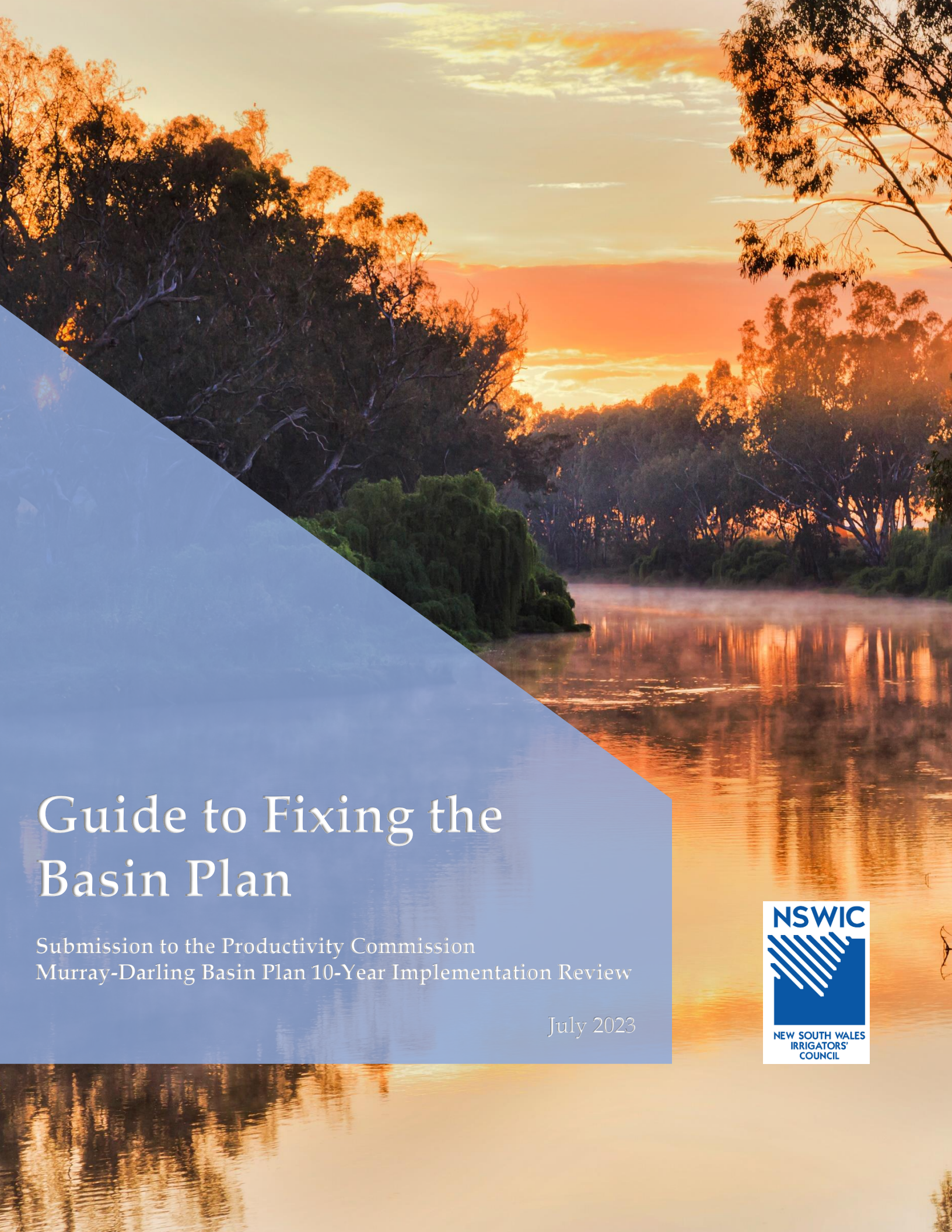


Guide to Fixing the Basin Plan

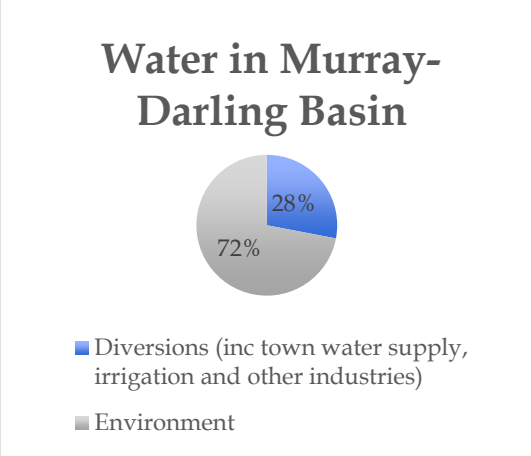
Submission to the Productivity Commission
Murray-Darling Basin Plan 10-Year Implementation Review

July 2023

NSWIC
NEW SOUTH WALES IRRIGATORS' COUNCIL

Executive Summary

The Murray-Darling Basin Plan (the Plan) has recovered more than 2100 gigalitres (GL) of water from the consumptive pool (over 4 Sydney Harbours), for the environment.[1] To put this into perspective, this has removed one in three litres of irrigation water (when combined with the 875 GL recovered in pre-Basin Plan water reforms[2]). As a result, total diversions for irrigation, towns and industry have reduced to just 28% of inflows.[3] This is now well within globally accepted standards for water diversions[4].



The 5-yearly Productivity Commission Review (2018) provided a sound and evidence-based roadmap to future implementation of the Plan. However, the lack of political willingness to implement these recommendations means that while many remain relevant, implementation is now hindered by timeframe restraints.

The primary focus of this submission is to highlight that the Plan's centerpiece – to implement Sustainable Diversion Limits (SDLs) – has now been achieved. This is not to diminish the importance of other elements of the Plan being completed (i.e. supply and constraints measures) to optimise the outcomes from the water already recovered.

However, it does provide a case that – with SDLs in effect - there is now time to do these other elements right (i.e. to work collaboratively with Basin communities on new and improved projects), rather than risk worthwhile projects not progressing; sub-optimal or faulted projects progressing; or resorting to further water recovery that cannot be delivered or optimised at this point in time, and that comes with substantial negative socio-economic and water market impacts).

The Plan must be about delivering outcomes. This is more important than arbitrary timeframes, or modelled water recovery targets that are more than a decade old. The priority must shift to Integrated Water Resource Management, through a strategic, coordinated complementary measures package to address key degradation drivers that water alone cannot fix (i.e. invasive species, habitat restoration, cold water pollution, barriers to fish passage, and fish screening).

Until such a package is delivered, further water recovery efforts are only tinkering at the edges of environmental management.

NSWIC sees the greatest opportunity lying in a shift towards collaborative, partnership, and co-design models that have enormous potential, and that are already occurring on the ground.

[1] https://www.mdba.gov.au/progress-water-recovery

[2] https://www.mdba.gov.au/sites/default/files/docs/Pre-2009-water-recovery-table-2017.pdf

[3] Calculated based on figures in the Basin Plan (2012) legislation of average annual inflows of 32,533 GL, and watercourse diversions (pre Basin Plan) of 10,890 GL, minus the 2,100 GL recovered through the Basin Plan and the 875 GL recovered pre-Basin Plan.

[4] N. Leroy Poff et. al (2009) "The ecological limits of hydrologic alteration (ELOHA): a new framework for developing regional environmental flow standards": https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2427.2009.02204.x

Recommendations

The key recommendation of this submission is for a paradigm shift towards:

- Collaborative, participatory, and co-beneficial water policy and management working together with communities and landholders;[5]
- Focus on Integrated Water Resource Management (i.e. not just water volumes alone, but also complementary measures such as invasive species control, habitat restoration, fish passageways, fish screening, water quality, and partnerships with landholders and IIOs for environmental water delivery and wetland/riparian zone management).[6]

This not only has significant potential to protect socio-economic outcomes and address the deeply entrenched trust-deficit, but also is now the most critical pathway for environmental outcomes too.

Recommendations – 1A) SDLs

a) To ensure due diligence, halt "Bridging the Gap" water recovery until technical work is completed to identify the actual extent of the gap remaining (if any) to achieve SDL compliance.

b) DCCEWW / MDBA to undertake a comparative assessment of SDL compliance under two scenarios:
(i) current water recovery levels;
(ii) proposed further water recovery levels (i.e., additional 49.2 GL);
to determine if any further water recovery is even needed to meet SDLs.

c) Further Bridging-The-Gap water recovery should only proceed if assessment indicates an actual risk of SDL non-compliance, requiring further water recovery. There is currently no evidence to suggest there is a gap; to the contrary, evidence suggest that SDL compliance is already achieved.

d) Federal Government to commit that any further water recovery will not result in any valley becoming over-recovered against its *new* targets (i.e., that if a gap to bridge is technically identified, water recovery will only go to, and not beyond, that amount), nor recovered without clear evidence of an SDL-compliance issue. For transparency, a risk assessment should be published identifying the procedures being used to mitigate the over-recovery risk (particularly given the uncertainty

[5] **See**:
- Journal Article by Freak et al "*Contemporising best practice water management: lessons from the Murray-Darling Basin on participatory water management in a mosaiced landscape*" see: https://www.tandfonline.com/doi/abs/10.1080/13241583.2022.2097365
- UN Water Action Agenda SDG Action 50827 by NSWIC "*Boost partnerships with irrigation sector for environmental water delivery, to public and private lands*", see: https://sdgs.un.org/partnerships/boost-partnerships-irrigation-sector-environmental-water-delivery-public-and-private
- NSWIC Working Together Campaign, see: https://www.nswic.org.au/wp-content/uploads/2022/11/Working-together.pdf

[6] **See**:
- Journal Article by Baumgartner et al "*Ten complementary measures to assist with environmental watering programs in the Murray–Darling river system, Australia*" see: https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3438
- NSWIC Beyond Buybacks Campaign, see: https://mcusercontent.com/c6e5c2d75b14461767c095feb/files/a5b591bb-6d1a-9475-a5e5-119d75679d5d/2023_01_31_Beyond_buybacks_Campaign.pdf

about the size of the actual gap), or chronic trends of usage being unable to reach SDLs (i.e. chronic underusage).

e) The recently announced round of "Strategic Water Purchasing" be referred to the Australian National Audit Office for a comprehensive audit and assurance report, to ensure due diligence and proper process on the expenditure of public funds for this program, given concerns it is not required to achieve SDL compliance, or cannot be delivered to optimised effect.

Recommendation – 1B) SDL Adjustment Mechanism

I – 450 GL Efficiency Measures

a) Additional water recovery (i.e. such as, but not limited to, the 450 GL) should be halted until the water could at least be delivered to meet intended environmental outcomes (i.e. constraints management).

b) The WESA funding for efficiency projects (i.e. the 450 GL) should be re-invested into complementary measures (i.e. invasive species control, habitat restoration, fish screening, fish passageways).

c) Legislative change is required to enable non-entitlement transfer options to be included.

d) The socio-economic criteria agreed by Basin Ministerial Council in 2018 is fundamental to ensuring the socio-economic neutrality requirement is met, and must remain in place.

II – 605 GL Supply & Constraints

a) Flexibility for new, and improved, SDLAM projects is required, which will necessarily require timeframe extensions.

b) DCCEEW must provide a pathway of what a renewed package will entail, based on public consultation outcomes on innovative ideas to deliver the Basin Plan. It will be important that this package is based on partnerships and co-design of projects with communities, to avoid repeating mistakes of the initial projects.

c) The Federal Government should announce at the earliest opportunity plans for Basin Plan flexibility (i.e. legislative amendments) to aid community consultation on renewed pathways (e.g. to overcome communities feeling frustrated their ideas are not feasible with current Basin Plan rigidity).

d) Clear communication of renewed pathways will be key – particularly the necessity of this approach and the environmental opportunities, as well as risks of the status quo - to mitigate as best as possible the politicisation of this issue. This must include communicating that the supply and constraints projects are not substitutable by further water recovery, but are necessary projects for environmental water delivery and optimal management.

III - Reconciliation

a) A reconciliation should not occur until, at least, a new timeframe to deliver SDLAM has been determined, that enables new or improved projects to be designed and properly delivered in practice.

b) The MDBA should cease undertaking a reconciliation, and instead provide advice to Ministerial Council on a range of alternative pathways, including the advice of previous inquiries (such as the Productivity Commission 5-yearly review in 2018), for SDLAM.

Recommendations – 2A) Water Resource Plans (WRPs)

a) The MDBA and Commonwealth Government recognise the terminology clashes between jurisdictions of Planned Environmental Water (PEW) and be cognisant to this clash in assessing NSW WRPs. This may take the form of a position statement, to provide clarity on the matter.

b) NSW to undergo the same due process, and assessment standards, as the MDBA required of other Basin States, particularly regarding identifying PEW.

c) NSW to change the State's terminology of PEW to address the terminology inconsistency between jurisdictions leading to ongoing confusion (e.g. to above-diversion-limit water, similar to above-Cap in Victoria). That way, 'PEW' would have one meaning, consistent across jurisdictions.

Recommendations 2B) Water Quality

Focus must shift from just water quantities, to water quality, specifically the range of complementary measures required to address this (i.e. carp control).

Recommendations – 2C) Critical Human Needs

a) A comprehensive plan to meet critical human needs water is required.

b) There must be a shift in political attention to directly targeting this issue, rather than just targeting farmers' water access.

Recommendation 2D) Environmental Planning & Management

a) Implement a strategic, co-ordinated and properly resourced program of complementary measures.

b) Additional water recovery should be, at least, de-prioritised until such a program is in place, as additional recovery would only be tinkering at the edges until these measures are in place.

c) Redirect the WESA funding towards complementary measures.

Recommendation 3) Governance and institutional arrangements

a) Reporting on actual environmental outcomes, not just recovery targets or flow volumes as a proxy.

b) SDL Registers of Take / Compliance Report should be published in a more timely manner.

c) Agencies must take a more active role in addressing misinformation.

d) Further investment into socio-economic and water market impacts is required.

e) Evaluation and reporting must consider the full breadth of the Plan's impacts, not just from the legislation commencing.

Recommendation 4) Climate Change

a) The role of State-based instruments to respond to climate change (i.e. Available Water Determinations) should be highlighted by the Commission, including the already observable demonstration of this operating in practice (i.e. trends of declining reliability).

b) The Commission note the Basin Plan is a specific policy instrument to address over-allocation, which sits alongside these state-based instruments.

c) Given the declining reliability of water entitlements, with the risk borne by water entitlement holders (see Risk Assignment Framework), consideration should be given to how Australia will maintain water security to supply of food and fibre production.

d) The Commission note that climate change modelling in the Basin Plan must account for both extremes – floods as well as droughts – rather than the singular focus to date on drought impacts alone on the environment.

Recommendation 5) Cultural Water

a) Adopt the Cultural Billabong Restoration Methodology into Basin water management and planning, as a partnership-based model, with adequate resourcing to support willing landowners.

b) Identify specific management strategies in each WSP to ensure the WSP objectives relating to cultural outcomes can be achieved.

Recommendation 6) Consultation

Communities have significant concerns about consultation and engagement, which requires a shift from top-down to bottom-up policy development.

Background

The Basin Plan

- The Murray-Darling Plan so far has recovered more than 2100 GL of water (more than four Sydney Harbours), for the environment.[7]
- To put this into perspective, 1 in 3 litres of irrigation water has been redirected to the environment (when combined with 875 GL recovered in pre-Basin Plan water reforms[8]).
- As a result, total diversions for agriculture, towns and industry have been reduced to just 28% of inflows.
- This means the environment now receives 72% of water, which remains in rivers (both Held Environmental Water (HEW) and Planned Environmental Water (PEW)). This is well within globally accepted standards for water diversions[9].
- The Basin Plan's central purpose is setting, and achieving compliance with SDLs. This has now occurred (as of 2019), assuming the full 605 GL in offsets is delivered.
- This SDL compliance has been made possible through 98% of surface water recovery and 92% of groundwater recovery against the Bridging the Gap target being complete.

