

South Australia Murray-Darling Basin Royal Commission Submission

Unlawful aspects of the Basin Plan, protection of environmental water, manipulation of water recovery numbers, manipulation of Cap / SDL, independent and peer reviews

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Introduction

Thank you for the opportunity to make a submission to the South Australian Murray-Darling Basin Royal Commission. I am currently the Senior Water Researcher at The Australia Institute. This submission is informed by research through The Australia Institute and as a former employee of the Murray-Darling Basin Authority (MDBA). I was employed by the Murray-Darling Basin Authority and its predecessor, the Murray-Darling Basin Commission from 2005 until 2017. My last role with the MDBA was as Director of Environmental Water Policy from 2011. I spent six months on secondment with the Commonwealth Environment Water Office in late 2016 and early 2017. I am a Chartered Accountant and a member of the Australian Institute of Chartered Accountants.

This submission will address:

- Unlawful aspects of the Murray-Darling Basin Plan;
- Protection of environmental water;
- Manipulation of water recovery numbers;
- Manipulation of Cap / Sustainable Diversion Limits; and
- Independent and peer reviews.

The common theme running through these issues is governments' manipulation of numbers to facilitate a claim that the Basin Plan is being implemented 'on time and in full'. The reality is that the Basin Plan numbers no longer represent actual water. This manipulation will first affect taxpayers, but will ultimately adversely impact the property rights all water licence holders, including those held for irrigation and the environment.

This is not an exhaustive list of the issues associated with the implementation of the Murray-Darling Basin Plan.

Unlawful aspects of The Murray-Darling Basin plan

The Basin Plan and its implementation by the MDBA appears to be unlawful in five key areas, in addition to the issues identified in the Royal Commissioner's Issues Paper 2. The following five areas are detailed in this section:

- the SDL adjustment amendment was not made consistently with, Chapter 7: *Adjustment of SDL's* and Schedule 6: *Default method for calculation of supply contribution* of the Basin Plan;
- the Northern Basin amendment was not made consistently with s6.06: *Reviews of the Basin Plan*, of the Basin Plan;
- the SDL adjustment amendment included amendments that were never made available for public consultation, as required under s47: *Authority to seek submissions on proposed amendment of Basin Plan*, of the Water Act (2007);
- The re-allocation of SDLs between valleys allowed by S6.05 (5) – (14): *Re-allocation request* contradicts MDBA's obligations to set the SDLs in accordance with s21: *General basis on which Basin Plan to be developed of the Water Act*; and
- MDBA's interpretation and application of s6.14: *Risks arising from other changes to the Basin Plan* of the Basin Plan incorrectly treats that provision as a reading down provision, which can 'turn off' the Objects of the Water Act and any other Basin Plan requirements.¹

SUSTAINABLE DIVERSION LIMIT (SDL) ADJUSTMENT UNDER CHAPTER 7 AND SCHEDULE 6

The SDL Adjustment Mechanism amendment was made under Chapter 7 of the Basin Plan and the method is outlined in Schedule 6. The SDL adjustment mechanism starts with the model used in the Basin Plan (the benchmark model) and adjusts it for the supply measures. A comparison is then made between the SDL adjusted model and the benchmark model. If there are equivalent environmental outcomes between the

¹ MDBA, 2016, *Basin Plan Water Resources Plan Requirements Position Statement 1H – Potential Reliability Changes*, https://www.mdba.gov.au/sites/default/files/pubs/WRP-Position-Statement-1H-Changing-reliability_0.pdf



two models, there can be a 'saving' made to the water recovery target, meaning less water needs to be recovered for environmental use.

In *Desperate Measures*, The Australia Institute set out our reasoning of why this amendment was made unlawfully.² In our opinion, the assessment of two supply measure projects – Menindee Lakes and the Enhanced Environmental Water Delivery (EEWD) project - did not comply with the required mechanism as set out in the Basin Plan.

There is an additional problem with the EEWD project. The hydrological modelling for the project, includes flow rates that are higher than the flow rates described in the business case.

The benchmark model includes a maximum flow rate of 40,000 ML/day at Shepparton in the Goulburn River, estimating that this occurs in 58% of years. The hydrological modelling report of the EEWD project also includes a 40,000 ML/day indicator, occurring in 67% of years, as shown in Figure 1 below:

Figure 1: Extract from EEWD Goulburn system modelling report

| SFI sites | SFI | BP target (%) | Benchmark #1094 | LOC | 19-pack #1116 | EEWD Y50 |
|------------------------------|--|---------------|-----------------|-----|---------------|--------------------|
| | Environmental watering strategy | | pick-a-box | | pick-a-box | natural hydro cues |
| | Model foresight (month) | | 12 | | 12 | 1 |
| | Water recovery (GL/y) | | 2,750 | | 2,350 | 2,150 |
| | Potential SDL adjustment (GL/y) | | | | ~ 400 | ~ 600 |
| Goulburn River at Shepparton | 1 Two events annually of 2,500 ML/d for 4 consecutive days (with min duration of 30 days between events) between Dec & Apr | 36 - 48 % | 54% | 54% | 54% | 57% |
| | 2 5,000 ML/d for 14 consecutive days between Oct & Nov | 49 - 66 % | 55% | 55% | 55% | 64% |
| | 3 25,000 ML/d for a median duration of 5 days between Jun & Nov | 70 - 80 % | 82% | 74% | 80% | 82% |
| | 4 40,000 ML/d for a median duration of 4 days between Jun & Nov | 40 - 60 % | 58% | 52% | 54% | 67% |

Source: MDBA, (2017), Environmental water delivery following natural cues and relaxing constraints in the Southern Basin: part 2 methodology applied to the Goulburn system, p13³

² Slattery and Campbell, (2018), *Desperate Measures*, <http://www.tai.org.au/content/desperate-measures-murray-darling-basin-amendment>

³ MDBA, (2017), *Environmental water delivery following natural cues and relaxing constraints in the Southern Basin: part 2 methodology applied to the Goulburn system*, <https://www.mdba.gov.au/sites/default/files/pubs/enhanced-environmental-water-delivery-amendment-2.pdf>

However, the business case for the EEWD project says it has a maximum flow rate of 20,000 ML/day at Shepparton, as shown in Figure 2 below:

Figure 2: Extract from EEWD Business Plan

| |
|--|
| <p>Final flow rates will depend on the flow rates achieved through extensive consultation with all potentially affected land holders, industries and communities as part of relevant constraint measures implementation. However, modelling will assume the upper limit for the delivery of higher regulated flow opportunities set out in individual relevant constraint measure investigations to address physical and policy constraints. For example:</p> <ul style="list-style-type: none">• Hume to Yarrawonga key focus area - up to 40,000 megalitres per day from Hume Dam• Lower Darling key focus area - up to 14,000 megalitres per day at Weir 32• Murrumbidgee key focus area - up to 40,000 megalitres per day at Wagga Wagga• South Australian Murray key focus area - up to 80,000 megalitres per day at the South Australian border• Yarrawonga to Wakool junction key focus area - to 30,000 megalitres per day at Yarrawonga, and up to 50,000 megalitres per day at Yarrawonga under certain circumstances.• Goulburn key focus area - up to 20,000 megalitres per day at Shepparton for flows to the Murray and to be represented by the Benchmark approach. <p>A summary of the representation of each operating strategy in the MDBA modelling framework is at Attachment D.</p> |
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Source: MDBA, NSW and Victorian Governments (2017) Enhanced Environmental Water Delivery Project, Summary table p44

The 20,000 ML/day level reflects the Victorian government's position on the EEWD project and constraints measures, which aims to:

*Address in-channel constraints to the delivery of higher flows of up to 20,000ML per day at Shepparton.*⁵

⁴ MDBA, (2017), *Enhanced Environmental Water Delivery*, <https://www.mdba.gov.au/sites/default/files/pubs/enhanced-environmental-water-delivery-amendment-2.pdf>

⁵ Victorian Government (2017) *Fact Sheet 3: Constraints and Enhanced Environmental Water Delivery project*, https://www.water.vic.gov.au/_data/assets/pdf_file/0026/83564/Fact-Sheet-3-Final-2.pdf

This issue is important in the region as levels above 20,000 ML/day are likely to flood landholders. It appears that authorities are trying to have it both ways – modelling high flows to improve the Ecological Equivalency scores in the Goulburn and the Murray Rivers, but low flows when communicating the business case of the project to affected communities. In my view, the modelling to support the EEWD project does not represent the Supply Measure project, as required in Schedule 6 of the Basin Plan.

NORTHERN BASIN REVIEW AND S6.06(3) AND S6.06(6)

The Basin Plan's s6.06: *Reviews of the Basin Plan* gives MDBA the ability to review the SDLs.⁶ I believe that the Northern Basin Review was not undertaken in accordance with either s6.03 or s6.06 of the Basin Plan.

The Northern Basin Review does not comply with the requirement to consider climate change, as set out in s6.06(3):

A review must be undertaken having regard to the management of climate change risks and include an up-to-date assessment of those risks, and consider all relevant knowledge about the connectivity of surface and groundwater, the outcomes of environmental watering and the effectiveness of environmental works and measures.

The MDBA used the same hydrological modelling in the Northern Basin Review that was used for the original Basin Plan. That modelling is based on available historical data and does not include climate change. I am not aware of any work on climate change that informed the Northern Basin Review amendment. The Northern Basin Review report's climate change section is only three paragraphs long, with no references. It is reproduced in its entirety here:

Climate change

Studies in the Basin over the last 10 years have shown that changes in climate could have a significant impact on water resources. There is a large degree of uncertainty around whether a wetter or drier future will eventuate, particularly in the northern Basin.

The Authority's consideration of the northern Basin SDL has also been informed by the Basin's long-term climate record covering a 114-year period. This long-

⁶Basin Plan (2012), s6.06(1)

term dataset includes considerable natural climate variability from very wet periods to three prolonged droughts, including the Millennium Drought.

The Basin Plan takes an adaptive approach to climate change. This means that the uncertain effects of climate change are shared between all entitlement holders, including the environment. The Authority considers this approach is appropriate to the adjustment of the northern Basin SDL.⁷

In my view, the approach to climate change is not adaptive management and does not meet the definition of adaptive management included in the Basin Plan:

Adaptive management is taken to include the following steps:

- a) Setting clear objectives;*
- b) Linking knowledge (including local knowledge), management, evaluation and feedback over a period of time;*
- c) Identifying and testing uncertainties;*
- d) Using management as a tool to learn about the relevant system and change its management;*
- e) Improving knowledge;*
- f) Having regard to the social, economic and technical aspects of management.⁸*

The Northern Basin Review did not consider all relevant policy arrangements as required in s6.06(8):

The Authority must ensure that each review considers all relevant information about the SDL resource units to which the review relates, including modelling, State planning and policy arrangements, and an evaluation of the appropriateness of any precautionary factors associated with setting the long-term average sustainable diversion limits for the units.

