (2021). *Federal Register of Legislation*. Accessed 11 May 2021, (<https://www.legislation.gov.au/Browse/Results/ByTitle/LegislativeInstruments/InForce/Wa/0/0/principal>).

⁵¹ NSW Parliamentary Research Service. (2021). *Response to Research Request Prepared for Cate Faehrmann MLC, Subject: WRPs, WSPs and floodplain harvesting*. Sydney: NSW Parliament House.

⁵² Commonwealth. (2007). *Water Act, Section 55*. <https://www.legislation.gov.au/Details/C2014C00194/Html/Text>

The original NSW Water Sharing Plans included a note that contained the quantified annual diversion limit and the number of the model run used to derive it. The new NSW Water Sharing Plans do not include a quantified annual diversion limit or the model run number.

In implementing the Basin Plan, quantified limits, and the model run they were derived from, have been removed from NSW legislation.

2.5 Climate change and extractions

It has been reported widely that median inflows into the River Murray system for the first twenty years of the 21st Century have roughly halved compared to the 20th Century.^{53, 54, 55, 56, 57}

The 2020 Basin Plan Evaluation identified that average flows at Bourke decreased from 7,500 megalitres a day between 1990 and 2002 to around 5,000 megalitres a day between 2002 and 2014 and less than 1,000 megalitres a day between 2014 and 2020.⁵⁸

The decline in the average inflows is used as evidence in the Basin Plan Evaluation of the effects of climate change on water availability.⁵⁹

The claim that this decline in flows is due to climate change has been widely quoted without challenge.^{60, 61, 62} However, there is evidence that increased extractions contribute to the reduced inflows.

The Bureau of Meteorology's Australian Landscape Water Balance model (AWRA-L v6) estimated the average catchment inflows into the Barwon-Darling/Baaka for

⁵³ Interim Inspector General. (2020). *Impact of lower inflows on state shares under the Murray-Darling Basin Agreement*. https://www.igwc.gov.au/sites/default/files/2020-09/iig_final_report.pdf

⁵⁴ NSW Department of Planning and Environment. (not dated). *Impact of floodplain harvesting growth in the northern Basin: Common misconceptions – Growth in floodplain harvesting is having a significant impact on Murray River allocations*. <https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/about/impact-of-floodplain-harvesting-growth-in-the-northern-basin>

⁵⁵ O'Neill. (2021). *Bills – Water Legislation Amendment (Inspector-General of Water Compliance and Other Measures) Bill 2021 – Second Reading*.

https://www.aph.gov.au/Parliamentary_Business/Hansard/Hansard_Display?bid=chamber/hansards/67f031e9-ecac-4d49-a907-c221da95e4c6/&sid=0033

⁵⁶ MDBA. 2021. *The 2020 Basin Plan Evaluation: It's getting drier*.

<https://storymaps.arcgis.com/collections/9a885f6f83624733898459a81196c862?item=1>

⁵⁷ Prosser et al. (2021). *Adapting water management to climate change in the Murray-Darling Basin, Australia*.

<https://www.proquest.com/openview/1fb372ea00ab7bdeb441ad4c0e76749f/1?pq-origsite=gscholar&cbl=2032318#:~:text=The%20Murray%E2%80%93Darling%20Basin,-The%20Murray%E2%80%93Darling&text=In%20principle%2C%20water%20management%20in,to%20accommodate%20a%20changing%20climate>.

⁵⁸ MDBA. (2021). *The 2020 Basin Plan Evaluation: It's getting drier*.

<https://storymaps.arcgis.com/stories/39ef70f06b81451a940491bb5e57dec8>

⁵⁹ MDBA. (2021). *The 2020 Basin Plan Evaluation: It's getting drier*.

<https://storymaps.arcgis.com/stories/39ef70f06b81451a940491bb5e57dec8>

⁶⁰ MDBA. 2021. *The 2020 Basin Plan Evaluation: It's getting drier*.

<https://storymaps.arcgis.com/collections/9a885f6f83624733898459a81196c862?item=1>

⁶¹ Davies. (2020). *Climate change is likely to blame for dwindling Murray-Darling inflows, report finds*.