Why we need to go Beyond Buybacks

Socio-Economics

- ***Proposed water recovery is a substantial proportion of the remaining water available to grow food and fibre***
    - For example, the NSW portion of the 450 GL is the equivalent of nearly half (44%) of the remaining high-security consumptive water (LTDLE) in the NSW Southern Connected Systems.[10]
- ***Water recovery from farmers costs jobs in Basin communities***
    - 30% (3261) of 10,801.5 FTE jobs lost across 40 southern MDB communities from 2001 to 2016 attributed to water recovery for the environment.
    - Job losses due to water recovery as proportion of total jobs lost by State:
        - NSW 21% (648 FTE)
        - Victoria 30% (1684 FTE)

[7] Progress on Murray-Darling Basin water recovery - DCCEEW
[8] https://www.mdba.gov.au/sites/default/files/docs/Pre-2009-water-recovery-table-2017.pdf
[9] 8. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2427.2009.02204.x
N. Leroy Poff et. al (2009) "The ecological limits of hydrologic alteration (ELOHA): a new framework for developing regional environmental flow standards
[10] Inquiry report - Murray-Darling Basin Plan: Five-year assessment - Productivity Commission (pc.gov.au)

    - South Australia 45% (929 FTE)[11]

- ***Farmers cannot afford to pay market allocation prices this high, this often***
    - Buybacks have driven allocation prices up an average $72/ML
        - = Prices higher than $200/ML in three out of 10 years
    - Another 450GL from the sMDB pool
        - = Prices higher than $200/ML in eight out of 10 years[12]
- ***Water recovery has large production impacts***
    - 450 GL = $500 million a year in lost production in southern MDB
    - 760 GL (450GL + SDLAM shortfall) = $900 million a year forgone[13]

Water markets

- Buybacks are neither cheap, easy nor quick. Entitlements prices have almost quadrupled since the last buyback tenders more than a decade ago, from around $2200/ML to $6000-$9500/ML.

- The southern Basin water market has shrunk. Less than 100 GL a year in entitlements is now commercially traded a year. Even if the Commonwealth spread out buybacks over several years, it would still distort the market, driving up prices and breaching ACCC recommended reforms to stop market participants capturing or distorting the market.

Ecological

- The 2018 Productivity Commission 5-year Implementation Review[14] found that **unless river constraints are addressed, more water could be recovered from farmers but it could be unusable.**

- With diversions down to just 28% of inflows, the MDB is within international thresholds for sustainable levels of diversion.

- Leading degradation drivers – invasive species (carp); habitat degradation; water quality; fish passageways – require more than just adding water. Until these are addressed, just adding more water is only tinkering at the edges of the major environmental degradation drivers.

- 93% of the wetlands in the Basin are on private property. Achieving landscape level change requires partnerships with private landholders.

[11] Southern Basin community profiles | Murray-Darling Basin Authority (mdba.gov.au)
[12] ABARES 2020 https://www.agriculture.gov.au/abares/products/insights/economic-effects-of-water-recovery-in-murray-darling-basin
[13] 2022 Frontiers Report for Victorian Government
https://www.water.vic.gov.au/__data/assets/pdf_file/0023/600719/Fact-sheet-Socio-economic-impacts-of-Basin-Plan-water-recovery-in-Victoria.pdf
[14] Inquiry report - Murray-Darling Basin Plan: Five-year assessment - Productivity Commission (pc.gov.au) [Page 22]

NSW Irrigators' Council

The NSW Irrigators' Council (NSWIC) is the peak body representing irrigators and irrigation communities in NSW. NSWIC has member organisations in every Murray-Darling Basin valley of NSW, and several coastal valleys, representing over 12,000 water access licence holders.

NSWIC is a leader in sustainable and productive water policy solutions, and advocates for and advises on best-practice water management. Our vision is for the secure, sustainable and productive management of water resources in NSW.

Further information on NSWIC is available here: https://www.nswic.org.au/

Irrigation Farming

Irrigation provides more than 90% of Australia's fruit, nuts and grapes; more than 76% of vegetables; 100% of rice and more than 50% of dairy and sugar (2018-19).

Irrigation farmers in Australia are recognised as world leaders in water efficiency. For example, according to the Australian Government Department of Agriculture, Water and the Environment:

"*Australian cotton growers are now recognised as the most water-use efficient in the world and three times more efficient than the global average*"[15]

"The Australian rice industry leads the world in water use efficiency. From paddock to plate, Australian grown rice uses 50% less water than the global average."[16]

Our water management legislation prioritises all other users before agriculture (critical human needs, stock and domestic, and the environment with water to keep rivers flowing), meaning our industry only has water access when all other needs are satisfied. Our industry supports and respects this order of prioritisation. Many common crops we produce are annual/seasonal crops that can be grown in wet years, and not grown in dry periods, in tune with Australia's variable climate.

Irrigation farming in Australia is also subject to strict regulations to ensure sustainable and responsible water use. This includes all extractions being capped at a sustainable level, a hierarchy of water access priorities, and strict measurement requirements.

[15] https://www.agriculture.gov.au/ag-farm-food/crops/cotton
[16] https://www.agriculture.gov.au/ag-farm-food/crops/rice

Terms of Reference

[Copied]

I, Jim Chalmers, Treasurer, pursuant to Parts 2 and 3 of the Productivity Commission Act 1998, hereby request that the Productivity Commission (the Commission) undertake an inquiry into the effectiveness of the implementation of the Basin Plan 2012 (Cth) (Basin Plan) and water resource plans.

Background

The Basin Plan provides for the integrated management of water resources of the Murray-Darling Basin in ways that optimise the objectives and outcomes in section 5.02 of the Basin Plan and promote the objects of the Water Act 2007 (Cth) (Water Act).

Under section 87 of the Water Act, the Commission is required to undertake five-yearly assessments of the effectiveness of the implementation of the Basin Plan and water resource plans. This inquiry is the second such assessment. The first assessment was completed on 19 December 2018. This subsequent 5-year assessment is due 19 December 2023.

Scope of the inquiry

In accordance with the provisions of Part 3 of the Water Act, the Commission is to report on the matter of the effectiveness of the implementation of the Basin Plan and water resource plans for the five-year period ending 19 December 2023.

In undertaking the inquiry, the Commission should assess the progress towards implementing the Basin Plan, including the:

- *extent to which the Basin Plan is on track to be delivered within statutory timeframes,*
- *the likelihood and extent to which activities and arrangements currently in place will ensure that these provisions and timeframes will be met,*
- *the effectiveness of reforms to address previous Productivity Commission recommendations, including the Joint Basin government response to the Productivity Commission inquiry report: Murray–Darling Basin Plan: Five-year Assessment (2019), and*
- *the extent to which the current framework for implementing the Basin Plan, including the framework for monitoring, reporting and evaluation, is likely to be effective in supporting implementation of the Basin Plan.*

In undertaking this assessment, the Commission should have regard to relevant agreements and reviews or audits that have recently been completed or are ongoing. Where possible, the Commission should avoid unnecessary duplication with recently completed or ongoing reviews, including those focused on compliance and enforcement, Basin Plan implementation, the Murray-Darling Basin water reform roadmap and national water reform.

The Commission should consider the impact of major droughts, floods, and the COVID-19 pandemic on the effectiveness of implementing the Basin Plan and water resource plans over the assessment period.

The Commission should also have regard to the differing responsibilities of the Basin states, the Department of Climate Change, Energy, the Environment and Water (DCCEEW), the Inspector-General of Water Compliance (IGWC), the Commonwealth Environmental Water Holder (CEWH), the Murray–Darling Basin Authority (MDBA), the Australian Competition and Consumer Commission (ACCC) and the Bureau of Meteorology (BOM).

The Commission should assess progress towards full Basin Plan and water resource plan implementation in the context of the differing timeframes applicable.

The Commission should make findings on progress to date and recommendations on any actions required to ensure full implementation of the Basin Plan and water resource plans.

The Commission should also consider and provide practical advice on the Basin Plan and water resource plans that could improve:

- *the operation of the Basin Plan and water resource plans, particularly their ability to address future challenges including the impacts of climate change, their recognition of First Nations values, and their ability to efficiently support the maturation of environmental water management; and*
- *the efficiency and effectiveness of implementing the Basin Plan and water resource plans and contribute to the information available for the 2024 review of the Water Act and the 2026 review of the Basin Plan.*

Given the breadth of the issues available for consideration, the Commission should consider reporting separately on:

- *the effectiveness of the implementation of the Basin Plan and water resource plans over the five years since the previous assessment; and*
- *advice and recommendations on future actions and opportunities to simplify the framework of the Basin Plan to ensure effective achievement of its outcomes.*

Process

In undertaking the inquiry, the Commission should undertake an appropriate public consultation process, including establishing a stakeholder working group in accordance with section 89 of the Water Act, inviting public submissions and releasing a draft report to the public.

The Commission should consult widely with relevant Australian Government, Basin state and territory government agencies, key interest groups and affected parties. These consultations should include, but not be limited to, parties with interests in agriculture, industry, the environment, First Nations people, local government, regional development, planning, emergency management and tourism. The Government has asked Basin jurisdictions to co-operate with this inquiry, including by providing the Commission with the information it considers necessary in undertaking its inquiry.

The final report is to be provided to the Government by 19 December 2023.

The Hon Jim Chalmers MP
Treasurer

[Received 2 May 2023]

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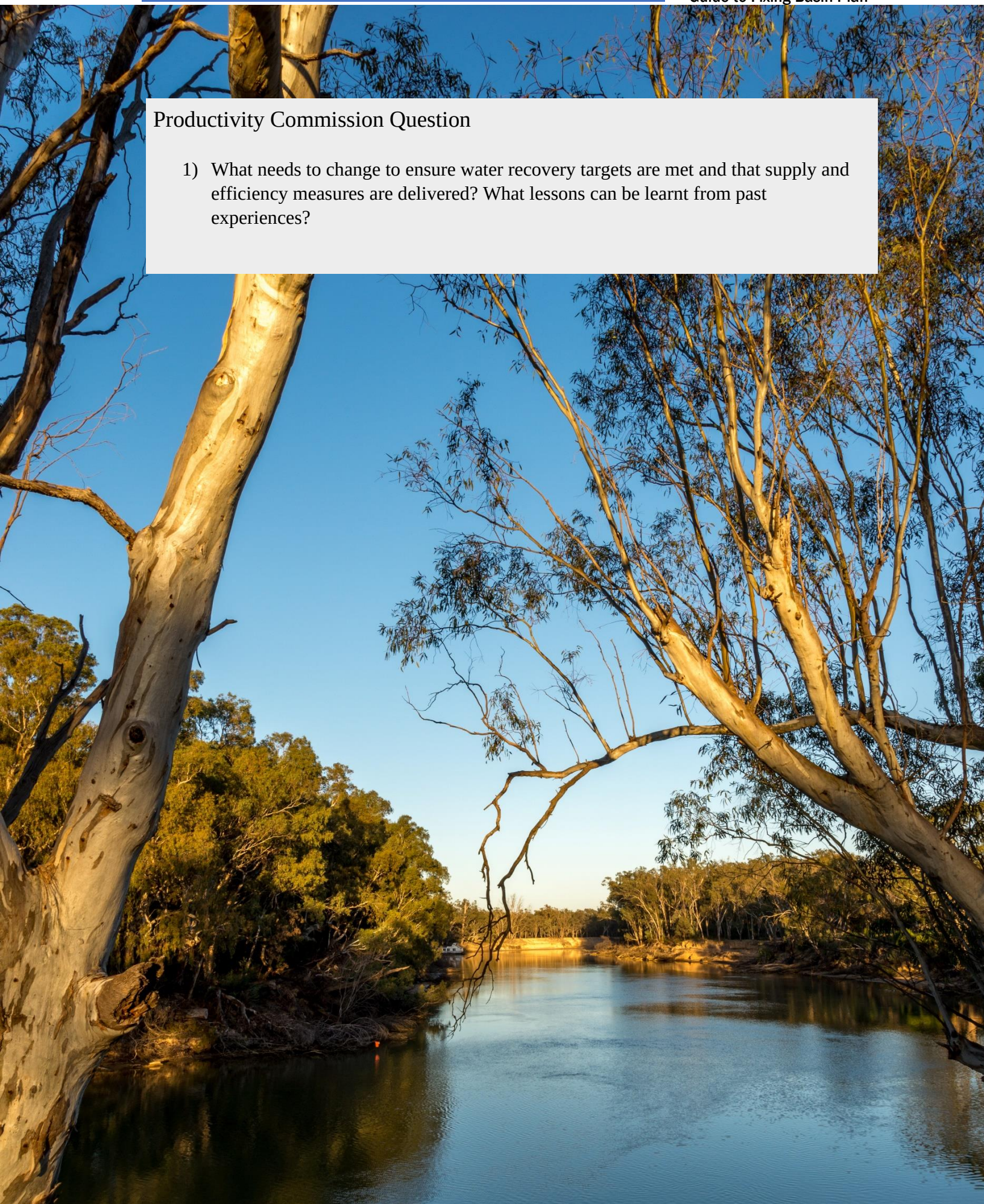


Productivity Commission Question

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

1A) Sustainable Diversion Limits

NSWIC "Where's the Gap Report" available [HERE].

Section Overview

- The centrepiece function of the Basin Plan is setting, and achieving compliance with, SDLs. This has now occurred.
- The most recent SDL Account Register of Take (2020-21) showed 108 of 109 water areas as compliant (with the 1 outlier a recognised modelling issue, not over extraction).
- SDL compliance has been made possible through 98% of surface water recovery and 92% of groundwater recovery against the Bridging the Gap target complete.
- SDL compliance to date questions the necessity of further water recovery to bridge the so-called 'gap' to SDLs.
    - For example, water use in the NSW Murray in 2019-20 was 117.4 GL under its SDL, or 8%. In 2020-21, water use in the NSW Murray was 322.7 GL under the SDL, or 21%. It is hard to see how an additional 10 GL water recovery can be justified, when the NSW Murray is already more than meeting its SDL. There is, simply, no gap to bridge to meet its SDL.
- Data shows that SDL compliance is being achieved with lower water recovery numbers than initially modelled.
- Focus must remain on the end-point (SDL compliance), rather than the means (water recovery). The means must be adjusted based on up to date information if it is found that less water recovery is required than initially modelled to achieve SDL compliance.
- Having achieved SDL compliance, this should remove the sense of urgency for other components of the Basin Plan – enabling timeframe flexibility where this can lead to improvements / better implementation.

1A i) SDL compliance

The Murray-Darling Basin Plan's primary objective is to set and implement SDLs. Therefore, the core of any review of the *effectiveness of the implementation of the Basin Plan* must be the achievement of SDL implementation and compliance.

SDLs came into effect in 2019 and are binding on all Basin states (whilst the formal SDL register does not commence until the accreditation of State Water Resources Plans (WRPs), SDL compliance is required under bilateral agreements in the interim, and is assessed by jurisdictions).

The MDBA is required to establish and maintain a register of the amount of water taken each year in each SDL resource unit across the Basin, and to publish these 'Registers of Take' to compare and track the annual water take against the SDLs.

The most recent SDL Account Register of Take (2020-21)[17] showed **108 of 109 water areas as SDL compliant**. The one area that was not, the Barwon Darling, had a reasonable excuse claim submitted by the NSW Government, indicating it was due to a modelling issue, not over-extraction beyond the limit. Similarly, in the year prior, 106 of 109 water areas were compliant; two of those three were brought into compliance by 2020-21. This is summarised in the below table (sourced from SDL Account Register of Take).

Table 1 Summary of finding for the 109 SDL resource unit in the 2020-21 water and comparison to prior water year.

Summary of registers of take	2020-21	2019-20
No. SDL units not exceeding compliance trigger	108/109	106/109
No. SDL units with compliance trigger exceeded	1/109	3/109
Reasonable excuse claims	1*	3
No. SDL units that exceeded the trigger in the previous year, but no longer exceed the trigger	2/3	n/a
No. accredited water resource plans	13/33	1/33

*reasonable excuse claim referred to IGWC

The below tables show the surface water register of take for 2021-21. The first table shows the whole Basin (excluding NSW), in which every single valley is SDL compliant (i.e. no compliance trigger – **see final column**). The following table shows the NSW Basin (shown separately as SDL compliance is legally the subject of bilateral agreements until Water Resource Plan accreditation).