⁷ MDBA (2016) *The Northern Basin Review*,
<https://www.mdba.gov.au/sites/default/files/pubs/Northern-basin-review-report-FINAL.pdf>

⁸ s3, Basin Plan 2012

The MDBA did not include the rules under the Barwon-Darling Water Sharing Plan in its hydrological modelling for the Northern Basin Review. The Barwon-Darling Water Sharing Plan was created in 2012, and allowed large scale pumping in the very low flow range (A Class window). Prior to the 2012 Water Sharing Plan, pumping from the A Class window was restricted to small volumes, to ensure low flows throughout the river for the environment and downstream users. The new rules have created a significant impact on flows below Bourke.

All Water Sharing Plans are underpinned by a gazetted hydrological model, which include the Water Sharing Plan rules and conditions. The MDBA did not use the 2012 Barwon-Darling Water Sharing Plan model, so they did not model the actual water extraction rules in the Barwon-Darling.

MDBA defended not using the 2012 Water Sharing Plan model in their Northern Basin Review report, which states:

The Basin states continue to refine and develop their models to improve their representation of reality. Consideration was given to the updated models developed by jurisdictions since 2012, and some of these models were adopted for the Northern Basin Review. Other models were not adopted due to the following reasons:

- 1. Insufficient time to ensure that any changes to the Baseline Diversion Limit were verifiable as the new versions of the models had not been audited or assessed (e.g. new Barwon-Darling model was not received until June 2016).⁹*

However, the Barwon-Darling hydrological model used in the Northern Basin Review is also an unaccredited model. It was audited and assessed for accreditation in 2011. The auditor said it had 'significant shortcomings' and given only provisional accreditation until December 2014, to give NSW time to address those shortcomings.¹⁰ Those issues were never fully addressed, and the provisional accreditation lapsed.¹¹ That is, the Barwon-Darling model used in the Northern Basin review has never been satisfactorily verified by an audit or assessment.

⁹ MDBA, (2017), *Hydrological Modelling for the Northern Basin Review (page 10)*, <https://www.mdba.gov.au/sites/default/files/pubs/NB-modelling-report.pdf>

¹⁰ MDBA, (2014), *Response to NSW: Accreditation of the NSW Cap Model*, Documents obtained by the Australia Institute under Freedom of Information

¹¹ MDBA, (2014), *Response to NSW: Accreditation of the NSW Cap Model*, Documents obtained by the Australia Institute under Freedom of Information

With respect to timing, MDBA stated that it undertook new modelling in the last weeks before the review was finalised, and this was the basis for changing its estimates of the impact of the increased SDL into South Australia several times in those last weeks.^{12,13} This is described in more detail in The Australia institute's report *Northern Disclosure* and later in this submission under 'Changing the impact on South Australia'.¹⁴

THE RE-ALLOCATION OF SDLS BETWEEN VALLEYS

Each valley has a water recovery target based on an in-stream contribution and a shared contribution. The in-stream target is meant to represent the water required to meet environmental targets in that river and the shared target is that river's contribution to environmental targets in downstream rivers.

Provisions in the Northern Basin amendment and the Water Act amendment provide for the shared contribution to be reallocated between valleys in a State, based on the location of where water was acquired.

The SDLs are required to reflect environmentally sustainable levels of development, based on best available science.¹⁵ However, environmental water is acquired not on the basis of sustainability or science, but on who is willing to sell it to the Commonwealth. Therefore, changing SDLs based on the location of water purchases will mean that the SDLs do not reflect an ESLT or best available science.

The Australia Institute has written two reports that go to this matter: *It's not the science, it's how you use it...* and *Moving Targets*.^{16,17} We also raised this in our submission on the Water Act Amendment.¹⁸

¹² MDBA (2018), *Response to Questions on Notice no158 and 165 to the Rural and Regional Affairs and transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

¹³ Phillip Glyde, (25/05/2018), *Response to Rural and Regional Affairs and transport Committee Senate Estimates*, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=ld%3A%22committees%2Festimates%2F5959a809-e377-47f0-aacc-d2f330bfb1f%2F0001%22>

¹⁴ Slattery and Campbell, (2018), *Northern Disclosure*, <http://www.tai.org.au/content/northern-disclosure-rubbery-figures-murray-darling-basin-plan-review>

¹⁵ Water Act 2007, s21(4)(b)

¹⁶ Slattery and Campbell, (2018), *It's not the science, it's how you use it...*, <http://www.tai.org.au/content/its-not-science-its-how-you-use-it>

¹⁷ Slattery and Campbell, (2018), *Moving Targets*, <http://www.tai.org.au/content/moving-targets-barnaby-joyce-warrego-valley-buybacks-and-amendments-murray-darling-basin>

¹⁸ Slattery and Campbell, (2018), *Inquiry into Water Amendment Bill 2018: Submission*, <http://www.tai.org.au/content/submission-inquiry-water-amendment-bill-2018>

Reallocating the shared contribution between valleys also allows for the optimisation of the Environmental Equivalency scoring and the Limits of Change in the SDL adjustment process.

AMENDMENTS WITHOUT CONSULTATION

The Northern Basin amendment include provisions to reallocate SDL's between valleys, based on the location of water recovery (s6.05: *Redistribution of shared reduction amounts at request of Basin States*).

The SDL Adjustment amendment include amendments to Schedule 1 and Schedule 6A of the Basin Plan. The amendments include a method to amend the SDL based on future water recovered through efficiency measures.

Neither of these amendments were made available for public consultation, as required under s47 of the Water Act.

TURNING OFF PARTS OF THE BASIN PLAN

MDBA has interpreted s6.14: *Risks arising from other changes to the Basin Plan* of the Basin Plan as overriding any other requirements of the Basin Plan. When developing the Water Resource Plans, if the States can demonstrate that a provision in the Basin Plan caused an impact on reliability, then s6.14 would 'turn off' or 'override' that Basin Plan requirement. The interpretation of reliability poses risks to the environmental management of the Basin, as the Plan's environmental watering requirements can be easily 'turned off'.¹⁹

The interpretation of s6.14 also seems to override the objects of the Water Act (s3). s6.14: *Risks arising from other changes to the Basin Plan* states:

Nothing in the Basin Plan requires a change in the reliability of water allocations of a kind that would trigger Subdivision B of Part 2 of the Act.

There are many different interpretations of reliability. A traditional definition of reliability is the annual long-term average amount of water available against a water licence, calculated as a percentage of the nominal volume of the licence.

¹⁹ MDBA, 2016, *Basin Plan Water Resources Plan Requirements Position Statement 1H – Potential Reliability Changes*, https://www.mdba.gov.au/sites/default/files/pubs/WRP-Position-Statement-1H-Changing-reliability_0.pdf

MDBA has developed policy 'Position Statements' on how it will apply Basin Plan requirements when accrediting the Water Resource Plans. These are intended to advise States how MDBA will interpret the Basin Plan when accrediting the Water Resource Plans. The s6.14 Position Statement says:

the operation of s6.14 means that a WRP need not include new rules to give effect to particular requirements of Chapter 10 if it is not possible to include such rules without causing a change in reliability. Sections of the Basin Plan where this may become relevant include s10.17 (Priority environmental assets and priority ecosystem functions), ss10.18 - 10.21 (Groundwater) and s10.26 (Planning for environmental watering).²⁰

A statutory definition of reliability does not exist, and there are several ways reliability can be measured. Reliability measures have been used for decades to test the impact of policy or operational changes. When I last participated in this debate, MDBA had developed a new reliability method that is absurdly sensitive and narrow, called 'Allocation v exceedance v time'. If this measure was used, any small change to water management could show a negative impact on reliability and justify the 'turning off' of the offending part of the Basin Plan. There was no materiality test of reliability. That is, a 5ML impact in October that was rectified in November, would be assessed as an unacceptable impact on reliability.

Importantly, this test requires assumptions relating to the timing of water allocations made through a year. These are modelling assumptions only and outside both the Water Resource Plans and the Basin Plan. As such, this test is highly susceptible to manipulation.

This measure of reliability is without precedent and has never before been used by hydrological modellers or policy makers.

Some of the MDBA Senior Executive Service (SES) considered that the Basin Plan could subject the Commonwealth to future liability arising from a demonstrated impact on reliability. Further, that potential liability should be avoided at all costs. I unsuccessfully advocated that MDBA undertake a risk assessment of the likelihood of that liability occurring and the likely cost, before adopting a position that could negate key parts of the Basin Plan.

²⁰ MDBA, 2016, *Basin Plan Water Resources Plan Requirements Position Statement 1H – Potential Reliability Changes*, https://www.mdba.gov.au/sites/default/files/pubs/WRP-Position-Statement-1H-Changing-reliability_0.pdf

My view is that the:

- interpretation of s6.14 is incorrect and it is not a reading down provision;
- one section in a regulation (the Basin Plan) cannot override its parent legislation (the Water Act);
- the definition of reliability selected is unreasonably sensitive and restrictive and will result in any changes to the Water Resource Plans failing the reliability test, and therefore 'turn off' Basin Plan requirements. Modelled environmental watering is highly likely to show an impact on other users' reliability under this test;
- the definition of reliability proposed is without precedent anywhere in the industry over the last 30 years; and
- the Commonwealth has invested \$13bn in the reform, and environmental watering is critical to that reform. Any potential liability would have to exceed the Commonwealth's investment to justify turning off key aspects of the reform, such as the environmental watering provisions.

Protection of environmental water

The modelling that informed the Basin Plan included assumptions that environmental water would be used as efficiently and effectively as possible. One of these is that environmental water can be used throughout a river and between rivers and be protected from extraction. MDBA estimated that the impact of not having these policies would require an additional 1,370GL in the Murray alone.

The SDL adjustment process was negotiated very late in the development of the Basin Plan. MDBA included provisions to ensure that the States could not get an SDL adjustment without first achieving the outcomes assumed under the Basin Plan modelling. This is set out in s7.15 under Unimplemented Policy Measures, which form part of the SDL adjustment calculation.

The Unimplemented Policy Measures include two policies, one of which is to protect environmental water from extraction. These policies are required to be implemented by 2019, where there is a supply measure. If MDBA determines that the policies will not be implemented, the SDL adjustment calculation should reflect the impact of not protecting environmental flows. That is, if these policies were not implemented, none of the potential 650 GL supply contribution to the SDL adjustment would be available.