<https://www.theguardian.com/australia-news/2020/apr/17/climate-change-likely-to-blame-for-dwindling-murray-darling-inflows-report-finds>

⁶² O'Neill. (2021). *Bills – Water Legislation Amendment (Inspector-General of Water Compliance and Other Measures) Bill 2021 – Second Reading*.

https://www.aph.gov.au/Parliamentary_Business/Hansard/Hansard_Display?bid=chamber/hansards/67f031e9-ecac-4d49-a907-c221da95e4c6/&sid=0033

the first twenty years the 21st Century were 97 percent compared to the 20th Century.⁶³

Colloff and Pittock explain that claims by the Murray-Darling Basin Authority that inflows into the River Murray have decreased by 39 percent in the 21st Century compared to the 20th Century is based on ‘cherry-picking’ data. They identify inconsistencies in inflow data sets published by the Murray-Darling Basin Authority.⁶⁴

Grafton *et al.* contend that only one-third of the recent reduced streamflow of the Barwon-Darling/Baaka is due to reduced rainfall.⁶⁵

A technical report commissioned by the Natural Resource Commission found that the licensing and accounting rules in the Barwon-Darling/Baaka brought forward the last drought (2018-19, 2019-20) by three years.⁶⁶

An unpublished investigation into declining low flows in the Barwon-Darling Baaka by the Murray-Darling Basin Authority concluded:

*There are a number of compelling signs indicating that river extraction is a significant (and possibly the leading) contributor to the heavy attenuation of these events – they occurred only in specific reaches...., only in the post 2000 period, they often occurred in pairs, and often at similar times of the year.*⁶⁷

There should be a distinction between reduced inflows due to climate variability and that due to increased extractions.

2.6 Aboriginal water

The Australian Government is providing \$40 million for Aboriginal communities in the Murray-Darling Basin to purchase water for cultural and economic activities, \$9.2 million to design enduring arrangement for a First Nations national water holding body, and \$150 million to improve water infrastructure for safe and reliable water supplies in remote and regional communities.⁶⁸

This will buy around 20 gigalitres of water in the entire Basin, depending on the type and the location. This volume will go nowhere near compensating for the loss of base flows in the rivers of the Northern Basin.

⁶³ Australian Government. (2020). *Catchment inflows – Modelled runoff data (AWRA-L V6)*. <https://www.data.gov.au/data/dataset/catchment-inflow-data-for-the-basin-plan-evaluation-2020/resource/7442a111-2894-4572-aa41-1f488bf06636>

⁶⁴ Colloff and Pittock. (2022). *Mind the gap! Reconciling environmental water requirements with scarcity in the Murray-Darling Basin*, Australia. <https://www.mdpi.com/2073-4441/14/2/208>

⁶⁵ Grafton *et al.* (2022). *Resilience to hydrological droughts in the northern Murray-Darling Basin*, Australia. <https://royalsocietypublishing.org/doi/epdf/10.1098/rsta.2021.0296>

⁶⁶ Sheldon. (2019). *Technical Review of the Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Sources 2012*. <https://www.nrc.nsw.gov.au/water/wsp-reviews/completed-2019>

⁶⁷ MDBA. (2017). *Observed Flows in the Barwon-Darling 1990-2017: A Hydrological Investigation – Technical Report*. Obtained through FOI.

⁶⁸ ANU, ILSC and NNTC, 2023. *Outcomes Report on the National First Nations Water Roundtable*. ANU, Canberra.

Negotiations on how to manage that water will be long-running. In contrast, new water licences have been issued in NSW at no cost and with little or no proper consultation with those affected. These licences include:

- 16 gigalitres of High Security WALs,^{69,70}
- 43 gigalitres of General Security WALs,^{71,72}
- 0.8 gigalitres of A Class Shares, 14.8 gigalitres of B Class Shares and 1 gigalitre of C Class Shares in the Barwon-Darling/Baaka.⁷³

In addition, 409 gigalitres of floodplain harvesting WALs has been issued, or are soon to be issued, to Northern NSW irrigators, against the wishes of the NSW Parliament.

The NSW Irrigators Council estimated that approximately 250 gigalitres of floodplain harvesting is worth around \$2 billion.⁷⁴

2.7 Critical Human Water Needs

The *Water Act 2007* sets out that the Basin Plan must be prepared having regard to:

- a) that critical human water needs are the highest priority water use for communities who are dependent on Basin water resources, and*
- b) in particular that, to give effect to this priority in the River Murray System, conveyance water will receive first priority from the water available in the system.*⁷⁵

However, the *Basin Plan 2012* states that Water Resource Plans are only required to address Critical Human Water Needs in the River Murray System.⁷⁶ Critical Human Water Needs for the rest of the Basin are addressed through the extreme event provisions in Water Resource Plans.⁷⁷ The extreme event provisions in the Basin Plan apply to 'extreme dry periods.'⁷⁸

Principle 3 of the NSW *Water Management Act 2000* states that in relation to water sharing:

- a) sharing of water from a water source must protect the water source and its dependent ecosystems, and*

⁶⁹ 5 GL Gwydir regulated, 1 GL Lachlan, 1 GL Belubula Regulated, 7.5 GL Murrumbidgee, 1.5GL NSW Murray