Similarly, no NSW valley has extractions over the SDL (recognising the aforementioned modelling issue in the Barwon-Darling, which authorities have repeatedly specified is not the result of over-extraction).

[17] https://www.mdba.gov.au/sites/default/files/pubs/sustainable-diversion-limit-accounts-registers-of-take-2020-21.pdf

Table 4: Surface water registers of take for 2020-21 under accredited Water Resource Plans (WRPs). All numbers are in GL (1 gigalitre = 1 billion litres)

State	SDL resource unit	SDL resource unit code	SDL	Annual Permitted Take[1]	Annual Actual Take	Annual Balance[2]	Cumulative Balance - Start of 2020 -21[3]	Cumulative Balance - End of 2020-21[4]	HEW Adjustments[5]	Adjusted Cumulative Balance - End of 2020-21[6]	Compliance Trigger (-20% of SDL)[7]	Was the trigger exceeded? (Yes/No)
QLD	Queensland Border Rivers	SS24	363.6	508.2	452.4	55.8	0.00	55.8	0.00	55.8	-72.7	No
QLD	Moonie	SS25	89.9	114.3	58.8	55.5	0.00	55.5	0.00	55.5	-18.0	No
QLD	Condamine-Balonne	SS26	919.0	853.9	848.4	5.52	0.00	5.52	0.00	5.52	-183.8	No
QLD	Nebine	SS27	17.1	16.9	11.1	5.78	4.92	10.7	0.00	10.7	-3.41	No
QLD	Warrego	SS28	55.5	38.1	21.8	16.3	24.4	40.8	0.00	40.8	-11.1	No
QLD	Paroo	SS29	11.8	10.9	10.9	0.08	0.08	0.15	0.00	0.15	-2.36	No
ACT	Australian Capital Territory (surface water)	SS1	53.4	35.1	19.8	15.3	0.00	15.3	0.00	15.3	-10.7	No
VIC	Victorian Murray[8]	SS2	1319.8	1266.8	1137.7	129.1	0.00	129.1	0.00	129.1	-264.0	No
VIC	Kiewa[8]	SS3	27.7	28.4	20.9	7.49	0.00	7.49	0.00	7.49	-5.54	No
VIC	Ovens[8]	SS4	85.8	91.2	75.2	15.9	0.00	15.9	-0.04	15.9	-17.2	No
VIC	Broken[8]	SS5	49.0	44.6	42.2	2.42	0.00	2.42	0.00	2.42	-9.80	No
VIC	Goulburn[8]	SS6	1278.0	1149.1	797.0	352.1	0.00	352.1	0.00	352.1	-255.6	No
VIC	Campaspe[8]	SS7	111.7	80.5	68.1	12.4	0.00	12.4	0.00	12.4	-22.3	No
VIC	Loddon[8]	SS8	127.7	81.9	73.2	8.77	0.00	8.77	0.00	8.77	-25.5	No
VIC	Wimmera-Mallee (surface water)[8]	SS9	76.1	72.3	48.2	24.1	0.00	24.1	0.00	24.1	-15.2	No
SA	South Australian Murray[9]	SS11	542.2	635.4	629.6	5.72	0.00	5.72	-13.6	-7.87	-108.4	No
SA	South Australian Non-Prescribed Areas[9]	SS10	55.2	55.2	23.3	31.9	0.00	31.9	0.00	31.9	-11.0	No
SA	Marne-Saunders[9]	SS12	3.00	1.94	1.44	0.50	0.00	0.50	0.00	0.50	-0.60	No
SA	Eastern Mount Lofty Ranges[9]	SS13	28.3	27.2	18.1	9.13	0.00	9.13	0.00	9.13	-5.66	No
VIC	Goulburn-Broken-Campaspe-Loddon[8,10]		1566.4	1356.1	980.5	375.6	0.00	375.6	0.00	375.6	-313.3	No
VIC	Victorian Murray-Kiewa-Ovens[8,10]		1433.3	1386.4	1233.8	152.6	0.00	152.6	-0.04	152.5	-286.7	No
Basin Total (incl. NSW)[11]			**11820.3**	**10705.6**	**10551.2**	**154.4**	**616.8**	**771.2**	**54.1**	**825.3**	**-2364.1**	

Notes:

[1] Annual Permitted Take: The annual permitted take method set out in WRPs for surface water regulated rivers is generally determined by hydrological models, with post modelling adjustments made to the output to allow for components not processed within the model. The adjustments include:

Table 7: Surface water interim registers of take for 2020-21 under Bilateral Agreements. All numbers are in GL (1 gigalitre = 1 billion litres)

State	SDL resource unit	SDL resource unit code	SDL	Annual Permitted Take[1]	Annual Actual Take	Annual Balance[2]	Cumulative Balance - Start of Year[3]	Cumulative Balance - End of Year[4]	HEW Adjustments[5]	Adjusted Cumulative Balance - End of Year[6]	Compliance Trigger (-20% of SDL)[7]	Was the trigger exceeded? (Yes/No)
NSW	Intersecting Streams	SS17	119.3	119.3	119.3	0.00	0.00	0.00	0.00	0.00	-23.9	No
NSW	NSW Border Rivers	SS23	320.1	304.7	365.8	-61.1	32.3	-28.9	1.43	-27.4	-64.0	No
NSW	Gwydir	SS22	530.2	755.5	811.4	-55.9	-5.19	-61.1	0.00	-61.1	-106.0	No
NSW	Namoi	SS21	490.3	384.0	386.9	-2.84	44.4	41.6	2.59	44.2	-98.1	No
NSW	Macquarie-Castlereagh	SS20	633.8	681.4	580.2	101.2	-37.2	64.0	0.00	64.0	-126.8	No
NSW	Lachlan	SS16	578.3	449.1	421.3	27.7	4.03	31.7	1.10	32.8	-115.7	No
NSW	Murrumbidgee	SS15	2209.6	1460.2	2207.4	-747.2	456.6	-290.7	36.8	-253.9	-441.9	No
NSW	Barwon–Darling Watercourse	SS19	176.2	187.6	207.3	-19.6	-49.2	-68.8	1.94	-66.9	-35.2	Yes
NSW	NSW Murray	SS14	1512.3	1241.7	1084.0	157.7	141.2	298.9	23.9	322.7	-302.5	No
NSW	Lower Darling	SS18	35.4	10.2	9.48	0.69	0.54	1.24	0.00	1.24	-7.08	No

Notes

[1] Annual Permitted Take: The annual permitted take method set out in WRPs for surface water regulated rivers is generally determined by hydrological models, with post modelling adjustments made to the output to allow for components not processed within the model. The adjustments include:

- Adjustments for bridging the gap held environmental water (HEW) to SDL setting. The models used to generate annual permitted take do not explicitly model HEW entitlements. This means that all of the entitlements within the model are assumed to be used for consumptive purposes, and an adjustment is required to remove the proportion attributed to entitlements that have since been recovered and are now HEW. The methods used by each Basin state for this process are set out in their accredited or proposed WRPs.
- Trade adjustment. As allocation trade (i.e. including tagged trade) is not included in the model, an adjustment is required for trade between SDL resource units, such that the permitted take is increased in the unit that the water is traded to and reduced in the unit the water is traded from. Not adjusting for this trade could lead to actual take exceeding permitted take despite irrigators legitimately being able to use more water. Trade between the consumptive and environmental pools is separately adjusted in the cumulative balance (see note 3).

[2] As per Basin Plan (s. 6.08(3)(a)&(b)). Negative numbers indicate a debit amount, positive numbers indicate a credit amount.

[3] Start of year balance is reset to zero for the first water year following WRP accreditation, in accordance with the Basin Plan (s. 6.08(5) & (6)). In 2020-21 this applies to all SDL Resource Units in VIC, ACT, and SA, as well as the Queensland Border Rivers, Moonie, and Condamine-Balonne

[4] As per Basin Plan (s. 6.08(3)(c)).

[5] HEW adjustments include the net HEW acquisition and disposal under Basin Plan (s. 6.12(1)(a)), and where applicable, adjustments for the previous year's Annual Expression of Incomplete Recovery (AEIR) under Basin Plan (s. 6.11(5))

[6] Adjusted cumulative balance to determine non-compliance as per Basin Plan (s. 6.12(1)(a))

[7] Numerical compliance trigger as per Basin Plan (s. 6.12). The trigger is exceeded when the corresponding adjusted cumulative balance is lower than this number.

1A ii) Direct water recovery progress

Water recovery is a policy instrument designed to reduce water use so that total diversions for irrigation, towns and industry collectively are within the SDLs.

Simply, water recovery is the *means* to achieve the end of SDL compliance.

As part of developing the Basin Plan, modelling estimated the volumes of water required to achieve SDL compliance. This involves recovery at both a valley level (local recovery target) and at a State and territory level (shared recovery target).

This water recovery is known as "Bridging the Gap", as it is the amount of water recovery estimated to be required to close the gap from pre-Basin Plan diversions levels (Baseline Diversion Levels) to post-Basin Plan levels (SDLs, or Sustainable Diversion Limits).

Modelling for the Basin Plan showed that reducing water diversions to SDLs would require water recovery (i.e., buybacks) of 2,075 billion litres of water (gigalitres, or GL), as well as a suite of environmental projects equating to 605 GL under the SDL Adjustment Mechanism.

To date, 2,107.4 GL has been recovered, exceeding the 2,075 GL target. While the total water recovery target has been met, water recovery in some valleys is less than the volume initially modelled to be required at a valley level. For surface water, a total 46 GL/y gap across seven valleys remains, and for groundwater, 3.2 GL/y.

The MDBA has said:

"Bridging the Gap water recovery remains close to completion, with approximately 98% of surface water and 92% of groundwater recovered"

This significant progress towards the water recovery targets must not be downplayed.

1A iii) The 'Gap'

Taking data from the above SDL Account Register of Take (2020-21), and applying the compliance criteria set out in the Basin Plan Ch. 6, Part 4, Section 6.12, we have calculated the percentage by which each NSW valley was over or under its SDL.

Of note, water use above and below the SDL in a given year (overs and unders) is common in water diversion accounting, reflecting wet and dry conditions. But SDL compliance requires that over the long term, the annual use trend must average out at the SDL, and use in any one year must not be more than 20% above the SDL.

Full data and findings is available in the NSWIC *'Where's The Gap' Report* on the NSWIC website.[18] In summary, the NSWIC report finds that overall, NSW Basin valleys were 1% below their SDLs in 2020-21, ending the year with 55.64 GL in credit.

[18] https://www.nswic.org.au/wp-content/uploads/2023/03/2023-03-21-Wheres-the-Gap-FINAL.pdf

Valleys where use was higher than the SDL in 2020-21 were all still well below the 20% non-compliance trigger for the year. The exception was the Baron Darling, which was 38% over due to the aforementioned modelling issues, not over-extraction.

In our view, (whilst early days for SDL accounting) this indicates that there is no gap left to bridge in surface water to achieve SDL compliance – or at the very least, it is far too early to tell whether, over the long-term, a gap in fact exists.

Whilst it is early days for SDL accounting, the above tables do not provide justification for a policy intervention (such as further water recovery) to remedy a situation of non-compliance. To the contrary, they demonstrate that diversions are tracking to SDL compliance, and that the overall trend in the last two years is still towards chronic underuse below SDLS, consistent with the chronic underuse trends already evident under the previous Cap accounting and reporting framework.

Comparison to Cap Accounting

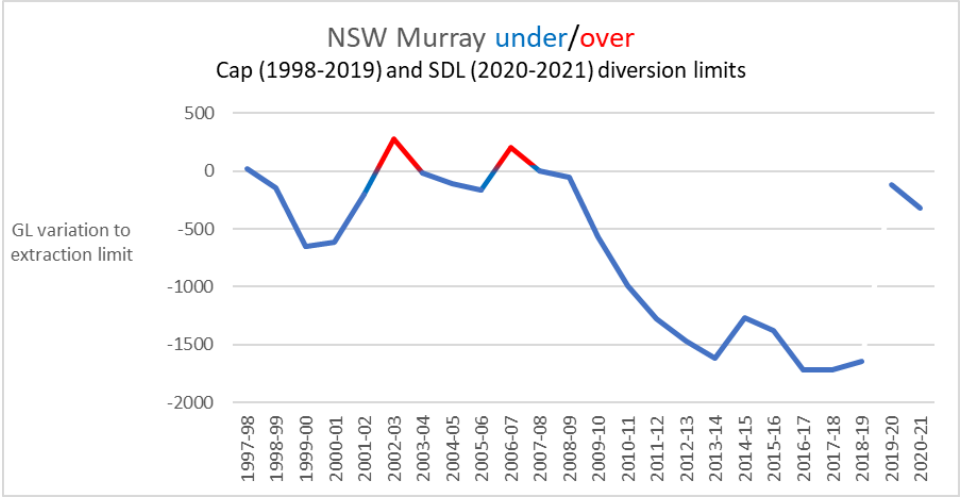
SDL accounting only replaced the former Cap compliance accounting in the 2019-20 year, so there are only two years of SDL accounting to date. Whilst this data is indicative, it is not long enough for any long-term over/under trends to be concluded.

However, interestingly, under the Cap accounting framework, large Cap credits accumulated over 20 years.[19] The pattern emerging under the SDL accounting framework reflects the earlier trends under the Cap accounting.

The Cap 'credits' were forfeited with the commencement of SDL accounting, but nonetheless, even with the reset to zero, the underuse trend is appearing to persist in SDL accounting too, with credits accumulating in many valleys.

To demonstrate this trend is not just a one-off with the short data period for SDL accounting to date, the below diagrams show the chronic trend of diversions being persistently below extraction limits. Specifically, the below diagrams for four 'under-recovered' valleys show the variation of diversions over and under the extraction limit (shown as 0 GL), with underuse (blue line) and overuse (red line). Note: the extraction limit changes from Cap to SDL in the 2019-20 year. Accumulated Cap credits were also forfeited, and not carried over into the SDL accounting.