During my time at MDBA, there was very strong, sustained resistance by some of the SES against the implementation of policies to protect environmental water, particularly outside the Southern Connected part of the Basin. In the Northern Basin, there are no policies in place to protect environmental water from extraction for irrigation. That is, Commonwealth Environmental Water (CEW) can be legally extracted for irrigation.

A view was taken within MDBA that the unimplemented policy measures should not apply to the Menindee supply measure proposal. My view was that s7.15 required environmental water to be protected into Menindee (ie., along the Barwon-Darling River). That would require environmental flows to also be protected through the tributaries than run into the Barwon-Darling. Some of the SES were adamant that the unimplemented policy measures did not apply to the Menindee supply measure. I am not aware that MDBA ever obtained legal advice on this interpretation.

In 2015, NSW submitted a draft implementation plan to MDBA, which outlined how they intended to implement the unimplemented policy measures. It was my section's responsibility to assess the adequacy of that plan. That draft was explicit about NSW's intent to implement policies to protect environmental water in all valleys, including in the Northern Basin. NSW officers presented the draft plan to my section and it was clear to me that they believed the Basin Plan required them to implement the unimplemented policy measures in all NSW valleys. I understood that NSW had received legal advice before reaching this conclusion. The MDBA SES group later amended the NSW draft plan and made it clear that the unimplemented policy measures did not need to be implemented in the Northern Basin, and were only required in two valleys – the Murrumbidgee and the Murray. None of those SES had any formal role in the assessment of the Unimplemented Policy Measures.

If environmental water is not protected, it can be extracted for irrigation and therefore underwrites the reliability of water licences held by irrigators. MDBA gave a presentation to the National Irrigators Council in around 2015 that showed how much environmental water subsidises other water licence holders. The NSW Irrigators Council flagged concerns with its members that the protection of environmental water (also referred to as shepherding) will diminish the value of irrigators' water licences. The NSW Irrigators Council CEO wrote in the Council's newsletter:

The fundamental importance of how the NSW Government responds to its consultations with the irrigation sector on the Water Reform Action Plan (WRAP) was reinforced by the emergence late last week of the Australian Bankers Association, expressing its serious concerns with the potential impact of the Draft Exposure Bill should it find its way into legislation in its current form. The concerns of the bankers – shared by NSWIC – is that the measures being considered for the shepherding of environmental water may erode the value of irrigator water rights and reduce the collateral value of entitlements as security for loans. There was sufficient alarm within the ABA over the possible impact on the value of irrigator entitlements (and therefore the value of the banks' loan books) for the ABA to request (and be granted) a short extension of time to lodge its own submission on the WRAP proposals and the Exposure Draft Bill. We understand the Association lodged a submission with the Department of Industry on Monday, after we discussed the downside risks with its Executive Director of Regulation and Legal, Ian Gilbert, late on Friday and again on Monday.²¹

²¹ NSW Irrigators Council, (20 April 2018), *Weekly update from the NSW Irrigators Council*

If environmental water is not protected from extraction, significantly more water is required to achieve the levels of environmentally sustainable levels of take. Additionally, it is a perverse policy outcome for the \$3bn of taxpayer funded environmental water portfolio to underwrite other water holders' reliability, rather than being used for its intended purpose.

DATA CUBE

Before I left MDBA I initiated and led a project that explored the feasibility of using a satellite imagery product developed by GeoScience Australia called Data Cube. The project tested if Data Cube could track environmental water flows. The project was experimental and not initiated as a compliance exercise. It was not intended to gather evidence of the legality of water take.

We initially intended to examine environmental flows in a river where the total flow peak could be attributed to water originally owned by the Commonwealth Environmental Water Holder (CEWH). Almost immediately, it was clear from the hydrograph that there were unexpected decreases in river flows. The satellite imagery showed water in irrigation channels, including during periods of a river embargo and other times when it was illegal to pump; dams filling and emptying; watering of paddocks, paddocks greening and then browning off.

In addition to the satellite images, the project also examined hydrographs, the area under production and estimated water use per hectare, and observed flows against modelled flows. All the information was consistent with the volume of decreased flows in the river.

The project then examined water access licenses, trade information and estimated water available in the water accounts. That information indicated that despite the timing of water taken, the estimated extractions exceeded our estimations of the total possible account balance.

The assumptions and conclusions were checked with GeoScience Australia, the Executive Director of River Management (David Dreverman), MDBA hydrological modellers, the MDBA Socio-Economic director, the MDBA Trade director (Acting), and against Monsanto records available to the MDBA. The satellite images were also discussed with local people who confirmed our interpretation of the images.

MDBA was independently receiving allegations of illegal take and structures at the same properties from community members, including a member of its Northern Basin Advisory Committee.

No accusations of water theft or other illegality were made in the draft report that I oversaw. However, in my view, it was implausible that any knowledgeable reader would fail to reach the conclusion that water was extracted illegally, based on the combined evidence.

Several of the MDBA's senior executive team were highly critical that the project was pursued. I reported to David Dreverman (Executive Director, River Management) who urged me to finalise a report on the project before "they shut us down." I understood "they" to be the senior executive team.

I was offered a secondment with the Commonwealth Environmental Water Office (CEWO) in July 2016, before the project was finalised. I enquired with the responsible MDBA project officer about the status of the project from CEWO in late 2016 or early 2017, and was told it was not being pursued to 'avoid upsetting NSW'.

In June 2017, MDBA published a very abridged version of the work undertaken, with a reduced temporal and physical scale; no other lines of evidence; and selective poor-quality images.²² This was just before the Four Corners program 'Pumped' aired in July 2017. Shortly before the Datacube report was published, I know that Mark Taylor (CEWO) became aware that the Datacube was part of the Four Corners investigation. Datacube work. When MDBA published the Datacube report, I assumed that Mark had passed that information onto MDBA, who published the report as part of a damage control measure before Four Corners aired.

²² MDBA, (2017), *Identifying locations and timing of water extractions in the Barwon-Darling using remote sensing data*, <https://www.mdba.gov.au/sites/default/files/pubs/Data-cube-report.pdf>

Manipulation of water recovery numbers

Published figures on water recovery overstate the actual volume of the Commonwealth Environmental Water Holder's portfolio. The overstatement has occurred by:

- manipulation of cap factors to reach water recovery targets;
- recovery based on savings through the efficiency program that are not verified;
- purchases that will not contribute the stated volumes to the environment; and
- the purchase of water for the environment that was already included as environmental water in the Baseline Diversion Limit.

MANIPULATION OF CAP FACTORS

Cap Factors are defined as the average volume of water that can *actually* be taken under a licence, share or entitlement, compared to the *nominal volume* of the licence, share or entitlement. Cap factors represent government assessments of the long-term security of water supply. Among other things, Cap Factors are used to determine water recovery targets. They are equivalent to an exchange rate, allowing comparison between different entitlement types and between different river valleys.

MDBA and NSW have recently finalised Cap Factors to finalise the water recovery targets.²³ The Cap factors should also have implications for the Baseline Diversion Limit (BDL) model and compliance with the Sustainable Diversion Limit (SDL). This is discussed later in this document.

²³ NSW Department of Industry, (2018), *Water Reform Technical Report: Derivation of LTDLE factors in NSW*, https://www.industry.nsw.gov.au/data/assets/pdf_file/0019/162181/technical-paper-ythe-derivation-technical-factors-nsw.pdf

The effect of the changed Cap Factors is an increase in the 'value' of water recovered in the Macquarie and Gwydir valleys. The new Cap Factors result in an additional 19,948 megalitres being counted towards the water recovery target in the Macquarie Valley. The new Cap Factors result in an additional 7,797 megalitres towards the water recovery target in the Gwydir valley. These valleys are now considered 'over-recovered.' The Macquarie Valley was under-recovered until the revised Cap Factors and SDL adjustment.

The Northern Basin Review report flagged that this 'over recovery' could be returned to irrigation.²⁴ MDBA has also proposed to state managers of environmental water, and some wetland managers, that the environment may keep the 'over recovered' amount if those stakeholders agree for the water to be rebadged as efficiency savings to count towards the 450 GL 'up water'.²⁵ The Deputy Prime minister was advised in November 2016 that the over recovery in the Macquarie would increase to 28 GL after NSW finalised their cap factors.²⁶ NSW did not finalise their Cap Factors until May 2018.²⁷

I am concerned that this exercise is an attempt to demonstrate that water recovery targets have been met, when there has only been a change to Cap Factors.

PURCHASES THAT WILL NOT CONTRIBUTE THE STATED VOLUMES TO THE ENVIRONMENT

There are several examples of water 'recovered' for the environment that provide inconsistent figures for, or overstate the amount actually recovered. I have listed some examples here, but this is likely to be an understatement:

- Lower-Darling purchase (21.9 gigalitres)
- Condamine-Balonne purchase (29 gigalitres)
- Warrego purchase (10.6 gigalitres)

²⁴ MDBA, November 2016, *Northern Basin Review Report*

²⁵ MDBA General Manager – Eco hydrology, made this offer to Macquarie Marshes landholders and Office of Environment and Heritage staff on 15 November 2017.

²⁶ Russell James, (2016), *Email to Deputy Prime Minister's Office: MDBA Brief on Northern Basin Review outcomes*, Documents obtained by the Australia Institute under Freedom of Information

²⁷ Department of Industry, (2018), *derivation of LTDLE factors in NSW*, https://www.industry.nsw.gov.au/data/assets/pdf_file/0019/162181/technical-paper-derivation-technical-factors-nsw.pdf

Lower-Darling purchase

The Commonwealth purchased 21.9 gigalitres of water from a property called Tandou, in the Lower Darling. The justification for the purchase to the former water Minister, Barnaby Joyce, from the Department of Agriculture and Water Resources, stated that the purchase creates a water saving, because it no longer needs to be delivered:

*Following decisions by the NSW government to service Broken Hill's water supply via a pipeline from the Murray river, the potential scale of any Menindee project and associated volume of potential offsets would increase significantly, if NSW was no longer required to service Lower Darling water entitlements currently held by Websters Ltd and used at Tandou and those held by (redacted). This would primarily arise from removing the need to store significantly higher volumes of water in the Lakes to service the entitlement.*²⁸

However, this water is transferred to the Commonwealth Environmental Water Holder and should retain the same security of supply after the sale, as it did before the sale.²⁹ The purchase is counted towards the water recovery target based on its historic reliability. If that reliability is reduced or removed, the water entitlement will not contribute the same amount to the water recovery target and the progress towards water recovery will be overstated.