⁷⁰ WaterNSW. (2023). *NSW Water Register: Information about a water source – Total number of water access licences and water usage for a water source*. <https://waterregister.watnsw.com.au/water-register-frame>

⁷¹ 2 GL Macquarie, 6 GL Lachlan, 22GL Belubula Regulated, 6.6 GL Murrumbidgee, 5.8 GL NSW Murray, 1.4 GL Lower-Darling

⁷² WaterNSW. (2023). *NSW Water Register: Information about a water source – Total number of water access licences and water usage for a water source*. <https://waterregister.watnsw.com.au/water-register-frame>

⁷³ WaterNSW. (2023). *NSW Water Register: Information about a water source – Total number of water access licences and water usage for a water source*. <https://waterregister.watnsw.com.au/water-register-frame>

⁷⁴ Miller. (2020). *So what will the licensing of floodplain harvesting mean?*

<https://www.theland.com.au/story/6977219/floodplain-harvesting-licensing-essential/>

⁷⁵ Commonwealth. (2007). *Section 86A, Water Act 2007*. <https://www.legislation.gov.au/Details/C2021C00539>

⁷⁶ Commonwealth. (2012). *Chapter 11, Basin Plan 2012*. <https://www.legislation.gov.au/Details/F2021C01067>

⁷⁷ Productivity Commission. (2018). *Murray-darling Basin Plan: Five Year Assessment*.

<https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf>

⁷⁸ Commonwealth. (2012). *Section 10.51, Basin Plan 2012*. <https://www.legislation.gov.au/Details/F2021C01067>

- b) sharing of water from a water source must protect the basic landholder rights, and
- c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).⁷⁹

Despite the priority of water sharing in this principle, in the last decade, several towns in Western NSW have had no drinking water. The policies that cause this are explained in The Australia Institute report, [Owing down the river](#).⁸⁰

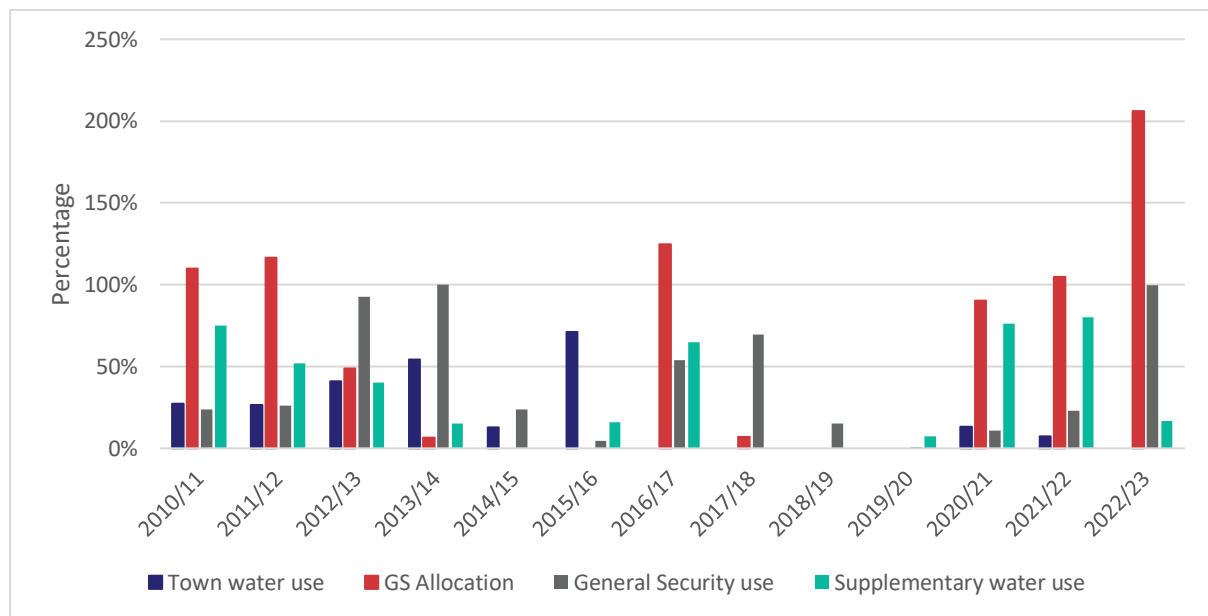
These towns tend to have high Aboriginal populations, such as Walgett, Wilcannia, and Menindee.

2.7.1 Drinking water in Walgett

Walgett is on the confluence of two major rivers – the Namoi and the Barwon. It has a local town water utility licence of 2,271 megalitres. However, since 2016 water from this licence has been available only in 2020 to 2022.

The water availability and use for Walgett and Lower Namoi General Security water licences since 2010/11 is shown at Figure 1.

Figure 1: Lower Namoi General Security water allocation and use, Supplementary water use, and Walgett town water use.