[19] https://www.mdba.gov.au/publications/mdba-reports/cap-compliance-reports


NSW Murray under/over
Cap (1998-2019) and SDL (2020-2021) diversion limits
GL variation to extraction limit
500
0
-500
-1000
-1500
-2000
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
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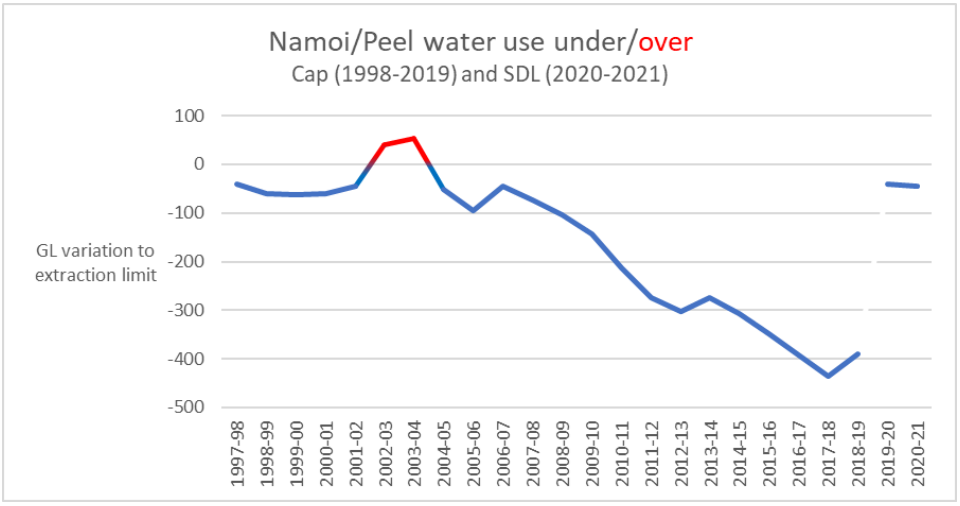
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21


Namoi/Peel water use under/over
Cap (1998-2019) and SDL (2020-2021)
GL variation to extraction limit
100
0
-100
-200
-300
-400
-500
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
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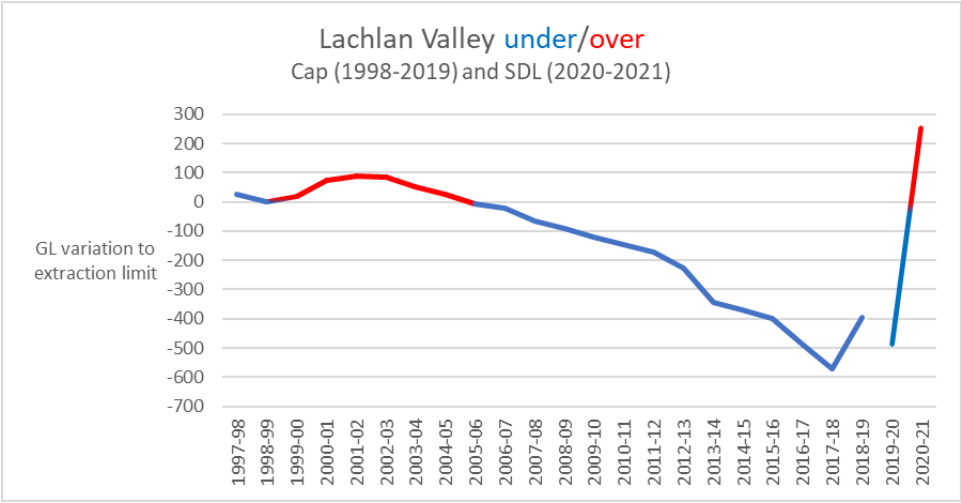
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21


Lachlan Valley under/over
Cap (1998-2019) and SDL (2020-2021)
GL variation to extraction limit
300
200
100
0
-100
-200
-300
-400
-500
-600
-700
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
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2016-17
2017-18
2018-19
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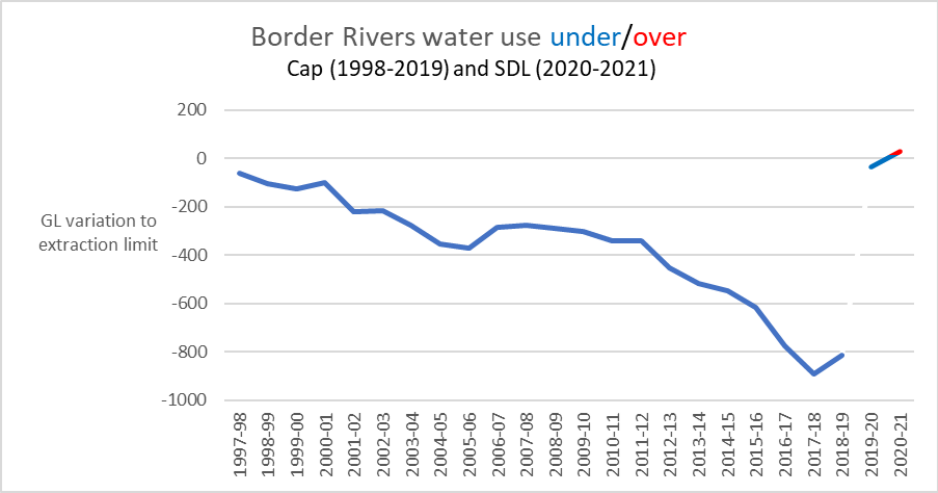
2020-21



Comparison to Remaining Bridging the Gap Recovery targets

The recently announced Strategic Water Purchasing Framework states it is about "*Bridging the Gap to the Sustainable Diversion Limits: 49.2 gigalitres total from 7 catchments*".

However, the SDL Registers of Take (consistent with earlier Cap compliance reports) indicate there is no gap left to bridge in surface water – or at the very least, it is far too early to tell whether, over the long-term, a gap in fact exists.

This raises questions about whether further "Bridging the Gap" water recovery is actually still required to achieve SDLs, or whether it is just a legacy of an outdated, modelled estimate from more than a decade ago.

When the proposed further water recovery is contrasted to credits/debits in the relevant valleys, this question of whether further water recovery is in fact required to meet SDLs becomes evident.

Table 3: SDL accounting over/under SDL in GL against proposed further water recovery
**Barwon-Darling SDL exceedance due to aforementioned modelling issues, not overextraction.*
** Positive number = credit; Negative number = debit.*

SDL resource unit	SDL	2019-20 Over/ Under SDL	2020-21 Over/ Under SDL	Further proposed water recovery	Is further water recovery justified?
NSW Border Rivers	320.1	-33.8	27.4	5.1	No
Namoi	490.3	-39.7	-44.2	9.5	No
Lachlan	578.3	9.88	-32.8	0.9	No
Barwon–Darling*	176.2	57.7*	66.9*	1.9	No*
NSW Murray	1512.2	-117.4	-322.7	10	No

To interpret the above table, it shows – for example – water use in the NSW Murray in 2019-20 was 117.4 GL under its SDL, or 8%. In 2020-21, water use in the NSW Murray was 322.7 GL under the SDL, or 21%.

This is consistent with chronic underuse trend in the NSW Murray evident in the Cap accounting reports (above). The underuse persists even though the Cap credits were forfeited and the balance was reset to zero when SDL accounting started in 2019-20.

It is hard to see how an additional 10 GL water recovery can be justified, when NSW Murray is already more than meeting its SDL. **There is, simply, no gap to bridge to meet the NSW Murray SDL.**

Similarly in the Namoi valley, water use in 2019-20 was 39.7 GL under the SDL, or 8%. In 2020-21, water use in the Namoi valley was 44.2 GL under the SDL, or 9%. It is hard to see how an additional 9.5 GL water recovery can be justified, when the Namoi is already more than meeting its SDL. **There is, simply, no gap to bridge to meet the Namoi SDL.**

In the Lachlan and Border Rivers valleys, the difference between the under and over across the two years is still a net credit in GL (22.9 GL and 6.4GL respectively). This credit compares with the Bridging the Gap 'debit' of 0.9 GL and 5.1 GL respectively**. It is, simply, too early to tell whether there's a gap to bridge in the Lachlan and Border Rivers Valleys.**

Next Steps

The DCCEEW website states:

> *"There are several Water Resource Plans (WRPs) that are still being finalised in NSW. This means water recovered toward the bridging the gap target in NSW is subject to change until all NSW WRPs are independently reviewed and accredited by the Commonwealth Minister."*

The 2018 Productivity Commission Report review of the Basin Plan states that:

> *"As water recovery targets are defined as a long-term average, the overall contribution of the portfolio to meeting the water recovery targets will change if cap factors[20] change. Changes to cap factors may create (or increase the size of) a water recovery gap, reduce the size of a gap, or lead to over-recovery"*[21]

> *"While the exact size (and direction) of changes to recovery progress from cap factors is not yet certain, the risk of a shortfall is likely to be manageable within the water already recovered."*[22]

> *"When completed, it is possible that water recovery may exceed the targets established by SDLs, with over-recovery in some surface water areas. Although this cannot be determined until key*

[20] Cap factors *"estimate the historic utilisation of each type of entitlement in each area covered by the Basin Plan"*[20]. The MDBA says that *"the factors are based on historic use patterns, climatic data, and trade information. They will be accredited as a part of the accreditation of water resource plans".*

[21] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 96].

[22] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 96].

technical work is finalised, there is not yet a process in place to calculate and address any over-recovery."[23]

Put simply, until that technical work is completed, the size of the gap to bridge is unknown.

Given the above data on SDL compliance, the balance of probabilities suggests that – at best – the planning assumptions may be *different* to what was initially modelled.

The problem with persevering with water recovery from farmers in the absence of this work is that the impacts are irreversible. As has already been seen in over-recovered valleys such as the Macquarie and Gwydir, over-recovered water has not been returned to water users to date.

This raises serious procedural questions of whether due diligence has been undertaken to complete this technical work, prior to any further water recovery, to avoid potential over-recovery – and to at the very least identify the exact size of the gap to bridge (if any).

Implications

This suggests that further work is required by government agencies to ensure water recovery targets are based on the best available information on actual water use against diversion limits.

Without further technical work, there is a real risk that water recovery will go well beyond what is required to achieve long-term SDL compliance in several valleys.

Not only is this a problem for the irrigation industry and Basin communities who suffer from lost water access, but this represents a significant risk of spending more taxpayer funds than required.

Recommendations – 1A

a) To ensure due diligence, halt "Bridging the Gap" water recovery until technical work is completed to identify the actual extent of the gap remaining (if any) to achieve SDL compliance.

b) DCCEWW / MDBA to undertake a comparative assessment of SDL compliance under two scenarios:
   i. current water recovery levels;
   ii. proposed further water recovery levels (i.e., additional 49.2 GL);
   to determine if any further water recovery is even needed to meet SDLs.

c) Further Bridging-The-Gap water recovery should only proceed if assessment indicates an actual risk of SDL non-compliance, requiring further water recovery. There is currently no evidence to suggest there is a gap; to the contrary, evidence suggest that SDL compliance is already achieved.

[23] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 10].

d) Federal Government to commit that any further water recovery will not result in any valley becoming over-recovered against its *new* targets (i.e., that if a gap to bridge is technically identified, water recovery will only go to, and not beyond, that amount), nor recovered without clear evidence of an SDL-compliance issue. For transparency, a risk assessment should be published identifying the procedures being used to mitigate the over-recovery risk (particularly given the uncertainty about the size of the actual gap), or chronic trends of usage being unable to reach SDLs (i.e. chronic underusage).

e) The recently announced round of "Strategic Water Purchasing" be referred to the Australian National Audit Office for a comprehensive audit and assurance report, to ensure due diligence and proper process on the expenditure of public funds for this program.

1B) SDL Adjustment Mechanism

i) 450 GL (efficiency measures)

Overview

The additional 450 GL of efficiency measures is problematic on several fronts:

a) It is a very large proportion of the remaining water in the southern connected systems (thereby its recovery will have significant impacts);
b) The program will cause serious water market disruptions;
c) The program has been found to be increasingly detached from environmental outcomes;
d) Practical implementation barriers prevent the additional water from being delivered.

a) 450 GL as a proportion of consumptive pool in southern connected systems

We refer the Commission to a NSWIC Report "*450 GL 'upwater': What it means for consumptive water in the Southern Connected Basin*"[24].

NSWIC "*450 GL 'upwater': What it means for consumptive water in the Southern Connected Basin*" available [HERE].

This report provides critical statistics illustrating the impact of recovering another 450 GL as a proportion of the remaining consumptive water in the Basin's southern connected river systems. It finds that the 450 GL is a very significant proportion - for example, the NSW apportionment (212.4 GL) of the additional 450 GL is the equivalent of 43.9% of total High-Security consumptive water in the NSW southern valleys. A full overview of findings is copied below.

Importantly, it must be noted that whilst this program is frequently referred to as "the 450 GL", it is 450 GL of LTDLE (i.e. wet water), which would require recovery of much more than 450 GL in water entitlements.

This NSWIC report looks at a range of scenarios given the uncertainties regarding unresolved policy questions on how the 450 GL would be delivered. For example:

- Will recovery of the additional 450 GL only be from below the Barmah Choke, to overcome river channel capacity constraints and therefore be deliverable to South Australia (to meet objectives)?
- Will trade rules be respected, such as the IVT limit of 100 GL in the Murrumbidgee and the 400 GL trade limit in the Goulburn?
- What ratio of high and lower reliability entitlements will be sought? Will recovery prioritise high reliability/security entitlements, as the Basin Plan's objectives in South Australia are largely focused on drier periods when low reliability entitlements would not have significant allocation?
- Will recovery be apportioned to Basin states according to existing practice, as outlined in the Water Recovery Strategy for the Murray-Darling Basin June 2014?

[24] https://www.nswic.org.au/wp-content/uploads/2022/08/2022-08-01-450-Report-FINAL.pdf

- Will recovery be targeted strategically to maximise intended environmental objectives?

The lack of detail on these key policy questions is of concern given the stage of Basin Plan implementation, particularly because many of these questions suggest that the program is undeliverable or unable to meet objectives.

Key Findings Snapshot: NSWIC 450 GL Report

Overall

Recovering the additional 450 GL is the equivalent of:

- **10.27%** of the Long-Term Diversion Limit Equivalent (LTDLE) of total remaining entitlement in the consumptive pool across the southern connected systems; or
- **19.16%** of the LTDLE of High Security/High Reliability Water Share (HS/HRWS) entitlement across the southern connected systems.

New South Wales

Recovering the NSW share (212.4 GL) of the additional 450 GL is the equivalent of recovering:

- **9.9%** of total consumptive water in the NSW southern valleys, or **14.3%** of total consumptive water in the NSW southern valleys below the Barmah Choke; or
- **43.9%** of total HS consumptive water in the NSW southern valleys, or **45.4%** of total HS consumptive water in the NSW southern valleys below the Barmah Choke;

Under a Murray-only scenario, recovering the NSW share is the equivalent of recovering:

- **21.8%** of total consumptive water in the NSW Murray, or **69.7%** of total consumptive water in the NSW Murray below the Barmah Choke;
- **147.72%** of HS consumptive water in the NSW Murray, or **166.2%** of HS consumptive water in the NSW Murray below the Barmah Choke.

Victoria

Recovering the Victorian share (197.1 GL) of the additional 450 GL is the equivalent of recovering:

- **10.5%** of total consumptive water in the Victorian southern Basin valleys, or **12.2%** of total consumptive water in the VIC southern Basin valleys below the Barmah Choke; or
- **13.1%** of total HRWS consumptive water in the Victorian southern Basin valleys, or **15%** of total HRWS consumptive water in the Victorian Basin valleys below the Barmah Choke.

Under a Murray-only scenario, recovering the Victorian share is the equivalent of recovering:

- **19.8%** of total consumptive water in the VIC Murray, or **26.7%** of total consumptive water in the VIC Murray below the Barmah Choke; or
- **23.2%** of total HRWS consumptive water in the Victorian Murray, or **30.2%** of total HRWS consumptive water in the VIC Murray below the Choke.

South Australia

Recovering the SA share (38.25 GL) of the additional 450 GL is the equivalent of recovering:

- **10.8%** of the total remaining consumptive water in the SA Murray.

b) Water Market Distortions from the 450 GL

Recovering an additional 450 GL from the remaining consumptive pool in the southern Basin will impact the water market, particularly temporary (annual allocation) water prices. Impacts are the result of:

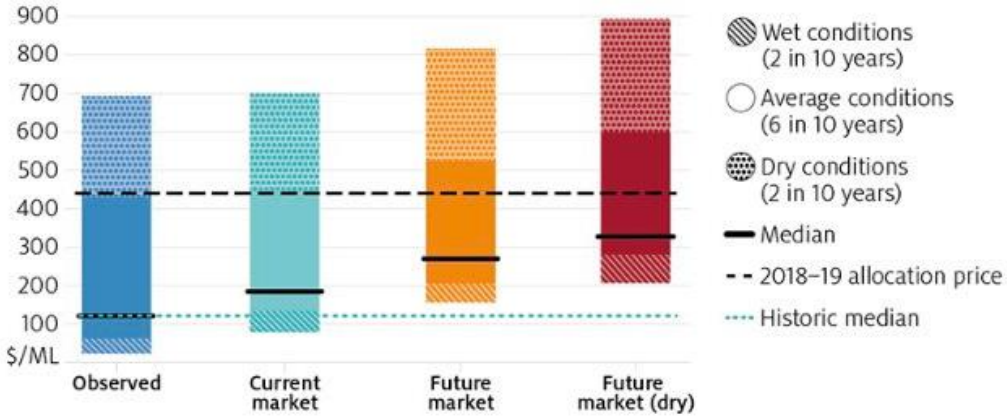
- increased demand in the market (i.e from the Government being a market participant);
- increased willingness to pay in the market (i.e. given government will pay the equivalent of 175% of market value); and
- long-term decreased supply in the consumptive pool.

ABARES research identifies that "*on-farm recovery has the largest effect on allocation prices*" due to an increase in water demand, and "*this 'rebound effect' means that on-farm efficiency projects increase allocation prices more than buybacks*"[25].

Specifically, "*ABARES estimates suggest that the water allocation price effect of on-farm irrigation infrastructure projects are likely to be around double that of buybacks, per unit of water recovered*"[26].