Condamine Balonne purchase

The Commonwealth purchased 29 gigalitres of Over Land Flow (OLF) licences in the Lower Balonne at two properties – Kia Ora and Clyde. The Australia Institute's report *That's not how you haggle...* explains this purchase in more detail.³⁰ There are two reasons why this water should not count towards the water recovery target:

- OLF licences are attached to land; and
- There has been no decommissioning of levee banks.

²⁸ Department of Agriculture and Water resources, 21/03/17, *Minute to the Minister: Maximising outcomes from the Menindee Lakes project*, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=ld%3A%22publications%2Ftabledpapers%2F588a4b32-df56-4a7f-98d4-688922e9c30a%22>

²⁹ Cl. 5.2, *Intergovernmental Agreement on Implementing water Reform in the Murray-Darling Basin*, (2013)

³⁰ Slattery and Campbell. (2018), *That's not how you haggle...*, <http://www.tai.org.au/content/thats-not-how-you-haggle>

OLF licences are attached to land and only exist at the property where they have been created. There is no legal recognition over this water, if it should ever be allowed to leave the property the licence is attached to.

OLF licences are captured and retained on a property by levee banks. The Commonwealth did not undertake any negotiations for the levee banks at Clyde to be decommissioned. That is, with the existing infrastructure, the water will still be captured on that property.

Both Kia Ora and Clyde are currently for sale. The marketing material references the existing infrastructure and the capacity for further development.³¹ There are no conditions on the sale for the future decommissioning of the levee banks.

I believe that this purchase will overstate the amount of water recovery, as the water will remain on the property because the levee banks have not changed. If the water could get off the property, the Commonwealth Environmental Water Holder has no legal recognition over it.

Warrego purchase

The Commonwealth purchased 10.6GL in the Warrego valley. The Australia Institute's report *Moving Targets* describes the purchase in more detail.³² That purchase will count towards the Queensland shared recovery target, despite the Warrego rarely flowing into its downstream river, the Darling. The Department of Agriculture and Water Resources advised a Senate Committee that only 0.5 gigalitres of water from that purchase will reach the Darling over the long-term, and that is in very large floods.³³

Whilst the Warrego water might enhance environmental outcomes in the Warrego, it will contribute few, if any, environmental outcomes in the Barwon-Darling.

The SDLs modelled for the Northern Basin Review assumed the Queensland shared reduction was sourced from the Condamine-Balonne, which has a relatively high level of connectivity to the Barwon-Darling. Sourcing the shared reduction from the

³¹ Rawlin Briggs, Colliers international Australia (2015), *eastern Australia Agriculture – For sale*, <https://www.linkedin.com/pulse/eastern-australia-agriculture-sale-rawdon-briggs?articleId=6045753775308693504>

³² Slattery and Campbell, (2018), *Moving Targets*, <http://www.tai.org.au/content/moving-targets-barnaby-joyce-warrego-valley-buybacks-and-amendments-murray-darling-basin>

³³ Department of Agriculture and Water Resources, 2017, *Answer to Question on Notice 129 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

Warrego will result in a much lower contribution to environmental outcomes in the downstream Darling. That is, swapping the recovery from the Condamine-Balonne to the Warrego is not a one for one contribution to the water recovery target.

ENVIRONMENTAL WATER PURCHASES OUTSIDE BASELINE DIVERSION LIMIT (BDL)

The Baseline Diversion Limit (BDL) represents the level of extraction prior to the development of the Basin Plan. Water recovery is intended to reduce that level of extraction to a Sustainable Diversion Limit. If the Commonwealth purchases water that was not calculated in the BDL, then the recovery will not reduce extractions to meet the SDL. The Commonwealth has purchased water in the Murrumbidgee (Lowbidgee) that was not in the BDL.

The Commonwealth has purchased a total of 393.1 gigalitres of water in the Lower Murrumbidgee, in two purchases (Nimmie-Caira – 381 gigalitres, Cap factor equivalent 173 gigalitres) and (Redbank North - 12.1 gigalitres, Cap factor equivalent 5.4 gigalitres).

The Australian National Audit Office audited the Nimmie-Caira purchase and stated:

While the LTAAY from the 381 GL to be obtained under the project equated to 173 GL, only 133 GL was assessed by Environment as counting towards 'bridging the gap' targets as it considered that 40 GL was already committed to pre-existing environmental watering purposes.^{34, 35} This assessment has been contested by the NSW Government and is subject to further consideration in 2016.³⁶

That is, 40 GL of the 173 GL were not included in the BDL as an extraction. The MDBA has recently increased the BDL for the Murrumbidgee by 64 GL to recognise the full 173GL Nimmie-Caira purchase towards the water recovery target. ~~Changes to the BDL arising from this purchase are discussed further under It is my view that the independent audit of Cap / SDL should be reinstated and include:~~

- ~~o a professional auditor and undertaken in accordance with auditing standards~~

³⁴ The LTAAY is another acronym for Cap Factors

³⁵ 'Environment' refers to the Department of Environment

³⁶ ANAO, (2015), *Funding and Management of the Nimmie-Caira System Enhanced Environmental Water Delivery Project* <https://www.anao.gov.au/work/performance-audit/funding-and-management-nimmie-caira-system-enhanced-environmental-water>

Debited' by
M.S on 31/07/18; in evidence.
transcript 1173-1174
36.

- ~~published, multiple lines of evidence~~
- ~~published model accreditation reports~~
- ~~undertake a genuinely independent reviews of the annual Transitional Cap reports since 2011.~~

Changes to Baseline Diversion Limits.

Regarding the Redbank purchase, the Department of Agriculture of Water and Resources justified the purchase, in part, because it would increase irrigation. This is despite the intent of water recovery is to decrease irrigation:

*The Department maintains its position that pursuing the proposal should have a net benefit for the community as the proponent has already reduced their use of these entitlements, and would use proceeds of any sale to increase irrigation on their second property.*³⁷

It is possible that the purchase of the OLF licences in the Condamine-Balonne, discussed above, are another example where environmental water that was not in the BDL has been purchased.

WATER EFFICIENCY PROGRAM

The Commonwealth has committed to Bridging the Gap by investing in projects that improve the efficiency of irrigation and creating water 'savings'. The Commonwealth pays for 90% of the water efficiency project and the savings are shared equally between the Commonwealth and the irrigator. Efficiency projects are intended to reduce water losses from evaporation and seepage, and enable more precise and accurate application of water. They include lining irrigation channels to reduce seepage or deepening and narrowing dams to reduce their surface area and therefore evaporation. Fifty per cent of these savings become statutory water licences held by the Commonwealth Environmental Water Holder.

The water efficiency program is administered by the Department of Agriculture and Water Resources. I approached the Director of that section in early 2016 seeking information about the size of on-farm storages that were funded by the Commonwealth under the program. I was told that the Commonwealth keeps no records the size of on-farm storages either before or after the Commonwealth pays

³⁷ Department of Agriculture and Water Resources, (2016), *Minute to Water Minister: Unsolicited proposal to sell water: NSW Murrumbidgee (Lowbidgee) – Revised proposal*, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22publications%2Ftabledpapers%2F59682649-2fa2-43b1-955f-ae16caecef45%22>

farmers to change storages under the program. This was confirmed in 2017 with a new Director of that program, who also told me the Commonwealth does not verify the water savings under the efficiency program at any time.

After that conversation, I prepared the following summary of how the NSW efficiency program worked, from information available on the Department of Primary Industry website.³⁸ From a financial auditing perspective, the process appears to have significant internal control weaknesses. I understand that the Queensland Government runs a very similar process to the NSW Government. I have not double checked my summary or critique with anyone working on the program within government. However, I believe that my critique is entirely consistent with Chris Lamey's experience with the Queensland Healthy Headwater's Water Use Efficiency program, which I have investigated in some depth. I am assuming that Mr Lamey will give evidence to the Royal Commission, so I will not expand on those issues here.

NSW Sustaining the Basin Irrigation Farm Modernisation program

The NSW Sustaining the Basin Irrigation Farm Modernisation (STBIFM) program aims to recover water for the environment through water savings arising from efficiency measures. The program is funded by \$111m from the Commonwealth Sustainable Rural Water Use and Infrastructure Program (SRWUIP), with no contribution from the NSW government. Despite this, STBIFM is administered by NSW DPI Water.

Broadly, the prescribed process is:

- The applicant lodges a IFWUEA (Infrastructure Farm Water Use Efficiency Assessment) which has been certified by a IFWUEA consultant;
- The IFWUEA consultant must be accredited;
- Bodies that can accredit a IFWUEA consultant include:
 - o Irrigation Australia Limited - Certified Irrigation Designers with relevant speciality,
 - o Irrigation Australia Limited - Certified Irrigation Agronomist,
 - o Irrigation Surveyors and Designers Group - corporate member,
 - o Ag Institute Australia - AgCreditation,
 - o Crop Consultants Australia Association - Professional Consultant
 - o Engineers Australia
- The applicant & Department of Industry enter into a funding agreement;
- The water access licence is transferred on finalisation the funding agreement;

³⁸ <https://www.dpi.nsw.gov.au/agriculture/irrigation/sustaining-the-basin>

- Milestone payments are made in advance of the work being undertaken;
- A final report is prepared by the IFWUEA and lodged with DPI (round nine only);
- The requirement to have a compliant meter was removed for the round nine (current) funding.³⁹

Weaknesses in the process:

- There is no independence in the accreditation process: Many of the accreditation bodies are not independent from their members and have a vested interest in seeing projects approved;
- There is little to no relevant technical or hydrological pre-requisite qualifications for a consultant;
- There doesn't appear to be any recourse if the IFWUEA consultant or accreditation body is found to be incompetent or fraudulent;
- The assumed water savings are transferred before the project is completed
- The actual water savings are never verified;
- There doesn't appear to be any dispute resolution if the infrastructure is not completed in accordance with the IFWUEA or if the savings aren't realised;
- It is not clear what ramifications there are if the final report is not lodged;
- There doesn't appear to be a requirement to prepare a final report under rounds one to eight.

Projects that increase water extraction

The Basin Plan reforms include water efficiency projects that aim to capture, transport and store water for irrigation more efficiently and thereby reduce the amount of water needed for irrigation. However, some water efficiency projects will actually increase water used for irrigation.

This is an extract of an Environmental Impact Statement to build two new dams to hold 7 GL of water in the Murrumbidgee valley, which was funded by the Commonwealth's efficiency program:

The Department of Environment developed the "On-Farm Irrigation Efficiency Program" as part of the Murray Darling Basin Plan to improve on-farm use of river water in exchange for a buy back scheme for general security water held by irrigators along the Murrumbidgee River.