Source: NSW Water Register. <https://waterregister.waternsw.com.au/water-register-frame>

Figure 2 shows that (except for 13 percent of its licence in 2020/21 and 7 percent in 2021/22) Walgett has not had water from the river since 2016/17. This is despite water allocated to General Security allocations of more than 90 percent in four of

⁷⁹ NSW. (2000). *Division 1, Water Management Act 2000*.

<https://legislation.nsw.gov.au/view/html/inforce/current/act-2000-092#ch.2-pt.1-div.1>

⁸⁰ Slattery, Johnson and Campbell. (2019). *Owing down the river*. <https://australiainstitute.org.au/report/owing-down-the-river/>

those years (2016/17, 2020/21, 2021/22 and 2022/23) and Supplementary water use exceeding 50 percent in three years (2016/17, 2020/21 and 2021/22).

The years since 2016/17, when General Security allocations exceeded 90 percent, were not 'extreme dry periods.' The NSW extreme events policy does not apply in those years.⁸¹ Allowing Critical Human Water Needs to be addressed only through the Extreme Events Policy results in several years where Walgett does not have drinking water. This means that the provisions for Critical Human Water Needs in the *Water Act 2007* are not met.

Despite the provisions of the NSW *Water Management Act 2000*, town water at Walgett is a lower priority than water for irrigation on the Lower Namoi.

When the rivers are run dry or poor water quality means that the water can't be treated and is unsafe, Walgett switches to bore water from the Great Artesian Basin (GAB). This GAB water is also unsafe. Data collected by the Dharriwaa Elders Group and the University of New South Wales show that sodium levels in GAB water in Walgett are regularly higher than 300 mg/L.⁸²

There are no standards for safe sodium levels in the Australian Drinking Water Guidelines (ADWG). There are palatability guidelines of less than 180 mg/L, and the statement:

Medical practitioners treating people with severe hypertension or congestive heart failure should be aware if the sodium concentration in the patient's drinking water exceeds 20mg/L.⁸³

Access to safe drinking water is difficult for residents in Walgett, creating an ongoing health risk. The burden of access to safe drinking water has been shifted to individuals in the community. Many of the people most affected already experience disproportionately higher levels of disadvantage and chronic disease.

There has been no management or investment by the Commonwealth or NSW governments to ensure equitable access to safe drinking water for the people of Walgett.

2.8 The exclusion of Snowy Hydro from the Basin Plan

The Murrumbidgee upstream of Burrinjuck dam (Upper Murrumbidgee) includes the Snowy Hydro scheme and flows through Cooma, Yass and the Australian Capital Territory (ACT).

⁸¹ NSW Department of Industry. (2018). *NSW Extreme Events Policy*.
https://www.industry.nsw.gov.au/_data/assets/pdf_file/0008/187703/Extreme-Events-policy.pdf

⁸² Earle, et al. (2023). *Yuwaya Ngarrali Briefing Paper: Walgett's drinking water*.
https://www.dharriwaaeldersgroup.org.au/images/downloads/YN_Briefing_Paper_-_Walgetts_Drinking_Water_Feb23.pdf

⁸³ NHMRC, NRMCC (2011) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra. p 922

Snowy Hydro diverts more than 90 percent of the Upper Murrumbidgee's flows into Tantangara dam.⁸⁴ This has led to a highly degraded river and a significantly altered native fish community.⁸⁵

Silver perch are now considered extinct in the Murrumbidgee River between Tantangara Dam and the ACT. Other native species at risk include Macquarie perch, Trout cod, Murray cod, Two-spined blackfish, Golden perch, Mountain galaxias, Australian smelt, Murray crayfish, Platypus, Rakali (water rat) and Eastern long-neck turtles.⁸⁶

During periods of low flow in the Upper Murrumbidgee the water often contains high levels of enterococci, a bacteria found in faeces.⁸⁷ This causes the river to be a public health hazard in the ACT, particularly during the summer. River beaches in the ACT are frequently closed for swimming, fishing and recreation.⁸⁸

The Upper Murrumbidgee had no hydrological indicator site when the Basin Plan was developed, and the Upper Murrumbidgee is not explicitly considered in the implementation of the Basin Plan. For example, there has been no environmental watering by the Commonwealth Environmental Water Holder.⁸⁹ There is 164 megalitres of water recovery in the Upper Murrumbidgee that has never been used.⁹⁰

The ACT Government is a party to the Basin Plan and committed to meeting a shared water recovery target of 4.9 gigalitres.⁹¹ This target is for environmental outcomes downstream of the Regulated Murrumbidgee river in the River Murray. Unless water can be acquired upstream of the ACT to enhance the Murrumbidgee through the ACT, the ACT environment will receive no benefit from the Basin Plan.