ABARES also finds that prices are forecast above $200/ML in three out of 10 years at current recovery (2106 GL, including 1702 GL in the southern Basin), but this jumps to eight out of 10 years if another 450GL is recovered. Farmers in the southern Basin simply cannot afford to pay these prices this high this often and stay in business, even those with high-return fixed plantings.

Figure 2: Weighted water allocation price by scenario, southern Murray-Darling Basin (source: ABARES[27])

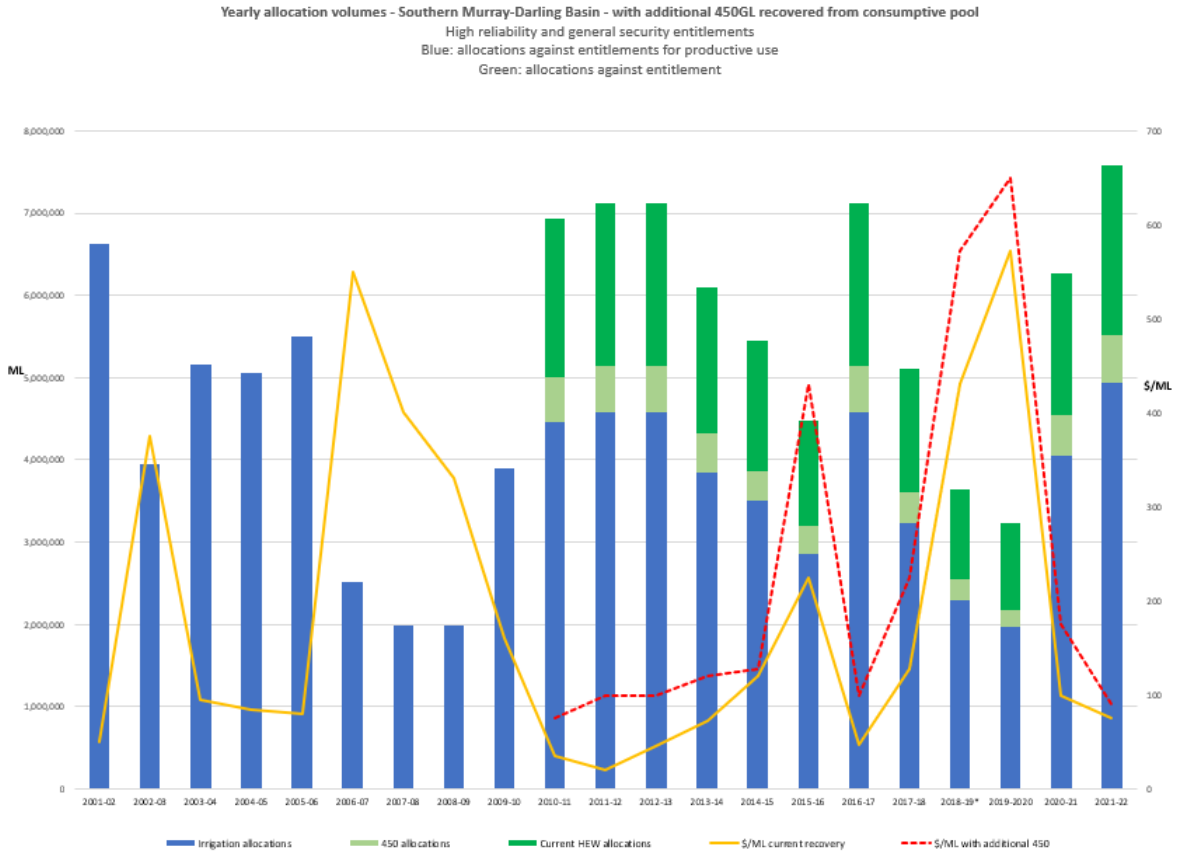


[25] https://daff.ent.sirsidynix.net.au/client/en_AU/search/asset/1030661/0 [P 7].
[26] Ibid.
[27] https://www.agriculture.gov.au/abares/research-topics/water/future-scenarios-smdb-independent-assessment-social-economic-conditions

To understand the market impacts of recovering the 450 GL, we analysed yearly allocation volumes and prices ($/ML) as if an additional 450 GL had been recovered from the consumptive pool over the past decade. Figure 3 shows irrigation allocations (blue columns), current HEW allocations (dark green columns), and an additional 450 GL of HEW (light green columns). Prices ($/ML) are shown at current recovery levels (yellow line), and under a scenario of additional 450 GL recovery (red dotted line).

The key finding from Figure 3 is that the $/ML under a 450 GL recovery scenario (red dotted line) is significantly higher than the $/ML under a current recovery scenario (yellow line). This impact is most stark in drier years. For example, in 2015-16, prices are modelled at $430/ML under a 450 GL scenario, compared to $225/ML at current recovery levels – nearly double.

Figure 3: Yearly allocation volumes (Southern Murray-Darling Basin) with additional 450GL recovered from consumptive pool



This means significant impacts on all water users, whether they choose to participate in the program or not. This is important given the program is not to have any negative socio-economic impacts. Inevitably, recovering this water will have socio-economic impacts through the fallout from market impacts.

An intervention of this kind, with proven water market impacts (as above) also raises ethical questions relating to market conduct and market manipulation – the form of anti-competitive behaviour a recent ACCC inquiry sought to address. For example, the ACCC recommended legislation (enforced through a dedicated agency) including integrity protections such as price reporting requirements and conduct prohibitions such as for market manipulation. It is our view that Government – as a market participant – should not be exempt from these integrity protections (albeit recognising such prohibitions are not yet in place, but this circumstance should not be taken advantage of, and acted in good-faith).

It should also be noted that the above impacts of recovering another 450 GL LTDLE from the consumptive pool will be compounded if the Federal Government were to revert to buybacks to cover the anticipated 190 – 314 GL shortfall in SDLAM 605 GL projects.

The combined impact would mean reducing the remaining pool to grow food and fibre by another 640 – 764 GL. In terms of water use, this is the equivalent of closing down all South Australian irrigation districts plus Sunraysia, or closing down all of the Murrumbidgee Irrigation Area, or Murray Irrigation Ltd, or the Goulburn Murray Irrigation District.

c) 450 GL Program increasingly detached from environmental outcomes

The objectives of the 450 GL are written into legislation, as below.

Part 2AA—Water for the Environment Special Account

86AA Object of this Part

(1) The object of this Part is to enhance the environmental outcomes that can be achieved by the Basin Plan, as in force from time to time, by:

(a) protecting and restoring the environmental assets of the Murray-Darling Basin; and

(b) protecting biodiversity dependent on the Basin water resources;

so as to give effect to relevant international agreements.

(2) Without limiting subsection (1), environmental outcomes can be enhanced in the following ways:

(a) further reducing salinity levels in the Coorong and Lower Lakes so that improved water quality contributes to the health of insects, fish and plants that form important parts of the food chain, with the aim of achieving the following outcomes:

(i) the maximum average daily salinity in the Coorong South Lagoon is less than 100 grams per litre;

(ii) the maximum average daily salinity in the Coorong North Lagoon is less than 50 grams per litre;

(iii) the average daily salinity in Lake Alexandrina is less than 1000 microsiemens per centimetre for 95% of years and 1500 microsiemens per centimetre all of the time;

(b) keeping water levels in the Lower Lakes above:

(i) 0.4 metres Australian Height Datum for 95% of the time; and

(ii) 0.0 metres Australian Height Datum at all times;

to provide additional flows to the Coorong, and to prevent acidification, acid drainage and riverbank collapse below Lock 1;

(c) ensuring the mouth of the River Murray is open without the need for dredging in at least 95% of years, with flows every year through the Murray Mouth Barrages;

(d) discharging 2 million tonnes of salt per year from the Murray-Darling Basin as a long-term average;

(e) further increasing flows to the Coorong through the Murray Mouth Barrages, and supporting fish migration;

(f) in conjunction with removing or easing constraints referred to in subparagraph (h)(ii), providing opportunities for environmental watering of an additional 35,000 hectares of floodplains in the River Murray System, to do the following:

(i) improve the health of forests and the habitats of fish and birds;

(ii) improve connections between the floodplains and rivers in the River Murray System;

(iii) replenish groundwater;

(g) increasing the flows of rivers and streams, and providing water to low and middle level floodplains and habitats that are adjacent to rivers and streams, in the River Murray System:

(i) to enhance environmental outcomes within those floodplains, habitats, rivers and streams; and

(ii) to improve connections between those floodplains and habitats, and those rivers and streams;

(h) in any other way that is consistent with:

(i) the Authority's modelling of the effect of increasing the volume of the Basin water resources that is available for environmental use by 3200 gigalitres; and

(ii) easing or removing constraints on the capacity to deliver environmental water to the environmental assets of the Murray-Darling Basin.

However, the Productivity Commission's 2018 five-year assessment of the implementation of the Basin Plan found:

"Recovering water through efficiency measures has become ***increasingly divorced from the environmental outcomes it is meant to achieve****. The current focus of the program is on meeting the legislated target of recovering an additional 450 GL by 2024. There is little evidence that it*

has been designed to recover water in the places needed to effectively achieve the enhanced environmental outcomes." [28]

Given the significant risks and impacts to irrigated agriculture and Basin communities, the intended objectives must be carefully examined, including the ability for policy mechanisms to achieve them and these highly regulated river systems' capacity to deliver the additional water.

Furthermore, before progressing such measures, it would be important to understand (i) the extent to which many of these environmental outcomes are already being met, (ii) the ability (if any) for proposed policy mechanisms to further address them (and to what extent), as well as (iii) alternative options which may cause fewer and less severe socioeconomic impacts. Parts (ii) and (iii) will be addressed later in this submission.

In terms of (i), there is now significant data to show that many of the key environmental objectives under the Basin Plan are being met, or exceeded, even during the recent, exceptionally severe drought. For example, the Basin Plan KPIs in Lower Lakes, Coorong are being met, even in 2019 drought.

A specific example is meeting the Part 2AA—Water for the Environment Special Account, 86AA (2) (iii) objective to maintain average daily salinity in Lake Alexandrina at less than 1000 microsiemens per centimetre for 95% of years and 1500 microsiemens per centimetre all of the time.[29]

The South Australian Government reports that:
"The delivery of water has enabled the improvements in condition to be sustained through the following measures…:

- *Restoration of salinities in the Lakes that is:*
    - *reflective of pre-drought conditions*
    - *below critical targets (i.e. <1500 EC in Lake Alexandrina and <2000 EC in Lake Albert)."*[30]

In another example, the South Australian Government has published that:
"Implementation of the Basin Plan to date has supported:
• improved connectivity between the Lakes, Coorong and Murray Mouth with 10 years of continuous flow and increased barrage flows
• maintenance of lake levels and salinities within optimal ranges
• increased resilience of fish populations in dry times

[28] Inquiry report - Murray-Darling Basin Plan: Five-year assessment - Productivity Commission (pc.gov.au) [Page 22].
[29] MDBA River Murray Data <https://riverdata.mdba.gov.au/system-view>
[30] South Australian evaluation of environmental outcomes under the Basin Plan | 2020 – DEW, Government of South Australia.

• *improved health of Ruppia in the Coorong."*[31]

The MDBA also reports that even in the exceptionally dry 2019-20 water year, "*the Murray Mouth remained open year-round, assisted by dredging*"[32].

Positive environmental outcomes being achieved through the use of the HEW already recovered are being observed across the Basin. For example, the Department of Climate Change, Energy, the Environment and Water (DCCEEW) recently reported that:

"It's been a big year for waterbirds, with the most widespread breeding across the Murray-Darling Basin in more than 20 years …

"Estimated numbers so far include:

- *10,000 pairs of waterbirds, mainly Straw-necked ibis, at Dharriwaa (Narran Lakes)*
- *30,000 pairs of waterbirds including Royal spoonbills, Cormorants, Egrets, Nankeen night herons, Glossy ibis and Straw-necked ibis in the Gwydir Wetlands*
- *150,0000 nests of Ibis, Egrets, Spoonbills and Night herons at Macquarie Marshes*
- *15,000 Pelican pairs at Lake Brewster, 25,000 Ibis pairs at Lake Cowal and 25,000 Ibis pairs at Booligal Swamp in the Lachlan valley*
- *30,000 pairs of Ibis and Spoonbills and over 10,000 pairs of breeding Pelicans in the lower Murrumbidgee wetlands*
- *over 2,600 mixed nests of Australian white ibis, Straw-necked ibis, Royal spoonbills, Nankeen night herons in Barmah-Millewa Forest*
- *7000 Black swans in the Coorong, an increase of 34% from 2021."*[33]

It is important to recognise that the Basin Plan is already hitting its KPIs and delivering on its environmental objectives with the water already recovered, including in South Australia, even during severe drought. Improving these outcomes is no longer a matter of just add more water, but rather investing instead in addressing the threatening processes driving biodiversity decline despite the improving environmental water availability. Threatening processes include feral and introduced plants, animals and fish; habitat degradation; cold water pollution; barriers to fish movement and so forth.

d) Practical Implementation Barriers to the 450 GL

Barrier (1) If the appropriate constraints are not relaxed, the additional recovered water cannot yet be used to enhance environmental outcomes

[31] Technical information supporting the South Australian Basin Plan Environmental Outcome Evaluation - Coorong, Lower Lakes and Murray Mouth Priority Environmental Asset - DEW, Government of South Australia (October 2019)
[32] Lower Lakes, Coorong and Murray Mouth Report Card 2019–20 – MDBA
[33] Waterbird resurgence in the Murray-Darling Basin – DCCEEW, Australian Government (13 July 2022)

As above, water recovered through efficiency measures is intended to enhance environmental outcomes in Schedule 5 of the Plan. The Schedule 5 outcomes go beyond the benchmark environmental outcomes in the Plan, focused on sites in the southern Basin (including higher level floodplains and the Coorong, Lower Lakes and Murray Mouth).

The Productivity Commission's five-year assessment of the Basin Plan[34] advised that:

"Achieving the Schedule 5 outcomes requires Basin States to ease or remove constraints to water delivery in the southern Basin, to allow river operators to meet increased demands from environmental water holders. Basin Plan modelling suggested that, if this does not occur, ***the extra water would have few additional environmental benefits****."*

"the modelling suggested that without easing constraints to allow higher flow rates, additional environmental water would have few additional benefits"

"If constraints projects are not implemented as expected, rushing to recover the full 450 GL by 2024 would risk the Australian Government spending hundreds of millions of dollars for ***an asset that (potentially) cannot be used*** *for some time. Aligning water recovery with progress in lifting constraints could potentially save the Australian Government up to $203 million."*[35]

"The 2012 Basin Plan modelling that underpinned the development of the Schedule 5 outcomes and the efficiency measures package made a number of assumptions that have since changed. In particular, the modelling suggested that without easing constraints to allow higher flow rates, additional environmental water would have few additional benefits. Since then, Basin States have developed proposals for constraints projects that will allow lower flow rates than those included in the 2012 modelling."[36]

The inability to realise the environmental benefits without constraints management is significant, given the recent Second Review of the Water for the Environment Special Account (WESA) found: "*Constraints measures program will not be delivered by 30 June 2024*"[37].

The Government rushing to recover 450 GL without the appropriate constraint programs in place could result in a large volume of water being 'recovered' but unable to be used for some time. This lacks due diligence, and should be a matter of scrutiny for value for public expenditure for a program that is not even deliverable.

NSWIC agrees with the finding by the Commission in the 5-year assessment that: "*Basin Governments and the MDBA need to do more work to provide greater confidence that the enhanced environmental outcomes can be achieved"*[38].

NSWIC also agree with the recommendations of the Commission in the 5-year assessment that:

5-year review recommendations

[34] Inquiry report - Murray-Darling Basin Plan: Five-year assessment (pc.gov.au) [page 22]
[35] Ibid.
[36] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 21].
[37] https://www.dcceew.gov.au/sites/default/files/documents/second-review-water-for-the-environment-special-account.pdf [P 8].
[38] Inquiry report - Murray-Darling Basin Plan: Five-year assessment (pc.gov.au) {P 21].