Kooba Ag submitted a project proposal for Bringagee to undertake a significant modernization of the farm involving field and infrastructure redevelopment with the outcome being a significant improvement in water application efficiencies

³⁹ <https://www.dpi.nsw.gov.au/agriculture/irrigation/sustaining-the-basin>

and strategic use of available water resources. The project included two new irrigation storages, mainly NSY and Volunteer storages. The two storage sites are located within existing irrigation development.

The proposed NSY storage would cover an area of approximately 100 Ha for the storage of 4,000 ML. Volunteer storage aims to cover an area of approximately 73 Ha for a storage capacity of approximately 3,000 ML.

The primary purpose of both storages is to hold supplementary flow water when the opportunity arises to access this water. Access to this water rarely coincides with ideal irrigation schedules. Water captured in the storages can be irrigated at a later date to optimize irrigation application when crops demand the water. The resulting water use efficiencies can be significantly improved as a result of improved management of water applications.⁴⁰

Supplementary water was originally called 'surplus flows' and was defined as water in the river 'surplus' to users' requirements. It is an old term dating from the days when only extractive use was considered a valid demand on water in the river. The reason that supplementary water does not coincide with irrigation schedules is because it is caused by high rainfall, which, in the Southern Basin, is typically in the spring when active irrigation is low. When storages are built to store supplementary water, more water will be extracted for irrigation, not less.

Environmental watering will be less effective if there is a one for one swap between general security water and supplementary water. It is considered best practise for environmental water managers to use environmental water based on natural cues (such as rainfall) and try to add environmental water to supplementary flows.^{41,42} Supplementary water in the Murrumbidgee is very important for environmental watering in that river.

⁴⁰ SMK Consultants, (2017), *Environmental Impact Statement: Construction and operation of two irrigation storages on 'Bringagee'*, <http://www.carrathool.nsw.gov.au/sites/carrathool/files/public/images/documents/carrathool/Planning/Public%20Exhibition/DA2018-010%20Ad%20Bringagee%20EIS.pdf>

⁴¹ MDBA, (2013), *Constraints Management Strategy*, <https://www.mdba.gov.au/publications/mdba-reports/constraints-management-strategy>

⁴² MDBA, (2015), *Basin-wide Environmental Watering Strategy*, https://www.mdba.gov.au/sites/default/files/pubs/Final-BWS-Nov14_0816.pdf

Anecdotal evidence

I have also heard anecdotes of:

- Some infrastructure projects were paid for, but not completed.
- Some project proposals differ substantially from what was actually completed.
- The area of land / crop type described in the proposal is different to the implemented project.
- Some expenditure has gone to what I consider to be operational costs, such as laser levelling paddocks.⁴³
- Farmers purchasing laser levelling and tractors to level their property and charge the Commonwealth at contracting rates.
- Payment being made on the basis of an invoice and a photo.
- Levee banks that were removed at Ballandool (Condamine-Balonne) when the Commonwealth purchased Over Land Flow licences have been reinstated.
- The Commonwealth paying as much as six times the market price for water in Victoria through the efficiency program.
- The Commonwealth pays at least a two-fold premium for water acquired under the efficiency program. Irrigators will re-enter the market to replace water they have transferred to the Commonwealth and still be ahead financially, with upgraded infrastructure.

⁴³ Parker, (2017), *Answer to the Rural and Regional Affairs and Transport Committee senate Estimates*, http://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/754cabf7-27c0-4eca-a99b-35b014222bee/toc_pdf/Rural%20and%20Regional%20Affairs%20and%20Transport%20Legislation%20Committee%202017%2005%2026%205122%20Official.pdf;fileType=application%2Fpdf#search=%22committees/estimate/754cabf7-27c0-4eca-a99b-35b014222bee/0000%22

Manipulation of Cap / SDL

CAP REPORTING

The Cap/SDL is the foundational feature of the Basin Plan. If Cap/SDL isn't adhered to, the ESLT will not be achieved, and the property rights of all water licence holders will be jeopardised. It is not an exaggeration to say that Cap/SDL is the lynchpin of the entire water reform.

The annual Cap target adjusts the long-term Cap limit for annual conditions. This makes provision for extractions to increase or decrease, depending on water availability. The annual cap target is determined by a hydrological model that in the past was independently accredited. Actual take that is lower than the Cap target generates a Cap credit, and take that exceeds Cap generates a Cap debit. These are cumulative and create cumulative Cap credits or debits.

MDBA prepared Cap reports annually 1997/98 until 2010/11. In 2011 the Cap process changed and the responsibility for preparing Cap reports within MDBA was moved to a new section. None of the staff with experience in preparing the Cap reports were transferred to the new section. The process to review the Cap reports also changed. Prior to 2011, there was good independent oversight of the Cap process, which included:

- The independent accreditation of Cap models.
- The Accredited Cap model reports made publicly available. These reports are a valuable reference that describe the model assumptions, key statistics (such as standard error) and recommendations for model improvements.
- An interjurisdictional group (Water Audit Monitoring Group) met regularly to scrutinise the Cap results. This ensured a joint government understanding and oversight and was a very effective quality control in the process.
- The annual Cap report was reviewed by the 'Independent Audit Group', which was comprised of independent experts.

My understanding of the current process is that:

- There is no independent accreditation of the hydrological Cap models. MDBA is negotiating changes to the SDL models directly with States, with no transparency outside that bilateral relationship.

- The States choose how environmental water will be reflected in the Cap, and this is different between States.⁴⁴
- The accredited Cap reports are no longer publicly available and were not made available to the Commonwealth Environmental Water Holder on request in 2017.
- The Water Audit Monitoring Group no longer exists.
- The Independent Audit Group no longer exists.

MDBA did not publish Cap reports for the 2011/12 year until August 2016.⁴⁵ The Cap reports for 2012/13 – 2015/16 years were published as a single report in November 2017.⁴⁶ The 2016/17 Cap report was published in June 2018.⁴⁷

The 2016-17 Cap report shows a basin wide Cap credit of 2,683 GL for the year and a cumulative cap credit of 19,242 GL. That is, MDBA are reporting the total under extraction by the irrigation sector in 2016-17 is higher than the total water recovery target. Since 2010, Cap credits have increased from 5,921 GL to 19,242 GL in 2016-17. Since 2010 the average cap credit is approximately 1,900 GL, or nearly the water recovery target each year. Figure 1 shows the cumulative cap credits for the Basin.

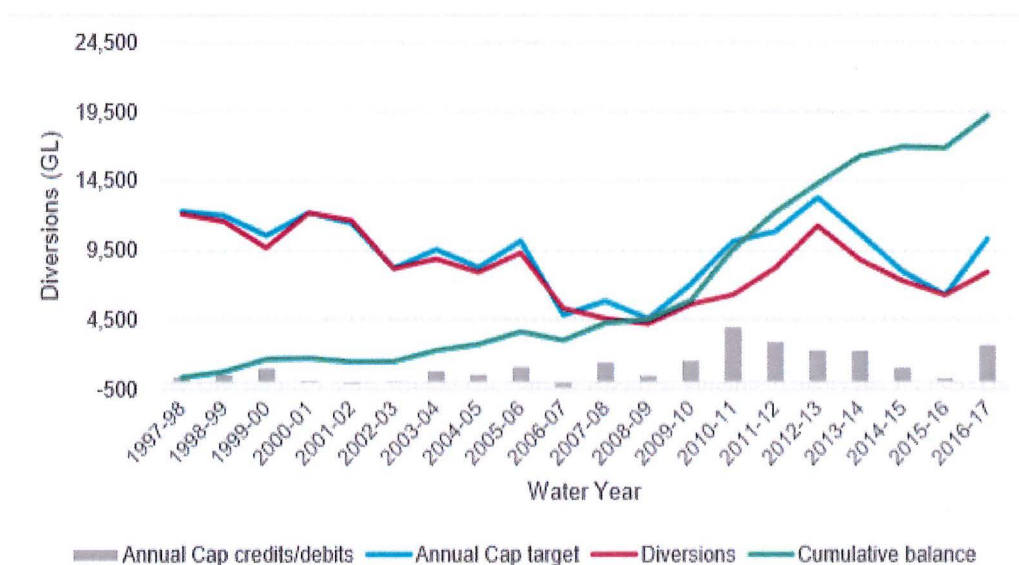
⁴⁴ MDBA, (2018), *Transition Period Water Take Report 2016-17, Appendix 6: State nominated methods for annualising environmental water recovery under the Cap on diversions*, <https://www.mdba.gov.au/sites/default/files/pubs/transition-period-water-take-report-2016-17.pdf>

⁴⁵ MDBA, (2016), *Water Audit Monitoring report 2011-12*, https://www.mdba.gov.au/sites/default/files/pubs/Water-audit-report-2011-12_0_0.pdf

⁴⁶ MDBA, (2017), *Transition Period water take Report 2012-13 to 2015-16*, <https://www.mdba.gov.au/sites/default/files/pubs/D17-49909%20transition-period-water-take-report-2012-13-to-2015-16-171122.pdf>

⁴⁷ MDBA, (2018), *Transitional Periods Water Take Reports 2016-17*, <https://www.mdba.gov.au/publications/mdba-reports/transitional-sdl-water-take-reports>

Figure 1 : Basin scale annual cap targets, annual diversions, annual and cumulative Cap balances 1 July 1997 to 30 June 2017



Source: MDBA, (2018), *Transitional Water Take Reports 2016-17*⁴⁸

Some years can produce unexpected cap credits or debits, in some valleys. There may be very valid reasons to explain the current cumulative cap credits, but in my opinion they have not been adequately explained by the MDBA to date.

The Cap Credits are intended to be extinguished by the introduction of the SDL in 2019, and reset to zero. I know that the irrigation sector has been advocating for the Cap credits to be rolled over and continue under the SDL. I also know that NSW has been very concerned that the new SDL requirements could trigger a breach of SDL (both legitimate breaches and breaches because of the model). Further, that NSW's major concern is that there is a growth in use. A high cumulative Cap credit carried over to SDL overcomes both of these problems.