Irrigation in the ACT uses less than 6 gigalitres. The largest source of water, and obvious target for recovery, is water held by Snowy Hydro Limited.

However, the Basin Plan does not apply to the Snowy Hydro scheme.⁹² This seems illogical, particularly as, since the making of the Basin Plan, the Commonwealth has become the sole shareholder in Snowy Hydro Limited.⁹³

⁸⁴ Environment, Planning and Sustainable Development Directorate. (2020). *Impact of the Snowy Mountain Scheme on the Murrumbidgee*. <https://storymaps.arcgis.com/stories/377688359b4f454e86eccc78adf2fb30>

⁸⁵ Finterest. (2023). *Upper Murrumbidgee Demonstration Reach*. <https://finterest.au/demonstration-reaches/upper-murrumbidgee-demonstration-reach/>

⁸⁶ Australian River Restoration Centre. (2022). *The forgotten river*. <https://theforgottenriver.au/>

⁸⁷ Vincent et al. (2022). *Relationships between extreme flows and microbial contamination in inland recreational swimming areas*. <https://iwaponline.com/jwh/article/20/5/781/88145/Relationships-between-extreme-flows-and-microbial>

⁸⁸ Crowe. (2022). *Murrumbidgee River has been closed at most locations*. <https://www.canberratimes.com.au/story/7958588/swimming-banned-as-bacteria-flows-into-murrumbidgee/>

⁸⁹ Colloff and Pittock. (2022). *Mind the gap! Reconciling environmental water requirements with scarcity in the Murray-Darling Basin, Australia*. <https://www.mdpi.com/2073-4441/14/2/208>

⁹⁰ Colloff and Pittock. (2022). *Mind the gap! Reconciling environmental water requirements with scarcity in the Murray-Darling Basin, Australia*. <https://www.mdpi.com/2073-4441/14/2/208>

⁹¹ Department of Climate Change, Energy, the Environment and Water. (2023). *Surface water recovery required under the basin Plan including the Sustainable Diversion Limit Mechanism as at 31 May 2023*. <https://www.dcceew.gov.au/sites/default/files/documents/surface-water-recovery-including-sdlam.pdf>

⁹² Commonwealth. (2007). *Section 21(6), Water Act 2007*. <https://www.legislation.gov.au/Details/C2021C00539>

⁹³ Snowy Hydro Limited. (2020). *Snowy Hydro: History*. <https://www.snowyhydro.com.au/about/history/>

The Snowy Water Inquiry Outcomes Implementation Deed (SWOID) is an agreement between the Australian, NSW and Victorian governments signed in 2002 to govern Snowy Hydro operations.⁹⁴ It includes provisions for environmental watering, which have not been achieved in 20 years.⁹⁵ The environmental watering provisions of the SWOID has not been reviewed by governments since the agreement was made.

2.9 The effects water trade policy

Most debate about trade focusses on the effects, on irrigation communities, of purchasing water for the environment. Little attention has been paid to the trade of consumptive water. In particular:

1. the policy of moving water to its highest value use,
2. the growth in permanent plantings, and
3. the influence of institutional investors.

2.9.1 The policy of moving water to its highest value use

Water moving to its highest value use, towards ‘high value’ crops like fruit and nuts, and away from ‘low value’ crops like pasture, has been policy since the National Competition policies of the early 1990’s.⁹⁶ The result is a restructure of the irrigation sector in the Southern Basin.

The Australian almond industry has grown from around 3,500 hectares in 2000 to more than 60,000 hectares in 2021.⁹⁷ Two-thirds of the almond plantations are on the Murray River, near the South Australia border.⁹⁸ Watering these almonds requires transferring water from irrigation upstream of the Barmah Choke. For example, more than 17 percent of irrigation water has been permanently moved from the NSW Murray Irrigation area since 2007. This more than the water recovered for the environment from the NSW Murray Irrigation area.^{99,100,101}

Despite the impact of the policy, the concept of highest value use is not well studied or defined. It seems to mean little more than water going to a purchaser with the ability to pay the highest price.¹⁰²

⁹⁴ Commonwealth Government. (2002). *Snowy Water Inquiry Outcomes Implementation Deed*. https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/143617/Snowy-water-inquiry-outcomes-implementation-deed.pdf

⁹⁵ Bender et al. (2022). *Snowy river environmental flows post 2002: lessons to be learnt*. <https://www.publish.csiro.au/mf/pdf/MF21209>

⁹⁶ COAG. (1994). *COAG Communique 25 February 1994, Attachment A – Water Resource Policy*. http://web.archive.org/web/20041031065143/http://www.coag.gov.au/meetings/250294/attachment_a.htm