First, and as a matter of priority, the MDBA should update Basin modelling to establish the environmental benefits of additional water recovery within current operating conditions (including existing constraints), and the expected benefits arising from the agreed constraints proposals. This would identify those constraints projects that are most important for achieving the Schedule 5 outcomes and the entitlement types that should be prioritised in water recovery programs.

Second, DAWR should publish a water recovery strategy to define the environmental objectives of the program, to step out how those objectives will be pursued over time and to show how adverse socioeconomic impacts will be considered through program design.

To ensure that the recovery of the 450 GL is effective and efficient, this strategy should: …

… phase water recovery to ensure that, as new information becomes available, it aligns with both revised constraint proposals and progress in easing constraints, and contributes towards specific Schedule 5 outcomes

[see P 24 for full list]

Barrier (2) There is not enough liquidity on the water market to purchase the 450 GL in the short or medium term

It is important to note that less than 100 GL in entitlement is now being traded commercially each year on the water market in the southern connected systems[39]. Therefore, the common notion that the Government could simply enter the market and rapidly purchase 450 GL is not correct. At best, it would take several years for 450 GL to be purchased, with the scale of Government intervention inevitably distorting the market for years in breach of ACCC market inquiry recommendations to prevent any participants doing so.

Barrier (3) Incentive for water-holders to participate in efficiency schemes and relinquish entitlements is low if not non-existent

Through the current Efficiency Program, Government will pay 175% of the current market value. However, the finances don't stack up for most water users. The long-term benefits of holding onto the entitlement, an appreciating asset, are generally considered by farmers to be worth more than 175% of water entitlement value, when factoring in both the entitlement value and forgone production potential. Water users are substantially more likely to upgrade their water efficiencies through personal investment, use water more efficiently, and retain their water licences. Therefore, the program has a low willingness to participate.

Barrier (4) It is paradoxical to suggest the 450 GL can progress without socio-economic impacts in its current form

Under the Basin Plan, efficiency programs must only result in neutral or improved socioeconomic outcomes, based on (a very important) criteria agreed by the Basin Ministerial Council in 2018. Socioeconomic neutrality is critically important to communities, but unachievable in practice, as

[39] 2022 Aither Water Markets Report Webinar - AITHER | Advisors In Water Policy and Management, Infrastructure & Natural Hazards, watch from time mark 23.45.

water recovery will necessarily have impacts (as shown above, such as through the market impacts).

It should be noted that the Federal Government promised the 450 GL to South Australia on 26 October 2012, based on modelled enhanced environmental outcomes indicated in an October 2012 MDBA report[40] in which the model was run with all constraints relaxed. The promise was then written into the Murray-Darling Basin Plan signed into effect by the then federal Water Minister in 24 November 2012, without waiting for the report from a hastily convened House of Representatives inquiry to 'consult' stakeholders on the WESA Bill to provide the means to recover another 450 GL through efficiency projects; the HoR report was tabled on 28 November.

This rush of last-minute activity to enshrine the 450 GL ignored the MDBA report stating clearly on page iv that recovering another 450 GL,

> *... would require a commitment and significant investment from both state and federal governments and would be subject to further assessments, cost/benefit analysis (including assessments of any third party impacts) and extensive community consultation.*

No cost/benefit analysis was undertaken, nor extensive community consultation, nor assessment of third-party impacts. It was not until 2019-20 that ABARES turned its mind to analysing the potential water market impacts of recovering another 450 GL. It is not surprising under these circumstances that so many Basin community and industry stakeholders regard the 450 GL as an improper and undeliverable promise.

Recommendation – 1B (I)

a) Additional water recovery (i.e. such as, but not limited to, the 450 GL) should be halted until the water could at least be delivered to meet environmental outcomes (i.e. constraints management).

b) The WESA funding for efficiency projects (i.e. the 450 GL) should be re-invested into complementary measures (i.e. invasive species control, habitat restoration, fish screening, fish passageways).

c) Legislative change is required to enable non-entitlement transfer options to be included.

d) The socio-economic criteria agreed by Basin Ministerial Council in 2018 is fundamental to ensuring the socio-economic neutrality requirement is met, and must remain in place.

[40] Hydrologic modelling of the relaxation of operational constraints in the southern connected system: Methods and results (mdba.gov.au)

II) 605 GL (supply and constraints measures)

Background

The SDLAM involves a suite of Government proposed projects designed so the SDL (and associated total water recovery – 2750GL) can be increased or decreased by 5% (approximately 543GL). The SDLAM involves 'supply projects' (also known as 'offsets' or 'downwater'), which aim to improve environmental watering infrastructure and operating rules, such as by managing constraints, to allow for similar or better environmental outcomes to be achieved with up to 650 GL less water entitlement recovery, thereby reducing the impact on farmers and communities. A package of 36 supply measures was agreed by Basin States in May 2018.

SDLAM supply projects are crucial to minimising the social and economic impacts of the Basin Plan in the southern Basin. NSWIC strongly supports well-designed and locally supported SDLAM supply projects to achieve the 650GL of water recovery as the most critical component to the further implementation of the Basin Plan with the lowest risk to communities, whilst also providing actual and highly desired environmental outcomes. Whilst SDLAM is too often considered as a compromise from more water recovery, it is important to note that many of these projects are required to achieve environmental outcomes that cannot be substituted by simply recovering more water.

It is the NSWIC position that, as a minimum, 605GL must be achieved.

Overview

The 605 GL is critical to implementation of the Basin Plan, both to optimise environmental outcomes, but also avoid further socio-economic impacts. However, the 605 GL is in a precarious position, as has been recognised in numerous reviews.

Key issues include:

- Flexibility in timeframes is required (ensuring suitable projects are in place is more important than an arbitrary timeframe, determined 12 years ago);
- Flexibility to enable new or improved projects is required (there are better projects out there, which have been put forward by communities/industries, however, a political reluctancy for flexibility has blocked progressing these options to date.

Flexibility in timeframes is needed

Numerous reviews and inquiries have found that the 2024 timeframe is not realistic and have recommended timeframe flexibility. However, to date, this has not occurred – largely due to political unwillingness to adopt recommendations.

For example, the Productivity Commission 5-yearly Assessment stated that:

> *"Governments need to confront the reality that some projects may require more time"*[41].

[41] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 19].

"Failure to successfully implement these projects by 2024 would mean that either Basin States or the Australian Government will most likely need to make good any shortfall in the offset, which could include further water recovery."

"Strictly enforcing the 2024 deadline could lead to the abandonment of worthwhile projects."

The subsequent recommendation was:

"RECOMMENDATION 4.2 Basin Governments should be open to the possibility of extending the 30 June 2024 deadline for specific supply measures to be operational where an extension would be necessary to allow worthwhile projects to be retained. Basin Governments should make this position clear to project proponents early enough to inform the finalisation of detailed business cases for supply measures. It should be clear that extensions would need to be well founded, only apply in limited circumstances, and not alter the requirement to make good if a project ultimately fails."

This, however, has not been adopted.

Similarly, the Independent Assessment of Social and Economic Conditions in the Basin said to:

"Allow more time and flexibility for Sustainable Diversion Limit Adjustment Mechanisms to be achieved."

The subsequent recommendation was:

"Recommendation 5: If the existing SDLAM projects do not deliver the anticipated 605 GL, there should be flexibility to allow new or other existing projects to close the SDLAM gap. The 605 GL must be achieved through SDLAM. Given COVID-19, the progress status of key SDLAM projects, and the need for community consultation to not be rushed or ***superficial, timeframes for SDLAM measures should be extended*** *to deliver an equivalent value of 605 GL."*

Even the latest MDBA Report Card said:

"There remains substantial work to implement many of the SDLAM supply and constraints projects by 30 June 2024. Some projects will not be completed by this time and there are challenges to successfully achieving the originally envisaged environmental outcomes."[42]

However, despite it being widely recognised that SDLAM supply and constraints measures will not be completed by mid-2024, and these (and multiple other) recommendations for timeframe extensions, no change has been adopted.

A number of internal and external factors have contributed to the SDLAM implementation timeframes not being met – ranging from the initial timeframes being highly ambitious (if not unrealistic) to begin with, particularly in constraints projects, to poor administration and lengthy bureaucratic processes. In addition, the Plan has been implemented throughout the worst drought on record, the worst flooding on record, and the COVID-19 pandemic, to name a few. Not only did these severely limit public consultation opportunities, and prevented on-ground project works, but this was a period of heightened angst amongst communities. These factors compounded to make it unavoidable that the already highly ambitious timeframes would not be met.

Timeframe flexibility must be considered objectively, accounting for these circumstances, and with the best-interests of the Plan and the Basin (environment and people) as the priority. It has been disappointing to see the timeframe flexibility being used as a political weapon to lay blame

[42] https://www.mdba.gov.au/publications/mdba-reports/basin-plan-report-card

at opposing parties or Basin States, when ultimately that leaves Basin communities in a precarious position as well as potentially jeopardising the environmental outcomes these projects are intended to achieve.

An evidence-based and informed perspective on timeframes would recognise that extension has simply become necessary, and an obsessive focus on maintaining the current rigid timeframes would be a disservice to the Basin environments, communities, and the gains achieved so far under the reform.

The SDLAM Shortfall

The latest assessment indicates the SDLAM projects will most likely deliver between 290 and 415 of the 605 GL required as part of the Basin Plan - a shortfall of between 190 and 315 GL.[43]

Uncertainty remains over what exactly will happen with this shortfall (all things remaining constant) – i.e. will the MDBA decide to just drop SDLs (i.e. removing the SDLAM assumptions), or will buybacks proceed?

There seems to be one (misguided) political/stakeholder perspective that a shortfall is a good thing, as the shortfall will simply be purchased, with direct water-recovery seen as a preferred option.

However, this opinion (i) does not recognise the environmental benefits that the projects are intended to achieve; (ii) that buybacks will not substitute for the outcomes intended by these projects; and (iii) without constraints management, further water recovery could not be delivered to best-effect anyway. And finally, for reasons outlined earlier, buybacks are neither a fast, cheap nor easy option when less than 100 GL in entitlements is being commercially traded now each year on the southern Basin water market.

NSWIC agree with the statement in the Commission's 5-yearly review that:

"Failure of key projects would delay environmental benefits and could cost taxpayers about half a billion dollars for further water recovery."[44]

It will be important for decision-makers to be properly briefed that SDLAM is more than just a buybacks offset, but an important component of the Plan, essential to achieving Plan outcomes and optimising the outcomes from water already recovered, outcomes which cannot be substituted with more water recovery.

For this reason, focus must be on delivering a full (but modified) package of SDLAM supply and constraints projects, even if this requires more time.

Flexibility required for new or improved projects

The current package of notified measures is widely regarded as problematic.

[43] https://www.mdba.gov.au/news-media-events/newsroom/media-centre/address-national-rural-press-club-address-national-rural

[44] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 2].

The 5-yearly review identified that:

"Up to half of the 605 GL offset relies on six highly complex and interdependent projects…"

"Stakeholders are aware of the magnitude of issues to be resolved to implement supply measures…"[45]

See NSWIC Package of Options to Deliver the Basin Plan available [HERE].

However, the rigidity of the Plan prevents new projects being brought into the package of notified measures, irrespective of their merits. This means we are now in a situation where better projects exist, some of which are even proceeding separately, but cannot at present be factored into the Plan.

It is simply necessary for new or improved projects to become recognised under SDLAM. These alternative options should be based on principles of co-design with communities and industries. This would assist to avoid replicating the mistakes of the initial package of notified measures.

It has been pleasing in recent months (May/June 2023) that the Federal Government commenced public consultation to hear community perspectives on how the Plan can be better delivered, with particular regard to SDLAM (605 GL and 450 GL). This "all options on the table" approach has been welcomed by communities. A number of options are available to Government, which communities and industries have put forward (a copy of the NSWIC submission is available here[46]), with examples outlined below.

However, communities are very mindful that under the current rigid Plan, many of these options could not proceed – i.e. legislative change would be required to enable new projects, with timeframe flexibility to get them implemented (and a delay to reconciliation to enable this). This legislative change would require political agreement. For this reason, it will be critical that the Federal Government is able to provide a sound roadmap to deliver the remainder of the Basin Plan, including outlining how an adaptive management approach will result in better outcomes than the status quo, to have any hope of avoiding politicisation of what should be a sensible and evidence-based way forward.

Industry and Community-Led New Projects

As one example, below is a case study on the Murray Irrigation Limited (MIL) Reconnected Floodplains Project.

Case Study: Murray Reconnected Floodplains

[45] https://www.pc.gov.au/inquiries/completed/basin-plan/report/basin-plan.pdf [P 17].
[46] https://www.nswic.org.au/wp-content/uploads/2023/07/2023-06-30-NSWIC-Submission-Basin-Plan-Options.pdf

The Murray Reconnected Floodplains project involves Rehabilitating and connecting thousands of kilometres of riparian systems and wetlands throughout the Murray floodplain landscape, targeting at-risk ecosystems.

The Project outcome is the upgrade of existing infrastructure both within the Murray Irrigation channel network (escapes, channel upgrades), and private land (creek crossings and fences) within the region's rivers, creeks and wetlands to build on enhance e-water events by delivering water into natural assets via Murray Irrigation's channel network. The overarching objective of this project is to deliver better environmental outcomes using water already recovered through water reform.

The potential benefits include:

- Total of 74,000ha of floodplain ecosystems re-connected and rejuvenated
- 2,000km of riparian systems connected to the Murray River (20,000ha riparian beds). 2,000 on-farm private wetlands rejuvenated (54,000ha wetland area).
- Our modernised supply network will enable precise control and measurement of water, enabling targeted environmental outcomes and demonstrating full accountability of public water
- Target and rehabilitate at-risk ecosystems
- Key water delivery infrastructure is already in place
- Potential water recovery offset benefits
- Strong community support

For further information, see the MIL website.[47]

Similar proposals exist within other IIOs.

For example, Coleambally Irrigation Co-Operative Limited (CICL) and Murrumbidgee Irrigation (MI) are investigating a Murrumbidgee Optimisation Program, where delivery of the Basin Plan outcomes in the Murrumbidgee can be achieved by investment in infrastructure and collaborative systems not previously identified by government. Specifically, two key areas with immediate environmental and operational benefits include Enhanced Mid-Murrumbidgee storages and Control of Lowbidgee flows. These projects will provide enhanced river reregulation capability using existing structures (i.e., weirs and existing storages at Tombullen, Yanco and Bundigerry) and identify opportunities for strategically based additional re-regulation capacity to support targeted, efficient environmental flow delivery particularly to the mid-Murrumbidgee wetlands. These are consistent with the objectives of notified projects and could even be considered as enhancements of existing notified projects (specifically, improved flow management works at the Murrumbidgee River, Yanco offtake and Murrumbidgee key focus area).

However, despite the positive benefits of these (and other) proposals, which are arguably greater than the current package of notified measures, these projects cannot currently be included unless there is legislative change to enable the inclusion of new projects.

Whilst projects of these kinds are progressing through feasibility studies and business cases, it will not be possible to get these projects operational by mid-2024, thereby not alleviating the concern about the consequences of a SDLAM shortfall (under current arrangements) in the absence of legislative change.

[47] https://www.murrayirrigation.com.au/project/murray-reconnected-floodplains

Recognition of existing initiatives that could be considered as SDLAM projects

IIO and Private-Landholder Partnerships for Environmental Water Delivery

A number of formal partnerships now exist between the CEWH (and state environmental water holders) and IIOs to deliver water to environmental sites within their footprint. IIOs can deliver water to sites – such as blackbox depressions – very efficiently. Not only is this more efficient, but it provides watering at times when these sites may not otherwise receive water.

This provides enormous environmental benefits, from partnerships not foreseen when the Basin Plan was conceived, and therefore not factored in. Specifically, there is opportunity to recognise IIO internal watering with Held Environmental Water as an offset (i.e. under the 605 GL).