In at least one valley, the cap credits are a result of changes to the Cap model. The Barwon-Darling has historically been continuously in breach of Cap, since its introduction in 1995.⁴⁹ The hydrological model that determines Cap for the Barwon-Darling was changed in 2012, which allowed for the Barwon-Darling to be Cap compliant and reversed a cumulative Cap debit into a healthy cumulative Cap credit

⁴⁸ MDBA, (2018), *Transitional Periods Water Take Reports 2016-17*, <https://www.mdba.gov.au/publications/mdba-reports/transitional-sdl-water-take-reports>

⁴⁹ Tony McLeod, (2014), *minute to Chief Executive Officer: Response to NSW, Accreditation of the Barwon-Darling Cap model*, Document obtained by The Australia Institute under a Freedom of Information request

(see also Northern Basin Review and s6.06). The Authority Board member, George Warne, wrote an email to the Authority Board about issues in the Barwon-Darling River, which said in part:

The cap credit issue in the Barwon Darling needs to be sorted by NSW in any future complying WRP (and NSW needs to know this). It is currently out of hand (my view), and effectively gives users a free kick in terms of access-to and using any water available, above quite a low flow threshold, for the foreseeable future.⁵⁰

The credibility of the Cap reports is critical to the credibility of the reform and the integrity of property rights attached to water licences. It is my view that the independent audit of Cap / SDL should be reinstated and include:

- a professional auditor and undertaken in accordance with auditing standards
- published, multiple lines of evidence
- published model accreditation reports
- undertake a genuinely independent reviews of the annual Transitional Cap reports since 2011.

CHANGES TO BASELINE DIVERSION LIMITS

MDBA have agreed to increase the Murrumbidgee BDL and the SDL by 64 GL. This was in response to a disagreement with NSW over recognising the full 173 GL of the Nimmie-Caira purchase towards the water recovery target, rather than the 133 GL advised by the ANAO. (See the Environmental water purchases outside Baseline Diversion Limit (BDL) section above).

NSW Department of Industry writes:

Under the Heads of Agreement: An Agreement supporting the Nimmie-Caira System Enhanced Environmental Water Delivery the Commonwealth and NSW agreed to a review by the MDBA of the Murrumbidgee SDL, taking into account the Nimmie-Caira purchase review in 2018 and has advised NSW that all entitlements acquired under the Nimmie-Caira purchase agreement contribute to 'bridging-the-gap'. The result of this review also:

- *Increases the estimate of the LowBidgee component of the Murrumbidgee BDL to about 279,000 ML/y*

⁵⁰ George Warne, (2016), *Confidential memo to the Authority members*, Obtained from Four Corners

- Increase the BDL for the Murrumbidgee SDL resource unit by about 64,000 ML/y
- Increase the estimate of the SDL for the Murrumbidgee SDL resource unit by the same amount and
- Increase the estimate of water recovery in the Murrumbidgee SDL resource unit by about 40,300 ML/y.⁵¹

This adjustment of the BDL, SDL and water recovery is summarised in the table below:

| | Basin Plan numbers (ML) | Revised numbers |
|------------------------------|-------------------------|-----------------|
| BDL | 215,000 | 279,000 |
| Water Recovery target | 133,000 | 173,300 |
| SDL | 82,000 | 105,700 |

The SDL has increased by 23,700 ML in addition to the disputed 40,300 ML of environmental water.

In the BDL, Water Recovery target and SDL equation, the governments are treating the Water Recovery targets as a constant. Therefore a change to the BDL will result in a corresponding change in the SDL. I think this is an incorrect interpretation of the Water Act, and the SDL should be the constant, as it is supposed to be based on a sustainable level of take. If the BDL changes, the water recovery target should change and not the SDL.

The original SDL was based on the Environmentally Sustainable Level of Take, 82,000 ML. If the SDL becomes a function of BDL minus Water Recovery (279,000 – 173,300), and adjusted to 105,700 ML, it can no longer represent the Environmentally Sustainable Level of Take.

CAP FACTORS AND THE SDL

MDBA and the NSW Department of Industry, Water have advised that the Cap Factors used for water recovery will not be the same as the factors that are used in the BDL. Because the BDL minus water recovery will equal the SDL, different cap factors between the BDL and water recovery will result in different factors again in the SDL.

That is, the ‘value’ of water in the BDL, water recovery and the SDL will all be different. My concern is this method will facilitate an increased SDL, which will permit growth in irrigation use without breaching the SDL.

⁵¹ NSW Department of Industry, (2018), *Water Reform Technical Report: Derivation of LTDLE factors in NSW*, https://www.industry.nsw.gov.au/data/assets/pdf_file/0019/162181/technical-paper-ythe-derivation-technical-factors-nsw.pdf

Changing the impact on South Australia

The Australia Institute's report *Northern Disclosure*, explains how the MDBA changed its estimate of the impact of the 70 GL increased SDL in the Northern Basin on flows into Menindee Lakes and South Australia several times in the last weeks of the Northern Basin Review. This appeared to be an attempt to placate the then South Australian Water Minister.⁵²

MDBA has refuted the report and has explained:

Draft MDBA reports from the 8th and 22nd of November 2016 contained initial estimates made prior to the completion of the 320 GL + toolkit scenario. The first estimate (20 GL/y to SA) did not include the benefits provided by the toolkit; the second set of numbers (5 to 10 GL/y to SA) included an estimate of the toolkit benefits, but the modelling process was still going through its final quality assurance process.

*The final numbers (7 and 4 GL/y to Menindee and SA respectively) were included in the addendum to modelling results published in November 2017.*⁵³

Since *Northern Disclosure* was published, more information has become available around this matter through a Freedom of Information request, Questions on Notice and Senate Estimates. I do not find MDBA's explanation of the changing numbers into South Australia plausible. I include this as an example of MDBA being creative with numbers to land a policy.

I have chronicled all relevant information at Appendix A.

MDBA say that the impacts into South Australia have reduced between their initial drafts and final report. This was achieved with a new hydrological model run that reflected targeted water recovery. However, the valley water recovery targets do not change between any of the draft (8 and 15 November 2016) and final (22 November

⁵² Slattery and Campbell, (2018), *Northern Disclosure*, <http://www.tai.org.au/content/northern-disclosure-rubbery-figures-murray-darling-basin-plan-review>

⁵³ MDBA, (2018), *Answer to Question on Notice 158 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

2016) Northern Basin Review reports, the Hydrological report (January 2017) or the Hydrological Modelling Addendum report (November 2017).

The impact on the flows into Menindee Lakes changed from 35 GL to 7 GL with minimal changes to the Specific Flow Indicators. I would expect that higher flows at the end of the system should result in higher flows in the Barwon-Darling, with a corresponding increase in meeting Specific Flow Indicators.

There is no reference to MDBA undertaking additional modelling in:

- correspondence with State officials (8 November 2016);
- the briefing to the Deputy Prime Minister (15 November 2016);
- the agenda paper to the Ministerial Council (18 November 2016);
- any internal correspondence around the finalisation of Northern Basin Review report (8 to 22 November 2016);
- the Hydrological Modelling Report (30 January 2017).

There are two accounts of which end of system numbers were provided to the Deputy Prime Minister on 15 November 2016. A MDBA response to a Question on Notice said that MDBA advised the Deputy Prime Minister an impact of 20GL on South Australia. However, documents obtained under a Freedom of Information request show that the Deputy Prime Minister was advised that the impact is 7GL into Menindee Lakes and 4 GL to South Australia.

I have not seen any evidence that explains why the draft Northern Basin Review report supposedly sent to the Deputy Prime Minister's office on 15 November 2016 had the final modelled end of system numbers, when the modelling was not quality assured until January 2017 and the final numbers were not included in the final Northern Basin Review report.

By MDBA's own account, the Authority did not have the final numbers before making their recommendation to the Minister. The Authority was advised verbally of the changed numbers on 8 November 2016, which was before the numbers were finalised.⁵⁴ It appears as though the Authority has never been advised in writing of the impacts into South Australia.

There are some current Questions on Notice that ask for more details on when the Authority was given the final information, and what that information was.

⁵⁴ MDBA, (2018), *Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

Independent and Peer Reviews

MDBA frequently says that its work is peer reviewed or independently reviewed.

The term 'peer review' as used by the MDBA is not consistent with peer review in academia where the reviewer/s are unpaid, not restricted to a terms of reference and the reviewer is anonymous. The MDBA uses the term peer review to describe reviews by a consultant, colleague or sometimes an inter-jurisdictional group of agency staff.

The term 'independent review' has always referred to a consultancy, as far as I am aware. MDBA selects the consultant, sets the terms of reference, frequently edits or influences the final report and pays the consultant. The terms of reference are intentionally restrictive. For example, some members of the Northern Basin Advisory Committee were very critical of the hydrological modelling used by MDBA for the Northern Basin Review.⁵⁵ MDBA agreed to undertake a review of the suitability of its hydrological modelling frameworks for use in the Northern Basin Review.⁵⁶ This review was a review of how the models were used and not a review of the models. The review:

- explicitly excluded the models themselves, as they were subject to previous reviews, such as the Cap accreditation process and the Fitness for Purpose Review;
- did not consider that the Barwon-Darling Cap model does not reflect the Barwon-Darling Water Sharing Plan (2012);
- was concerned with the appropriateness of the SDL model, compared to the BDL model; rather than the performance of the SDL model itself;
- concluded that the modelling for the Northern Basin Review was technically sound and fit for purpose, based on the rationale that it was based on the Basin Plan modelling, with enhanced automation of the environmental event selection. There was no acknowledgment that the Northern Basin Review was undertaken specifically because the Basin Plan had inadequate information for the Northern Basin.

There is a small pool of consultants that undertake multiple reviews for MDBA. This results in some consultants being used to 'independently review' their own work or work they have contributed to. For example, Brett Tucker, Peter Davies and Graeme

⁵⁵ The Northern Basin Advisory Committee were established under s203 of the Water Act to advise the MDBA in the Northern Basin Review.

⁵⁶ Bewsher Consulting Pty Ltd, (2016), *The Review of the Hydrological Modelling Frameworks used to inform Potential Basin Plan Amendments*, https://www.mdba.gov.au/sites/default/files/pubs/NB-review-hydrological-modelling_0.pdf

Turner were part of an independent review of the SDL Adjustment process, requested by Senator Rex Patrick. Brett Tucker and Graeme Turner also prepared Business Cases on SDL Adjustment project Business Cases. Brett Tucker and Peter Davies were also members of the independent review of the Limits of Change – one of the tests of the SDL Adjustment Mechanism. Peter Davies was also the MDBAs Scientific Advisor for many years and has presented MDBA policies internationally.