⁹⁷ Almond Board of Australia. (2022). *Almond Insights 2021/22*. <https://australianalmonds.com.au/publications/?v=6cc98ba2045f>

⁹⁸ Almond Board of Australia. 2022. *Almond Insights 2021/22*. <https://australianalmonds.com.au/publications/?v=6cc98ba2045f>

⁹⁹ Murray Irrigation Limited. (2007). *Annual Report 2007*. <https://www.murrayirrigation.com.au/about#AnnualReports>

¹⁰⁰ WaterNSW. 2023. *NSW Water Register: A particular water licence or approval (including conditions)*. <https://waterregister.watarnsw.com.au/water-register-frame>

¹⁰¹ The Commonwealth Environmental Water Holdings within Murray Irrigation is approximately 190 GL, or 16% of the 2007 General Security bulk entitlement.

¹⁰² Wheeler. (2022). *Debunking Murray-Darling Basin water trade myths*. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/1467-8489.12490>

Highest value use rarely includes broader economic and financial values, such as supply chains, regional employment, value-added agricultural processing, taxation or tourism. As a purely financial measure it also overlooks non-financial values such as culture, robust regional communities, health, social benefits, food security and the environment.^{103, 104, 105}

Despite being policy for more than 30 years, we are not aware of any attempts to measure if moving water to permanent plantings has proven to be to highest value use. Frequently cited measures such as the volume or financial value of water traded demonstrate the presence of a market, but not whether the policy objective has been met.¹⁰⁶ ABARES does report on Gross Profit of Irrigated Agricultural Product, but this is not a reliable indicator of farm profitability and is an incomplete measure of value.^{107, 108}

2.9.2 Permanent plantings

It is estimated that there will only be enough water to meet 40 percent of the demand of existing permanent plantings in the Lower Murray in a dry sequence.¹⁰⁹ Despite this, the almond industry expects further growth.^{110, 111, 112}

The shift of irrigation demand from upstream of the Barmah Choke to approximately 1,000 kilometres downstream has caused conveyance water requirements in the Murray River to increase.

System conveyance water is socialised across all water holders before water is allocated to individual accounts. This decreases the reliability for all water holders, particularly General Security.¹¹³

¹⁰³ Simpson. (2020). *Water recovery & food security*. [Obtained under Freedom of Information Request LEX 20393. https://docslib.org/doc/4285571/lex-20393-document-1](https://docslib.org/doc/4285571/lex-20393-document-1)

¹⁰⁴ Agudo, (2021). *Risks and impacts of the commodification and financialization of water on human rights to safe drinking water and sanitation*. <https://www.ohchr.org/sites/default/files/Documents/Issues/Water/annual-reports/a-76-159-friendly-version.pdf#:~:text=The%20increasing%20risks%20of%20water%20scarcity%20due%20to,key%20factors%20in%20deepening%20the%20global%20water%20crisis>.

¹⁰⁵ Select Committee on the Status of water trading in New South Wales. (2022). *Status of water trading in New South Wales*. <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2867/Report%20No.%201%20-%20Select%20Committee%20on%20the%20status%20of%20water%20trading%20in%20New%20South%20Wales.pdf>

¹⁰⁶ ACCC. (2021). *Murray-Darling Basin water markets inquiry - final report*. <https://www.accc.gov.au/publications/murray-darling-basin-water-markets-inquiry-final-report>

¹⁰⁷ ABARES. (2021). *Murray-Darling Basin water market catchment dataset 2021*. <https://www.agriculture.gov.au/abares/research-topics/water/mdb-water-market-dataset>

¹⁰⁸ Meyer. (2005). *The Irrigation Industry in the Murray and Murrumbidgee Basins*. https://www.researchgate.net/publication/269397022_The_Irrigation_Industry_in_the_Murray_and_Murrumbidgee_Basins

¹⁰⁹ Aither. (2019). *Water supply and demand in the southern Murray-Darling Basin*. https://www.waterregister.vic.gov.au/images/documents/Water-Supply-and-Demand-Report_Aither_FINAL.pdf

¹¹⁰ It has been widely reported that there is as a moratorium on new permanent plantings in Victoria (McKenzie, 2020), (Simmons, 2021). Victoria required Ministerial approval on new works licences in the Lower Murray, not a moratorium on new plantations.