To demonstrate the extent of what is now already happening (noting most of these are since the commencement of the Basin Plan, and were not factored into the Basin Plan):

IIO	Recent E-Watering
Coleambally Irrigation (CICL)	There have been 33 watering events over 13 sites in the last seven years.
Murray Irrigation (MIL)	Since 2001, more than 205 gigalitres of environmental water has been delivered to wetlands, ephemeral creeks and rivers within the MIL footprint.
Renmark Irrigation Trust (RIT)	Since 2017, the Trust has delivered more than two gigalitres of water for the environment to 12 different sites, inundating 120 hectares.
Murrumbidgee Irrigation (MI)	Since 2015, MI has delivered more than 11 gigalitres of environmental water to identified target areas. Most environmental water in 2021-22 was delivered to Nericon Swamp, an important bird breeding site just outside of Griffith, and the Ramsar-listed Fivebough and Tuckerbil swamps in Leeton, and Campbells swamp in Griffith.

*Noting some IIOs have done environmental watering for a long time, but the developments since 2012 are vastly significant.

There are also many great examples of private landholders (i.e. outside of IIO footprints) undertaking similar initiatives to water wetlands.

Further examples are included in the NSWIC '*Working Together'* Campaign [HERE].

It would be of value for an assessment to be undertaken to stock-take the environmental benefits achieved through these industry-led initiatives, and their potential contribution to measures such as SDLAM, as well as the potential for further expansions of these programs.

Reforms outside the Basin Plan since 2012

It is important to note that alongside the Basin Plan, a range of other water reforms have been occurring, particularly in NSW. This means that several changes from the 2012 baseline have occurred since that time, that are not strictly factored into the Basin Plan.

For example, a range of rule changes have been included in NSW Water Sharing Plans (WSPs) since 2012 which affect the availability and accessibility of water for irrigation. The 2010 Productivity Commission report on mechanisms for water recovery recognises rule changes as a form of water recovery, particularly for unregulated systems. If this water has come out of the consumptive pool anyway, during the period of the Plan, it should at least be recognised and accounted for in some way.

We recommend the PC undertakes a stocktake of rules changes in WSPs to identify where any potential recovery volumes may be recognised from changes that have already taken effect, but not yet quantified (to be clear, this is not suggesting further rule changes, rather accounting for existing ones).

Further, programs such as the Better Bidgee[48], Better Baaka[49] or Western Weirs program which the NSW Government is progressing, could be factored in, but currently are not fully recognised. The Better Bidgee/Baaka programs are about taking a holistic, system-wide approach through infrastructure improvements and operating rules improvements (i.e., such as through improvements to fish passage, addressing cold water pollution, and fish-friendly water extractions).

Other alternatives

Other opportunities for alternative options for SDLAM projects include (but are not limited to):

- Complementary measures - A package of complementary measures to accompany environmental watering should be considered to mitigate a risk of SDLAM shortfall. The need for complementary measures is increasingly recognised in academia. For example, Baumgartner et al identify '*ten complementary measures to assist with environmental watering programs in the Murray–Darling river system'.* The authors say: *"We argue that while recovering water will provide good outcomes, as a sole intervention, it is not enough to deliver the desired environmental benefits of the reform…"*[50]
- Market product options – for example, market product concepts have been produced such as the Kilter Rural Murray-Darling Balanced Water Fund[51], the WaterFind Water Futures Efficiency Program[52], or a temporary trading model (i.e. Narran Lakes borrow).
- River Operations options - work over the past 10 years confirms that substantial volumes of water can become accessible to users through better storage management and more efficient water delivery.
- Expand 450GL eligibility to stock and domestic systems, and town water efficiencies.
- Off-farm efficiency projects in several irrigation districts.

[48] https://www.dpie.nsw.gov.au/water/water-infrastructure-nsw/better-bidgee-program
[49] https://www.dpie.nsw.gov.au/water/water-infrastructure-nsw/better-baaka-program
[50] https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3438
[51] https://kilterrural.com/bwf/
[52] Water Futures Efficiency Program | Waterfind Australia

Limitations

Irrespective of the merits of the above options, the current rigidity of the Plan will not enable many of these highly worthwhile projects and measures to be implemented. For most, if not all, of the above projects to be considered in delivering the Plan, legislative change will be required.

For example:

- Projects currently must be operational by mid-2024 – this timeframe is impossible for projects only just commencing implementation following this consultation, therefore timeframe extensions would be required;
- New SDLAM 605GL projects can't be added to the mix notified by Basin States in 2019 – this criteria would need to be expanded to enable the addition of new projects.
- Requirement that water counting towards targets such as the 450 GL must be in the form of entitlements ('held' water) – this would need to be amended to be inclusive of non-HEW initiatives (i.e. environmental outcomes from complementary measures or rules-based approaches) not just GL;
- Requirements for permanent entitlement transfer out of the pool for growing food and fibre – this prevents a number of options, and would require amendments to consider options such as temporary trade or market product models.
- **The SDLAM 605 GL projects being scored against simplistic modelled streamflow indicators rather than accounting for their total embedded environmental gains in the system.**

If the requirement for efficiency projects to involve the transfer of an entitlement to the CEWH was removed, a whole suite of new environmental initiatives would be made possible through existing WESA funding. These – arguably – would better provide the desired enhanced environmental outcomes than current policy settings and make the best use of the 2107 GL of CEWH held water already.

Whilst necessary, NSWIC is concerned by the high-risk of politicisation if legislative changes were put before parliament. NSWIC seeks that DCCEEW reduces this risk through effective communications about the barriers/challenges of the status quo (i.e. that additional water cannot achieve objectives without constraints managed), and the genuine benefits of these alternative measures.

NSWIC is concerned that Government may simply push worthwhile new projects into 'Basin Plan 2.0' (for reasons of requiring legislative amendments, for example), rather than consider their merits and role in finishing the current Plan.

The Plan was always intended to be an adaptive management Plan. It is not acceptable for agencies or politicians to simply say "the Plan does not enable it", and disregard worthwhile options. If there are new, and better, ways of delivery the Plan – these must be considered and adopted.

If that requires legislative change – to get better ecological outcomes without harming communities – that needs to occur.

Pathway forward on SDLAM required

It is evident that: (i) SDLAM will not be in place by mid-2024; (ii) failing to extend timeframes will lead to the loss of worthwhile projects, and projects not substitutable by further water recovery; (iii) a lack of flexibility to include new projects would lead to sub-optimal outcomes; and (iv) the status quo, which is uncertain (but assumed to be further water recovery or SDL amendment) would have dire socio-economic impacts for little environmental gain.

Additionally, the absence of a clear pathway forward, with the risk of further water recovery to make up a shortfall, has Basin communities increasingly anxious.

The language from the Federal Government of 'all options are on the table' has been promising, as well as the current (at time of writing) public consultation on options to deliver the Plan. However, without the necessary legislative changes to give effect to these new options being included in the Plan, this will be meaningless.

The risk of the process becoming heavily politicised is acute and cause for deep concern. In particular, a tendency for some States or stakeholders to call for more buybacks without reasonable justification (or as a punishment for failure to implement projects), does not serve the best interests of the Basin, its communities or its environment.

For that reason, appropriate communication will be critical from key agencies (and this review) on the barriers to implementation (i.e. such as constraints), that makes 'resorting to buybacks' not a feasible option, as well as the opportunities and benefits (including environmental) that can be harnessed from alternative approaches so they are seen as legitimate.

A pathway forward needs to give all stakeholders confidence that there is a legitimate roadmap to attain the Basin Plan outcomes (i.e. not just kicking a can down the road), and demonstrate that such outcomes are more important than arbitrary timeframes.

Recommendation – 1B (II)

a) Flexibility for new, and improved, SDLAM projects is required, which will necessarily require timeframe extensions.

b) DCCEEW must provide a pathway of what a renewed package will entail, based on public consultation outcomes. It will be important that this package is based on partnerships and co-design of projects with communities, to avoid repeating mistakes of the initial projects.

c) The Federal Government should announce at the earliest opportunity plans for Basin Plan flexibility (i.e. legislative amendments) to aid community consultation on renewed pathways (e.g. to overcome communities feeling frustrated their ideas are not feasible with current Basin Plan rigidity).

d) Clear communication of renewed pathways will be key – particularly the necessity of this approach and the environmental opportunities, as well as risks of the status quo - to mitigate as best as possible the politicisation of this issue. This must include communicating that the supply

and constraints projects are not substitutable by further water recovery, but are necessary projects for environmental water delivery and optimal management.

III) Reconciliation

Under the current legislation, the MDBA is required to assess whether the package of notified measures has been implemented in a way that has achieved the outcome initially expected in the 2017 determination.

For background, the '2017 initial adjustment' (7.10 and 7.20) was the original determination of the net effect of the notified supply and efficiency measures. This resulted in SDL increases in the southern Basin (SDL units) and thus proportionally for the total SDL for the Basin. This total outcome was a net effect of a 605GL SDL increase.

The '2024 reconciliation adjustment' (7.11 and 7.21) is only necessary if the MDBA considers that a determination undertaken at 30 June 2024 would produce a different outcome to the 2017 determination. That is, if in 2024 there is reason to suspect that a different volume to 605GL would be determined.

If deemed necessary, the MDBA must determine the amounts of proposed adjustments for each SDL unit (i.e. the extent of the difference to 2017). This must occur in accordance with Division 4 – which is the Annual Environmental Watering Priorities. The proposed SDL adjustments must be made according to 23A of the Water Act – which outlines the processes to be followed when adjusting an SDL.

Put simply – if a 2024 reconciliation occurs – and the determination finds an adjustment is needed, the MDBA undertakes a reconciliation process to compare the difference, and determine a new adjustment amount (i.e. reduce the offset volume from 605GL, and therefore amend the SDL – almost certainly downwards).

Issue 1 – It is premature to undertake a reconciliation

It is our view that it is premature to undertake a reconciliation when it is well-known that projects are not in place. The intention of the reconciliation – as we see it – is to assess whether the projects in operation deliver in practice what they were anticipated to deliver in theory. Without a number of projects in place and operating, this cannot be done.

It is our recommendation that a reconciliation process should not be undertaken until a package of projects is in place.

As raised above, the necessity for timeframe extensions, and new and improved projects, must be a greater priority than rigid timeframes and processes that sell communities and the environment short.

It should be noted that the MDBA pushing ahead with reconciliation – with the known potential impacts of SDL adjustments, and irrespective of the recommendations for timeframe and project

flexibility – is a key contributor to community anxiety and frustrations. For communities, it is a signal that such recommendations from the Commission and others are not being taken seriously.

Issue 2 – the MDBA should be advising decision-makers on potential scenarios, including where legislative amendments may be required.

At the National Press Club on 22 November, the Chief Executive of the MDBA stated:

"This means the Authority will have no choice but to recommend to the Federal Water Minister, amended sustainable diversion limits in southern Basin catchments."

We do not agree with this statement.

The MDBA has choices, both within the scope of current legislation, and with consideration to whether legislative amendments may in fact be required to achieve the Plan's desired environmental outcomes.

The MDBA's legislative role in determining if a reconciliation should occur, done properly, should involve briefing Ministers on the available options, including what has been recommended by multiple reviews and inquiries with regards to SDLAM, and recommending alternative pathways if deemed necessary or more logical.

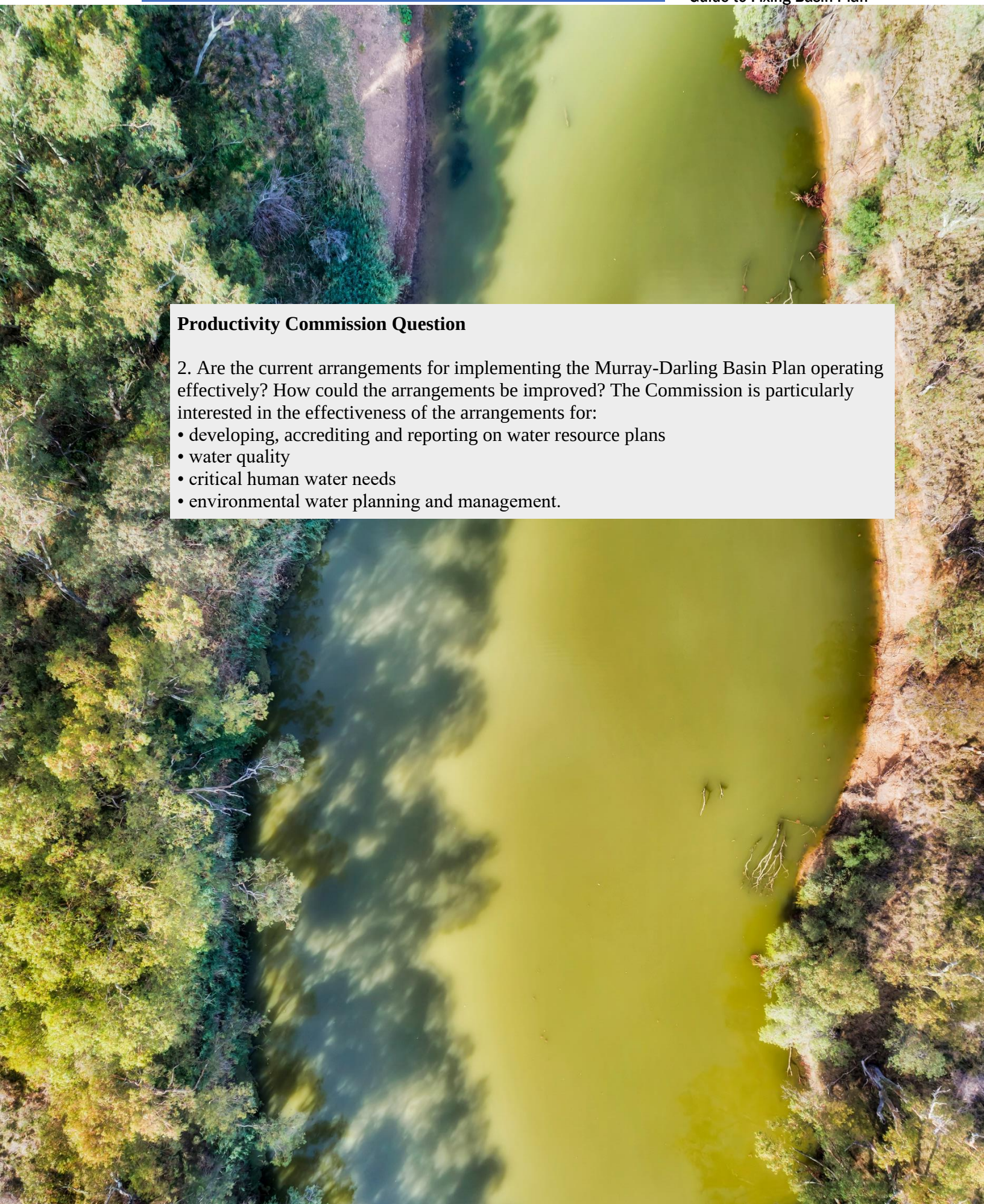
The silence of the MDBA in this regard – or worse, public statements indicating a very rigid and narrow interpretation of the legislation with disregard to formal review findings – has been disappointing.

It is our recommendation that the MDBA should provide a brief to decision-makers on the available options, including both those within the scope of the current legislation, and ones that would require legislative amendments (but are consistent with formal review findings and recommendations, or would better enable the realisation of the Plan's outcomes).

Recommendation – 1B (III)

c) A reconciliation should not occur until, at least, a new timeframe to deliver SDLAM has been determined, that enables new or improved projects to be designed and properly delivered in practice.

d) The MDBA should cease undertaking a reconciliation, and instead provide advice to Ministerial Council on a range of alternative pathways, including the advice of previous inquiries (such as the Productivity Commission in 2018), for SDLAM.



Productivity Commission Question

2. Are the current arrangements for implementing the Murray-Darling Basin Plan operating effectively? How could the arrangements be improved? The Commission is particularly interested in the effectiveness of the arrangements for:

- developing, accrediting and reporting on water resource plans
- water quality
- critical human water needs
- environmental water planning and management.

2A) Water Resource Plans

A number of challenges have been associated with Water Resource Plans (WRPs).

While it is important to have WRPs accredited, the delay/absence of WRPs must be considered in the context that the functional mechanisms of the WRP for all practical purposes is already in effect under state legal and regulatory frameworks. For example, SDLs have legal effect through bilateral agreements between NSW and the Commonwealth.