MDBA will also quote a peer or independent review in defence of its position, even if that review has dissenting findings, or MDBA did not follow the recommendations. For example, the Northern Basin Review report states:

*MDBA's use of hydrological models for the Northern Basin Review was specifically peer reviewed to ensure that it was robust and fit-for-purpose.*⁵⁷

CSIRO undertook an assessment of the models used for the water sharing plan implementation and Basin Plan scenarios to provide a qualitative assessment of their fitness for developing SDLs. This is referred to as the 'Fitness for Purpose Report'. Some of the conclusions from that report include:

*The models and methods used to develop SDLs for the MDB are considered to be world's best practise, given the scale of the modelling work and the time constraints. Peer review by water management committees, experts and part of the Murray-Darling Basin Sustainable Yields project, has found them adequate for their intended use (ie., developing water-sharing plans). However, in developing the SDLs the models may be pushed beyond levels of certainty with respect to water management rules and climatic conditions. Checks need to be instituted that models are not pushed beyond their limits.*⁵⁸

The same consultant that undertook the *Review of the Hydrological Modelling Framework used to Inform Potential Basin Plan Amendments* also did the independent accreditation of the cap models. With respect to the Barwon-Darling model, he wrote:

The Barwon-Darling IQQM (or its future SOURCE replacement) is a key model in the Basin as it links the various NSW and Queensland tributary models to the Murray/Lower Darling. The failure to improve the model's replication of flow

⁵⁷ MDBA, (2016), *the Northern Basin Review Report* pg 46, ,

<https://www.mdba.gov.au/publications/mdba-reports/northern-basin-review-report>

⁵⁸ Podger et. Al, (2010), *River System Modelling for the Basin Plan Assessment of fitness for purpose*, <https://www.mdba.gov.au/files/bp-kid/1534-Final-Fitness-for-purpose.pdf> (N.B: This report is no longer available on the MDBA website)

and diversion behaviour has the potential to discredit the hydrologic modelling capabilities not only with the Valley, but within the whole Basin.⁵⁹

The MDBA has quoted that the modelling is 'fit-for-purpose' despite the report warning that the models may be 'pushed beyond their limits' and the significant limitations of the Barwon-Darling model.

⁵⁹ Bewsher Consulting Pty Ltd, (2013), *Barwon-Darling Valley Independent Audit of Cap Model*, obtained by The Australia Institute under a Freedom of Information request

Conclusion

MDBA finds itself in an untenable position as a policy maker and a scientific organisation.

The roles of policy maker and an independent scientific organisation are an inherent conflict of interest. In 'landing the Plan', balancing the competing needs of the environment, social and economic interests results in unavoidable compromises and deals. These compromises are a political reality. Policy outcomes are only partly informed by science, let alone based solely on best science. I don't think it is possible to have a politically acceptable policy based solely on best available science. When political leaders decided a politically acceptable outcome MDBA tried to retrofit the science to support those outcomes.

'Landing the Plan' was too hard when the plan was agreed in 2012, so the final SDL was deferred to 2016 (which became 2018), to allow MDBA to conduct more 'science' through the Northern Basin Review and the SDL Adjustment Mechanism, and to discover that the environment needed less water. The original 'science' (and tools such as the hydrological modelling that weren't robust to start with), were further retrofitted to justify what I believe was always a forgone conclusion – an increase in the SDL and a decrease in water recovery targets by approximately 20%. If the Basin Plan was at first misguided in returning the Basin to environmentally sustainable levels of take; increasing SDLs based on the 'toolkit' and the 36 supply measure projects are an outright deception.

The pressure on Commonwealth bureaucrats to deliver the plan 'On Time and In Full' creates an additional dilemma. An important indicator of 'On Time and In Full' is finalising water recovery. There aren't enough willing sellers to achieve water recovery targets through buy-backs and water efficiency projects will not achieve the water savings originally envisaged. The directive from the former Commonwealth Water Minister was that water recovery should not have any impact on production, despite that being the original intent of the policy. So the task of water recovery is made harder again because it can't take water that wasn't already being used by the environment.

There is also the constant threat that the States will withdraw from the plan if they are pushed too hard by the Commonwealth. The bureaucratic logic was that a compromised plan is better than no plan, and Basin Plan 'Version 2' will address the compromises of Basin Plan 'Version 1.' That reasoning held, even if Basin Plan Version

1 made things worse than they were. MDBA senior executives would frequently talk about the risk that the organisation would not survive five years. These threats have hobbled MDBAs ability or willingness to be an effective regulator.

Finally, I think that the reaction the MDBA received in response to the 'Guide to the Basin Plan' deeply traumatised some staff. I think that the positions taken by some of the senior MDBA staff that were on the front line of the reaction to the Guide, can be attributed to that experience.

The examples I have raised in this submission are all manifestations of these pressures:

- Making amendments to the Basin Plan that are expedient, but unlawful;
- Interpreting the Basin Plan in a way that doesn't require environmental watering;
- Meeting water recovery targets on the books, but not in reality;
- Failing to pursue the protection of environmental water;
- Misleading the effects of the amendments, for example on South Australia;
- Claiming that work has been robustly peer or independently reviewed, when it was actually reviewed by paid consultants and managed by MDBA;
- A diminished confidence in the Cap reports.

My overarching concern is the distortion of numbers which no longer reflect the actual water. That poses a risk to the property rights of all water holders and should be a concern to taxpayers, regional communities, irrigators and environmental water holders.

We are roughly half way through the original \$13bn committed for the reform, with approximately \$6bn left to spend. It would be folly to replicate the mistakes of the first half of the money with the money we have left. Pursuing 450GL through efficiency projects will create another impossible target that is likely to result in dubious savings at great taxpayer expense.

RECOMMENDATIONS

I offer the following recommendations:

- Conduct a governance review, which includes:
 - safeguards to ensure that the Board and MDBA cannot be politically captured;
 - address MDBA's conflict of interest, for example: finalising the Basin Plan and regulating the Basin Plan;

- the accountability of the Board, including penalties for misleading or distorting science or hydrology;
- ensuring that the Board has the necessary set of skills and access to information and to make their recommendation.
- Reinstatement of independent funding to CSIRO.
- Professional accreditation of hydrology professionals, with a code of ethics and professional implications for distorting information.
- Establish a Water Auditing discipline with the professional accounting bodies, to build the capability of genuine audit of water regulation, which are bound by legal standards and an ethical code of ethics.
- Reinstatement of an independent audit of Cap / SDL that:
 - includes a professional auditor and undertaken in accordance with auditing standards;
 - requires published, multiple lines of evidence;
 - requires published model accreditation reports.
- Undertake genuinely independent reviews and publish:
 - the annual Transitional Cap reports since 2011;
 - the cap factors;
 - the SDL adjustment mechanism;
 - the water recovery portfolio;
 - an annual review of CEWH's use of e-water, including:
 - Loss rates applied and observed;
 - Satellite tracking of flows;
 - CEWH's wishes vs actual use, eg., Lower lakes & Coorong.

Appendix A: Changing estimates into South Australia

The Australia Institute's report *Northern Disclosure*, explains how the MDBA changed its estimate of the 70 GL increased SDL in the Northern Basin impact on flows into Menindee Lakes and South Australia several times in the last weeks of the Northern Basin Review, in what appeared to be an attempt to placate the then South Australian Water Minister.⁶⁰

MDBA has refuted the report and has explained:

Draft MDBA reports from the 8th and 22nd of November 2016 contained initial estimates made prior to the completion of the 320 GL + toolkit scenario. The first estimate (20 GL/y to SA) did not include the benefits provided by the toolkit; the second set of numbers (5 to 10 GL/y to SA) included an estimate of the toolkit benefits, but the modelling process was still going through its final quality assurance process.

The final numbers (7 and 4 GL/y to Menindee and SA respectively) were included in the addendum to modelling results published in November 2017.⁶¹

Since *Northern Disclosure* was published, more information has become available around this matter via a Freedom of Information request, Questions on Notice and through Senate Estimates. I still do not find MDBA's explanation of the changing numbers into South Australia plausible. I include this as an example of MDBA being creative with numbers to land a policy.

I have chronicled all relevant information below.

⁶⁰ Slattery and Campbell, (2018), *Northern Disclosure*, <http://www.tai.org.au/content/northern-disclosure-rubbery-figures-murray-darling-basin-plan-review>

⁶¹ MDBA, (2018), *Answer to Question on Notice 158 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

13 October 2016

MDBA responded to a Question on Notice:

At the meeting on the 13th of October 2016, the Authority examined all available material gathered during the review period and selected the 320 GLK + toolkit configuration for the proposed amendment. At this same meeting, The Authority requested that this configuration to be modelled, and it was given the label 'Scenario K'.⁶²

25 October 2016

MDBA responded to a Question on Notice:

Northern Basin Review hydrologic model scenario K was run between the 25th of October and the 9th of November 2016.⁶³

8 November 2016

Draft of the Northern Basin Review Report is sent to States (Northern Basin Senior Officials and Northern Basin Intergovernmental Working Group).⁶⁴ The correspondence flagged that the report described the Authority's decision at a high level and requested specific feedback on some sections. However, there was no reference to the MDBA undertaking additional modelling.⁶⁵

The Northern Basin Review draft report states:

The Authority's proposal is to reduce the northern basin water recovery target from 390GL to 320 GL, a reduction of 70GL. It is estimated that this will result in a 35 GL reduction to the inflows to Menindee Lakes, and average flows to South Australia may be reduced by 20GL. The Authority did not consider this scale to have a material impact on achieving Basin Plan outcomes in the southern basin.⁶⁶

⁶² MDBA, (2018), Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁶³ MDBA, (2018), Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁶⁴ MDBA, (2018), Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁶⁵ MDBA, (2018), Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁶⁶ MDBA, (2016), *The Northern Basin Review report pg 25*, Documents obtained by the Australia Institute under Freedom of Information

9 November 2016

Scenario model run K was completed (see 25 October 2016).

15 November 2016

Briefing notes on the Northern Basin Review outcomes are sent to the former Water Minister and include:

A draft of the overview report for the Northern Basin Review is at Attachment A and a draft Plain English summary for the amendment is at Attachment B (both subject to final edits).⁶⁷

Whilst MDBA flags that the Northern Basin Review report is subject to final edits, there is no reference to Scenario K or that MDBA was still undertaking its modelling.

A draft Northern Basin Review report is sent to the former Water Minister, Barnaby Joyce, which states:

*The Authority's proposal is to reduce the northern basin water recovery target from 390GL to 320 GL, a reduction of 70GL. It is estimated that **compared to Basin Plan settings this reduction, together with a targeted water recovery strategy, will result in a 7 GL reduction to the inflows to Menindee Lakes. Average flows to South Australia may be reduced by 4 GL. The Authority did not consider this scale to have a material impact on achieving Basin Plan outcomes in the southern basin.**⁶⁸ (Emphasis added to identify difference between this version and the 8 November version).*

Senator Hanson-Young asked the following Question on Notice:

The initial report of the Northern Basin Review: understanding the economic, social and environmental outcomes from water recovery in the Northern Basin suggested that the impact on flows into South Australia from the proposed 70 GL reduction in water recovery targets would be 20 GL. Was the embargoed report circulated to anybody outside the Murray-Darling Basin Authority?