¹¹¹ Almond Board of Australia. 2019. *Almond Insights 2018/19*. <https://australianalmonds.com.au/publications/?v=6cc98ba2045f>

¹¹² Almond Board of Australia. 2022. *Almond Insights 2021/22*. <https://australianalmonds.com.au/publications/?v=6cc98ba2045f>

¹¹³ ACCC. (2020). *Murray-Darling Basin water markets inquiry - interim report*. <https://www.accc.gov.au/inquiries-and-consultations/finalised-inquiries/murray-darling-basin-water-markets-inquiry-2019-21-0/interim-report>

River operators find it increasingly difficult to deliver enough water through the Choke to meet increasing downstream demand.¹¹⁴ Consequently, the MDBA is exploring engineering options such as new or enhanced bypass channels or dredging the Choke.¹¹⁵

The Barmah-Millewa Forest is a wetland of international importance under the Ramsar Convention.¹¹⁶ The volume and timing of water deliveries through the Choke risks the ecological character of the site.¹¹⁷

Downstream water users do not incur the cost of environmental damage created by deliveries through the Choke, either as an externality or direct remediation costs.¹¹⁸

2.9.3 The socio-economic impact of institutional investors

In Northern Victoria, accounts that do not use water have a bigger impact on water availability than the environment. Temporary trades from these accounts have grown each year since 2015-16. This trade was higher than the total amount of water allocated to held environment accounts in 2021-22.¹¹⁹ This data is not publicly available for NSW.

It is likely that institutional investors have a major impact on carryover, and therefore water availability, particularly when allocations are low. There was zero allocation in the NSW Murray in 2018-19 and 2019-20, causing great hardship in the Southern Basin. Yet, at the end of 2019-20, there was a total of 1,081 gigalitres of carryover, excluding environmental water, in the NSW Murray (367 gigalitres) and northern Victoria (714 gigalitres).^{120, 121, 122} The last two years of the Millennium drought (2006-07 to 2007-08) also had two consecutive years of zero allocation in the NSW Murray. By comparison, carryover of irrigation water at the end of 2007-08 (385 gigalitres) was about a third of the volume carried over at the end of 2019-20. Institutional investors have stated publicly they use products that rely on carryover to manage water supply.¹²³ In the NSW Murray, only 103 gigalitres (28

¹¹⁴ MDBA. (2022). *Water demand (shortfalls)*. <https://www.mdba.gov.au/water-management/river-operations/water-demand-shortfalls>

¹¹⁵ MDBA. (2022). *Barmah-Millewa Feasibility Study*. <https://www.mdba.gov.au/water-management/river-murray-operations/barmah-millewa-program/barmah-millewa-feasibility-study>

¹¹⁶ Hale and Butcher. (2011). *Barmah Forest Ramsar Site: Ecological Character Description*. <https://www.dceew.gov.au/water/wetlands/publications/barmah-forest-ramsar-site-ecological-character-description#:~:text=The%20Barmah%20Forest%20Ramsar%20site,river%20red%20gums%20in%20Australia.>

¹¹⁷ Sinclair, Knights, Mertz. (2011). *Barmah Choke Study: Individual options phase*. <https://www.mdba.gov.au/sites/default/files/pubs/barmah-choke-study-individual-options-phase.pdf>

¹¹⁸ ACCC. (2021). *Murray-Darling Basin water markets inquiry - final report*. <https://www.accc.gov.au/publications/murray-darling-basin-water-markets-inquiry-final-report>

¹¹⁹ Department of Environment, Land, Water and Planning. (2023). *Victorian Water Trading Annual Reports*. https://www.vgls.vic.gov.au/client/en_AU/vgls/search/detailnonmodal?qu=Water-supply+---+Planning+--+Victoria&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A623983%7EILS%7E0&ps=300

¹²⁰ WaterNSW. (2023). *Allocations dashboard*. <https://www.industry.nsw.gov.au/water/allocations-availability/allocations/dashboard>

¹²¹ Department Agriculture, Water and the Environment. (2020). *Email: RESPONSE 60 Mins response to follow up questions*

¹²² Department Environment, Land, Water and Planning. (2023). *Water availability and use: Available water by type*. <https://www.waterregister.vic.gov.au/water-availability-and-use/available-water-by-owner-type>

¹²³ ACCC. (2021). *Murray-Darling Basin water markets inquiry - final report*. <https://www.accc.gov.au/publications/murray-darling-basin-water-markets-inquiry-final-report>

percent of the total) of the carryover at the end of 2019-20 was held in farmers accounts.¹²⁴

3 Conclusion

In his address to the National Press Club in 2007, Prime Minister John Howard said that:

...the current trajectory of water use and management in Australia is not sustainable...we need radical and permanent change.

All parties must recognise that the old way of managing the Murray-Darling Basin has reached its use-by date.

The plan I have just outlined will only work if the governance arrangements for the Basin are put on a proper national footing.

...none of this massive investment will make any sense or can be effectively achieved without a complete overhaul of the Murray-Darling Basin's governance arrangements.¹²⁵

Some of the points outlined in that speech have been achieved, including, investment in irrigation infrastructure, improved on-farm irrigation technology and metering, and new governance arrangements for the Basin.

Water has been recovered, water resource plans are in place or nearly so, environmental management arrangements are established. However, the implementation of the Basin Plan is such that many of its objectives are not being met.

One vital piece of the plan not yet in place is a sustainable cap on use in the Murray-Darling Basin, *addressing, once and for all, water over-allocation in the Murray-Darling Basin.*¹²⁶

The behaviour of state governments was the reason that the Commonwealth Government became involved. The barriers that still confront the proper implementation of the Basin Plan are, in many cases, still caused by state governments.

Consideration must be given to the governance arrangements of the Commonwealth agencies, particularly the MDBA.

4 Recommendations

- Review the governance arrangements of the Commonwealth water agencies, particularly the MDBA. Consider:

¹²⁴ Slattery & Johnson. (2022). *NSW Murray General Security allocations: carryover*. (Unpublished)

¹²⁵ Howard. (2007). *Transcript of the Prime Minister, the Hon John Howard MP, address to the National Press Club, Great Hall, Parliament House.*

<https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22media/pressrel/UMTC6%22;src1=sm1>

¹²⁶ Ibid.

- enhancing the powers of the Inspector General of Water Compliance, including the limit of monitoring and oversight to the agreements listed in section 215C(3) of the Water Act 2007,
- moving policy functions from MDBA to the new National Water Commission,
- moving science and climate change functions from the MDBA to CSIRO
- moving all water information functions from the MDBA to the Bureau of Meteorology,
- returning The Living Murray Water portfolio from the MDBA to relevant State and Commonwealth environmental water holders.
- Improve water accounting by:
 - understanding the information that users need.
 - new or enhanced reporting or disclosures for:
 - water resource assessment,
 - accounting,
 - modelling,
 - environmental water,
 - inflows and distinguish between the influence of climate change and extractions.
- Improve the verification of water accounting information by:
 - establishing an independent audit panel to develop an audit program, co-ordinate, oversee and report on audits.
 - ensuring audits are conducted in accordance with either Australian Water Auditing Standard 2 or Australian Auditing and Assurance Standards.
- Refer the treatment of increased Sustainable Diversion Limits outside the legislated process to the Inspector-General of Water Compliance in its capacity as a Commonwealth Integrity Agency the National Anti-Corruption Commission Act 2022.
- Implement controls to restore the rigour and integrity of the Sustainable Diversion Limit as a compliance tool, including:
 - publish reports describing the Sustainable Diversion Limit model, including assumptions,
 - undertake an independent accreditation of the Sustainable Diversion Limit model,
 - publish reports describing the Sustainable Diversion Limit model accreditation, including model performance and standard error,
 - formal approval of the Sustainable Diversion Limit by the Inspector General of Water Compliance,
 - in NSW, the model run number and long-term annual average extractions were also included as a note in the relevant statutory Water Sharing Plans.

- Annual reporting of information relating to private on-farm storages, including:
 - the number and capacity, and
 - volumes bring stored at any time.
- Undertake an independent review of progress towards water recovery, including:
 - ensuring environmental water licences were included in the Baseline Diversion Limits as water for irrigation, and
 - a review of Cap Factors.
- Amend the Water Act 2007 and the Basin Plan 2012 to ensure that Water Resource Plans are legislative instruments.
- Protect baseflows throughout entire rivers should under all circumstances before irrigation is allowed to occur.
- Improve outcomes for the Aboriginal people by:
 - more effective engagement with Aboriginal communities by NSW and Commonwealth environmental water managers,
 - restricting irrigation take in Northern NSW to lawful limits,
 - managing rivers and water in NSW according to the Principles of the NSW Water Management Act 2000.
- Amend the Water Act to broaden the Commonwealth Environmental Water Holder's role to include management of water for Aboriginal needs and uses.
- Establish a body with the specific role of overseeing Aboriginal interests and involvement in water management.
- Require the Water Resource Plans to provide for Critical Human Water Needs, rather than through the NSW Extreme events policy.
- Include Snowy Hydro in the Basin Plan by:
 - amending the Snowy Water Inquiry Outcomes Implementation Deed and Snowy licence to be consistent with the Basin Plan.
 - allowing water recovery from Snowy Hydro.
- Understand the effect of water trade on the irrigation sector:
 - Report annually on water trades (permanent and temporary) that have no water use and are not attached to land,
 - Report annually on carryover on accounts that have no water use and are not attached to land.
 - 'Highest value use' should be defined and reported against annually.
 - Any socio-economic assessments should investigate role of institutional investors and their effects on irrigation communities.
- The Commonwealth Government should make an explicit policy for resilient regional economies and communities. The policy should consider food security and climate change.
- The Commonwealth Government should consider water recovery from restructuring the industry based on permanent plantings in the Lower Murray.