⁶⁷ Russell James, (2016), *Email to Deputy Prime Minister's Office: MDBA Brief on Northern Basin Review outcomes*, Documents obtained by the Australia Institute under Freedom of Information

⁶⁸ MDBA, (2016), *The Northern Basin Review report pg 34*, Documents obtained by the Australia Institute under Freedom of Information

If so, could you please provide a copy of any written correspondence regarding the embargoed report to persons not employed by the Murray-Darling Basin Authority, as well as any covering letters?⁶⁹

MDBAs response:

The embargoed report was circulated to the Northern Basin Intergovernmental Working Group, the Northern Basin Senior Officials Group, the Deputy Prime Minister's Office, a contractor engaged to assist with the Northern Basin Review and the Chair of the Basin Community Committee.⁷⁰

The 8 November 2016 report has the 20 GL reduction referred to in the Question on Notice. MDBAs answer implies that the 8 November 2016 version was sent to the Deputy Prime Minister's office. However, this is different to the 15 November version released to The Australian Institute under a Freedom of Information request.

16 November 2016

A copy of the embargoed Northern Basin Review report is sent to Rory Treweweke, Chair of the Basin Officials Committee.⁷¹ It is not clear if Rory was sent the 8 November or the 15 November version.

18 November 2016

The Murray-Darling Basin Ministerial Council meeting is held and the Ministers are provided an update on the proposed amendments to the basin Plan, including the outcomes of the Northern Basin Review. The agenda paper did not include any reference to the MDBA undertaking additional modelling. The agenda paper says:

Under the Basin Plan the long term average flows to Menindee lakes are modelled to be in the order of 170GL/y. the proposed amended northern Basin sustainable diversion limits will result in this reducing by 20GL/y.⁷²

⁶⁹ MDBA, (2018), *Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁷⁰ MDBA, (2018), *Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁷¹ Russell James, (2016), *Email to Rory Treweweke, Chair of the Basin Community Committee*, Documents obtained by the Australia Institute under Freedom of Information

⁷² Russell James, (2016), *Agenda Item 5: Basin Plan amendments including Northern Basin Review*, obtained via email 9 July 2018

After the meeting, I was advised that the then South Australian Water Minister, Ian Hunt's summary of the meeting was that:

*he didn't have a view on the Northern Basin Review, so long as there were no net impact on flows in the southern basin. He was concerned that the MDBA were considering an option that might reduce inflows to the southern basin by 20GL and he would be opposed to that.*⁷³

I asked Minister Hunt's office to confirm that summary in February 2018 and they replied:

*What I would say is that we don't usually comment about what takes place inside the Ministerial Councils but the summary of Minister Hunter's views on this issue are not inconsistent with public comments he has made on the issue.*⁷⁴

Senator Rex Patrick spoke directly to Ian Hunter about that meeting:

*Now I'll add a piece of information that I didn't throw in last time. I've had some discussions previously with Minister Hunter, when he was the water minister for South Australia, and he told me that when he went to the meeting where the 35 and 20 were first presented—and I understand that that modelling occurred over a reasonably lengthy period of time—he went to that meeting and he told me he was quite livid, or disturbed, at the numbers that the modelling had produced. He didn't quite walk out of the room, as he might have with the Deputy Prime Minister, but he was unhappy.*⁷⁵

I was working at the CEWO at this time and in the days following Ministerial Council, I asked an officer at the MDBA Secretariat for a copy of the Ministerial Council agenda paper. I was told that there had been a strong directive to the secretariat that agenda papers should only be available to the author and the officer clearing the paper within MDBA.

Prior to this, it was standard practice for any MDBA staff to have full access to the secretariat internal filing system. That allowed any staff member to see all agenda papers from any interjurisdictional committee and the Authority Board papers. I was

⁷³ Slattery, (2016), *Contemporaneous notes from a conversation with Emma Carmody on 18 November 2016*

⁷⁴ Belinda Marsden, (2018), *Email to Maryanne Slattery*

⁷⁵ Senator Rex Patrick, (2018), *Rural and Regional Affairs and Transport Committee Senate Estimates*, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22committees%2Festimates%2F5959a809-e377-47f0-aacc-d2f330bfbc1f%2F0001%22>

told around the same time that MDBA staff no longer had access to the secretariat filing system.

I asked David Papps if he could get a copy of the Ministerial Council agenda paper. He said that he tried, but MDBA would not make the paper available to him. I am not aware of agenda papers not being made available to CEWO staff before that Ministerial Council meeting.

21 November 2016

MDBA presented the Northern Basin Review to the Northern Basin Advisory Committee. That presentation initially showed an impact into Menindee Lakes and South Australia of 5-10GL and 7GL respectively. This was questioned by a Committee member and the numbers were changed in the presentation to 7-10GL into Menindee and 5GL in South Australia, during the presentation.⁷⁶

22 November 2016

The final Northern Basin Review report is released, which says:

*The Authority's proposal is to reduce the northern basin water recovery target from 390 GL to 320 GL - a reduction of 70GL. It is estimated that compared to Basin Plan settings this will result in a **10-15 GL** reduction in the average inflows to Menindee Lakes, and average flows to South Australia may be reduced by **5 – 10 GL**. The Authority did not consider this scale to have a material impact on achieving Basin Plan outcomes in the southern basin.⁷⁷ (Emphasis added to identify difference between this version and the 15 November version. Note that reference to a 'targeted water recovery strategy' in the 15 November version has been removed ').*

There is no reference to MDBA undertaking additional modelling either in the report, or in Phillip Glyde's address to Parliament House.⁷⁸

⁷⁶ Slattery and Campbell, (2018), *Northern Disclosure*, <http://www.tai.org.au/content/northern-disclosure-rubbery-figures-murray-darling-basin-plan-review>

⁷⁷ MDBA, (2016), *Northern Basin Review report*, <https://www.mdba.gov.au/publications/mdba-reports/northern-basin-review-report>

⁷⁸ MDBA, (2016), *Basin Plan amendments address to Parliament House*, <https://www.mdba.gov.au/media/mr/transcript-basin-plan-amendments-address-parliament-house-mdba-chief-executive-phillip>

30 November 2016

MDBA presents the Northern Basin Review to a group of external stakeholders, and presents the impact as less than 10 GL into Menindee. There was no reference to flows at South Australia.

15 December 2016

Assistant Minister for Agriculture and Water Resources, Anne Ruston, addressed landholders and community groups and advised that the flows into Menindee Lakes and South Australia as 7 GL and 4 GL, respectively.

January 2017

Detailed quality assurance of scenario K model run was completed in January 2017.⁷⁹

30 January 2017

The Hydrological modelling report for the Northern Basin Review was published. It said:

This report describes the model scenarios that were provided as an input to the Authority triple-bottom line decision making process. The 320 GL option recommended by the Authority is not provided as a model scenario in this report, but most of its aspects were drawn from existing scenarios.⁸⁰

This report does not reference Scenario K, or that MDBA had undertaken additional modelling, anywhere within its 207 pages.

November 2017

MDBA publishes the *Hydrological Modelling for the Northern Basin Review – interim Decision Scenario Addendum*, which is the first public reference to Scenario K. that report states the impact on flows at Menindee Lakes and South Australia as 7 GL and 4 GL respectively.

At Senate Estimates, Senator Rex Patrick questioned Phillip Glyde about the changing numbers into South Australia, who said:

The process we followed was to try to find, as we're required to do, the best outcome for the northern basin and how to hit the environmental targets we need to hit in a least-cost manner. That's what that process was. We refined and got better at finding out what we needed to do.....The numbers would

⁷⁹ MDBA, (2018), *Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat

⁸⁰ MDBA, (2017), *Hydrological Modelling for the Northern Basin Review*, <https://www.mdba.gov.au/publications/mdba-reports/hydrological-modelling-northern-basin>

*change as we got towards a better target. We were trying to find the sweet spot.*⁸¹

However, the Addendum to the Hydrological Report shows very similar Specific Flow Indicator results for the Barwon-Darling between the Scenario K model run and Scenario E model run. Scenario E is the other 320 GL model run with the toolkit modelled. It was my understanding that Scenario E was the model run that MDBA was quoting to stakeholders as the final model run up until the last weeks of the Northern Basin Review.

Conclusions on the changing end of system numbers

MDBA says that the impacts into South Australia have decreased due to targeted water recovery. However, the valley water recovery targets do not change between any of the draft (8 and 15 November 2016) and final (22 November 2016) Northern Basin Review reports, the Hydrological report (January 2017) or the Hydrological Modelling Addendum report (November 2017).

The impact on the flows into Menindee Lakes changed from 35 GL to 7 GL with minimal changes to the Specific Flow Indicators. I would expect that higher flows at the end of the system should result in higher flows in the Barwon-Darling, with a corresponding increase in meeting Specific Flow Indicators.

There is no reference to MDBA undertaking additional modelling in:

- correspondence with State officials (8 November 2016);
- the briefing to the Deputy Prime Minister (15 November 2016);
- the agenda paper to the Ministerial Council (18 November 2016);
- any internal correspondence around the finalisation of Northern Basin Review report (8 to 22 November 2016);
- the Hydrological Modelling Report (30 January 2017).

There are two accounts of what end of system numbers were provided to the Deputy Prime Minister on 15 November 2016. A MDBA response to a Question on Notice said that MDBA advised the Deputy Prime Minister an impact of 20GL to South Australia. However, documents obtained under a Freedom of Information request show that the

⁸¹ Phillip Glyde, (2018), *Rural and Regional Affairs and Transport Committee Senate Estimates*, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=ld%3A%22committees%2Festimate%2F5959a809-e377-47f0-aacc-d2f330bfbc1f%2F0001%22>

Deputy Prime Minister was advised that the impact is 7GL into Menindee lakes and a 4 GL into South Australia.

I have not seen any evidence that explains why the draft Northern Basin Review report supposedly sent to the Deputy Prime Minister's office on 15 November 2016 had the final modelled end of system numbers, when the modelling was not quality assured until January 2017 and the final numbers were not included in the final Northern Basin Review report.

By MDBA's own account, the Authority did not have the final numbers before making their recommendation to the Minister. The Authority was advised verbally of the changed numbers on 8 November 2016, which was before the numbers were finalised.⁸² It appears as though the Authority has never been advised in writing of the impacts into South Australia.

There are some current Questions on Notice that ask for more details on what final information was provided to the Authority and when that was provided.

⁸² MDBA, (2018), *Answer to Question on Notice 165 to the Rural and Regional Affairs and Transport Committee*, https://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/rrat