Assertions, for example in media reporting, have incorrectly suggested an absence of a WRP means SDLs are not complied with, or there is no way to enforce compliance with regards to water theft – this is simply not correct. It has been concerning that the delays have become politicised, including to unfairly undermine confidence in the Basin water management.

This is not to belittle the poor process and challenges associated with developing the NSW WRPs. Nor is it to diminish the importance of eventually getting them in place: it is important to get WRPs in place, particularly to ensure that the ways the water source is in fact compliant with the Basin Plan are clearly and transparently outlined.

This submission will focus on one of several issues in the development of WRPs.

Planned Environmental Water (PEW)

Under the Basin Plan, identifying 'PEW' (Commonwealth) is intended to identify a baseline against which to implement the Basin Plan, to ensure no backwards steps in net environmental condition. This makes sense and is not disputed.

NSW has long had a term 'PEW' in the state water management framework, well prior to the same term being adopted by the Commonwealth for the purposes of the Basin Plan. Whilst the same term, they have a different meaning, referring to different things.

In NSW, PEW has long referred to <u>all water</u> above extraction limits. This is the most significant share of the water resource and is used for both environmental and non-environmental purposes such as recreation (swimming, boating, fishing), cultural purposes, and transmission losses from water delivery, to name a few.

The Commonwealth later adopted a term 'PEW' in its Water Act and the Basin Plan, but with a different meaning, and for a different purpose - in this case water that has a specified environmental purpose and is protected from other types of use. Specifically - Commonwealth PEW is "*water that is committed or preserved for environmental purposes and which cannot, to the extent to which it is committed or preserved for those purposes, "be taken or used for any other purpose*"".

What the Commonwealth legislation refers to as PEW, and what NSW legislation refers to as PEW, are different things. It is like having two people in a room called Michael, but that does not make them the same person.

This has become a challenge, when the Basin Plan requires, through the WRP, to identify PEW.

For Basin states where PEW is a new term (i.e. Victoria), this has been more simple. For example, Victoria has said "*PEW is a new concept to Victoria*" and "*No PEW exists in the Wimmera-Mallee*"[53]. For people used to the NSW understanding of PEW, these statements suggest Victoria previously extracted all water, and still does in the Wimmera Mallee – which is obviously not the case. Victoria also has long had water above diversion limits, managed for environmental, cultural recreational and other purposes, just with a different name.

States like Victoria, where PEW is a new term, set out to identify PEW (Commonwealth) – for example *"Victoria has identified three forms of PEW in northern Victoria. This is where a minimum passing flow is identified as being for the environment, must be provided under the specific instrument and the water is protected from extraction by other water users. It is committed under a bulk entitlement in the Broken and Ovens System and the Upper Ovens River Water Supply Protection Area Management Plan"*[54].

However, in NSW, rather than undergoing this same due process of identifying PEW (Commonwealth) in NSW for Basin Plan purposes, the MDBA has confused the terminology, and tried to simply claim all water above extractions limits (i.e. what is called PEW in NSW law) as PEW for Basin Plan purposes (i.e. what is called PEW in Cth law).

This confusion risks all water above extraction limits in NSW (PEW in NSW) being identified as PEW (Commonwealth) under the Basin Plan, so that additional water may be locked into Basin Plan provisions and requirements (such as no net reduction, and the effectiveness test), well beyond what the Basin Plan intended and States agreed to in signing the Plan.

Stakeholders are concerned that the MDBA is taking an inconsistent approach to PEW between jurisdictions. In a letter from the MDBA to the Victorian Government in March 2020, it was stated:

"Victoria does not identify this water as Planned Environmental Water (PEW) in the proposed WRP, as it uses this water to meet multiple purposes rather than it being solely for the environment. While the Authority takes a broader interpretation of the Basin Plan definition of PEW than Victoria, in order to progress the development of the WRPs, the MDBA and Victoria agreed to an alternative approach which enables the proposed WRP to acknowledge above cap water as providing an important flow base that water managers build on to deliver environmental outcomes."

However, for NSW, we understand (but are unable to verify as the final WRPs are yet to be published), that the MDBA has taken a much broader approach and determined all water above extraction limits as PEW in NSW.

As a key principle: all Basin States should be subjected to consistent and equal standards and processes in the implementation of the Basin Plan.

[53] https://www.water.vic.gov.au/__data/assets/pdf_file/0023/436622/WRP_Fact_Sheet_4_Environmental_watering_Part1.pdf

[54] Ibid.

Recommendations 2A – Water Resource Plans

1. The MDBA and Commonwealth Government recognise this terminology clash and be cognisant to this clash in assessing NSW WRPs. This may take the form of a position statement, to provide clarity on the matter.

2. NSW to undergo the same due process, and assessment standards, as the MDBA required of other Basin States to identify PEW (Commonwealth).

3. NSW changes the State's terminology to avoid conflict and confusion with Commonwealth terminology (i.e., to above-diversion-limit water, similar to above-Cap in Victoria). That way, 'PEW' would have one meaning, consistent across jurisdictions.

2B) Water Quality

The focus on water quantities in the Basin Plan has distracted from important consideration to water quality. Many farmers are anecdotally reporting declining water quality, particularly due to carp numbers, despite the increased volume of water for environmental flows made available under the Basin Plan.

Please refer to section on complementary measures.

Recommendations 2B) Water Quality

1. Focus must shift from just water quantities, to water quality, specifically the range of complementary measures required to address this (i.e. carp control).

2C) Critical Human Needs

The most recent drought, where a number of towns reached or approached 'Day Zero' of running out of water supply, demonstrates the inadequacies of current water management infrastructure and arrangements for critical human needs water.

In NSW, for example, water infrastructure and service delivery is chronically underfunded, particularly for towns in rural and remote areas.

NSWIC is concerned that the only solution put forward is simply to buy more water entitlements from irrigators, or reduce their access through rule changes. This is heavily flawed – not only because reduced food and fibre production comes at a large cost to communities, but because it doesn't make town water any more secure during droughts. During these critical times, the water allocation framework, or Available Water Determinations (AWDs), already ensures that critical human needs are prioritised, leaving allocations low or zero for irrigators.

Specifically, AWDs are based on a hierarchy or order of priority of water users, which is outlined in the *Water Management Act 2000*. Under normal circumstances, this means the needs of the environment (ie, water to ensure rivers run) are the highest priority, followed by town water supply, basic landholder rights, and stock & domestic licences. Next in order are high security water licences (typically for permanent plantings such as orchards or vineyards), and finally, last in line is water for lower security licences (which are typically used for annual crops like cotton or rice).

During extreme events, such as droughts, critical human water needs (i.e. town drinking water) becomes highest priority, then the needs of the environment (ie, keeping rivers running), followed by stock, high-security licences, and still last in line (and only if any water is left over, which it typically is not) are the lower security licences like general-security. This hierarchy is outlined in Figure 5 below.

Figure 5: Hierarchy of NSW water allocation

Priority	Extreme events	Normal circumstances
Highest	• Critical human water needs	• Needs of the environment
High	• Needs of the environment	• Basic landholder rights
	• Stock • High security licences • Commercial and industrial activities authorised by local water utility • Water for electricity generation on a major utility licence • Conveyance in supplying water for any priority 3 take	• Local water utility access licences • Major utility access licences • Stock and domestic access licences
	• General security licences	• Regulated river (high security) access licences
Low	• Supplementary licences	• All other forms of access licences • Supplementary access licences

Source: Based on priorities table in *Macquarie-Castlereagh Surface Water Resource Plan: Schedule G—Macquarie-Castlereagh Incident Response Guide*

Because of this system, the notion of taking water off irrigators (at the end of the line) to give to critical needs (at the start of the line) is heavily flawed.

The technical reports for the Western Regional Water Strategy demonstrate this further:

> *During dry periods, restricting upstream access is not effective because there is no water to protect"*[55]

> *"placing restrictions on low priority licences upstream – such as supplementary, floodplain harvesting, B-Class and C-Class licences – is unlikely to result in significant changes in flow downstream or at the end of the system during droughts and is unlikely to slow the depletion of water in Menindee Lakes during droughts. This is because these licences rely on large natural flow which often do not occur during droughts."*[56]

[55] https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0003/548202/western-regional-water-strategy.pdf [P 91].
[56] https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0003/548202/western-regional-water-strategy.pdf [P 90].

"Longer cease to-flow events are more likely to be driven by the climate, rather than irrigation development because very little inflow occurs during these extended dry events."[57]

"Even at the turn of last century, when there was little agricultural development upstream, there were long periods when the river did not flow."[58]

"Figure 1 demonstrates that during critically dry periods, restricting upstream access would not have significantly stopped or slowed the depletion of Menindee Lakes regardless of implementing a 195 GL total, 195 GL active, or 480 GL trigger. This is because during the last drought there were limited flows upstream to restrict."[59]

Recommendations – 2C) Critical Human Needs

1. A comprehensive plan to meet critical human needs water is required.
2. There must be a shift in political attention to directly targeting this issue, rather than just targeting farmers' water access

[57] https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0003/548202/western-regional-water-strategy.pdf [P 59].
[58] https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0003/548202/western-regional-water-strategy.pdf [P 57].
[59] https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0004/548203/additional-analysis-on-the-menindee-trigger-options.pdf [P 6].

2D) Environmental Water Planning & Management

Environmental Outcomes

You can't "just add water" to fix the key degradation drivers of our rivers.

We need an integrated catchment management approach, rather than just a water management approach alone.

NSWIC *"Beyond Buybacks" Report* available [HERE].

Water reform in the Murray-Darling Basin this century has focused primarily on water sharing, to address over-extraction, which was considered the biggest issue of the 90s and early 2000s.

Since then, the Murray-Darling Basin Plan has recovered over 2,100 GL of water from irrigators (over 4 Sydney Harbours), for the environment. To put this into perspective, this has removed 1 in 3 litres of irrigation water (when combined with the 875 GL recovered in pre-Basin Plan water reforms).

As a result, total diversions have reduced to just 28% of inflows. This is now well within globally accepted standards for water diversions, and has been a significant change.

The portfolio of water entitlements now held by the Commonwealth Environmental Water Holder (CEWH) and State environmental water holders, in addition to river flows, is delivering positive outcomes. For example, in 2021-22 the CEWH reported the most wide-spread waterbird breeding in over 20 years.[60] Federal Water Minister Tanya Plibersek credited the Basin Plan with saving rivers in the severe 2019 drought,[61] building in resilience for the environment to respond as soon as rain returned.

However, while significant environmental gains have been achieved, water recovery alone can only go so far. Scientists have rightly pointed out that:

"While recovering water will provide good outcomes, as a sole intervention, it is not enough to deliver the desired environmental benefits…

… recovering water is not enough to deliver all the anticipated environmental benefits. In a highly modified system, equal attention should be given to addressing other threats that water delivery alone cannot ameliorate."[62]

However, there has been no, or very little, focus on implementing a strategic, co-ordinated and properly resourced program of complementary measures.

[60] https://www.dcceew.gov.au/water/cewo/making-a-difference/waterbird-breeding-bonanza-in-the-basin

[61] https://minister.dcceew.gov.au/plibersek/speeches/national-press-club-address

[62] Lee J. Baumgartner, P Gell, J D Thiem, C Finlayson, N Ning (2019) "Ten complementary measures to assist with environmental watering programs in the Murray–Darling river system, Australia": https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3438

An integrated catchment management approach, with these targeted environmental measures in place, alongside environmental watering, provides the greatest chance of improving the health of the whole Basin.

Key degradation drivers

Many of the key degradation drivers in the Basin cannot be fixed by just adding more water alone.

For example, now, the biggest environmental issues in the Murray-Darling Basin include:
• Invasive species (i.e., carp now make up 90% of fish biomass in some areas, damaging habitat and river banks, and causing poor water quality);
• Habitat degradation for native species;
• Barriers to fish passage (such as weirs), and lack of fish screens on pumps;
• Poor water quality (i.e., blackwater events) and cold-water pollution; and,
• Lack of cultural knowledge reflected in water management.

This requires moving beyond just water sharing, to other levers.

Integrated Water Catchment Management

A shift to Integrated Water Catchment Management (IWCM) is needed, to make the most of the additional environmental water now available.

IWCM refers to the integrated or coordinated management of land, water and related resources. Specifically, it does not consider land, water, and biodiversity management as separate activities[63] – but inter-related.

The problem is that water management in the Basin, to date, has taken a very singular focus on just adding more water alone, becoming increasingly detached from land management, biodiversity, conservation and other related outcomes.

Whilst environmental flows have been bolstered through the 2,100 GL of Basin Plan water recovery, and 875 GL pre-Basin Plan, in addition to river flows, the complementary measures required to optimise the use of this water have attracted little attention and funding.

If these measures are not prioritised, then just adding more water means we will only ever be tinkering around the edges to improve environmental outcomes; river, riparian and floodplain

[63] Michael J Stewardson, W Shang, GR Kattel, JA Webb (2017) "Environmental Water and Integrated Catchment Management": https://www.sciencedirect.com/science/article/pii/B978012803907600022X

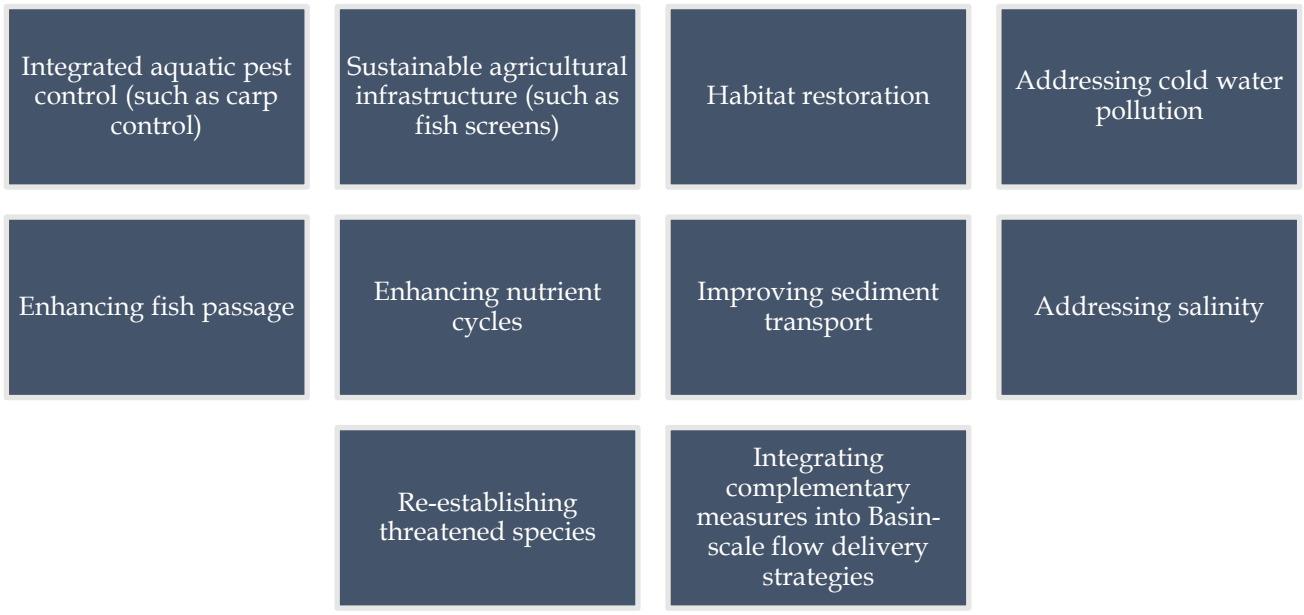
health; and, water quality. It also means that the water recovered already cannot be used to optimal effect. This has been perhaps the biggest failure of Basin environmental management to date.

What is needed?

Beyond buybacks does not mean 'doing nothing', it means 'doing more', but doing it differently.

Scientists have already identified the types of measures that should be used to complement environmental watering and river flows in the Basin.

For example, Baumgartner et al (2019)[64] identify 10 complementary measures to assist with environmental watering programs in the Basin. These are:



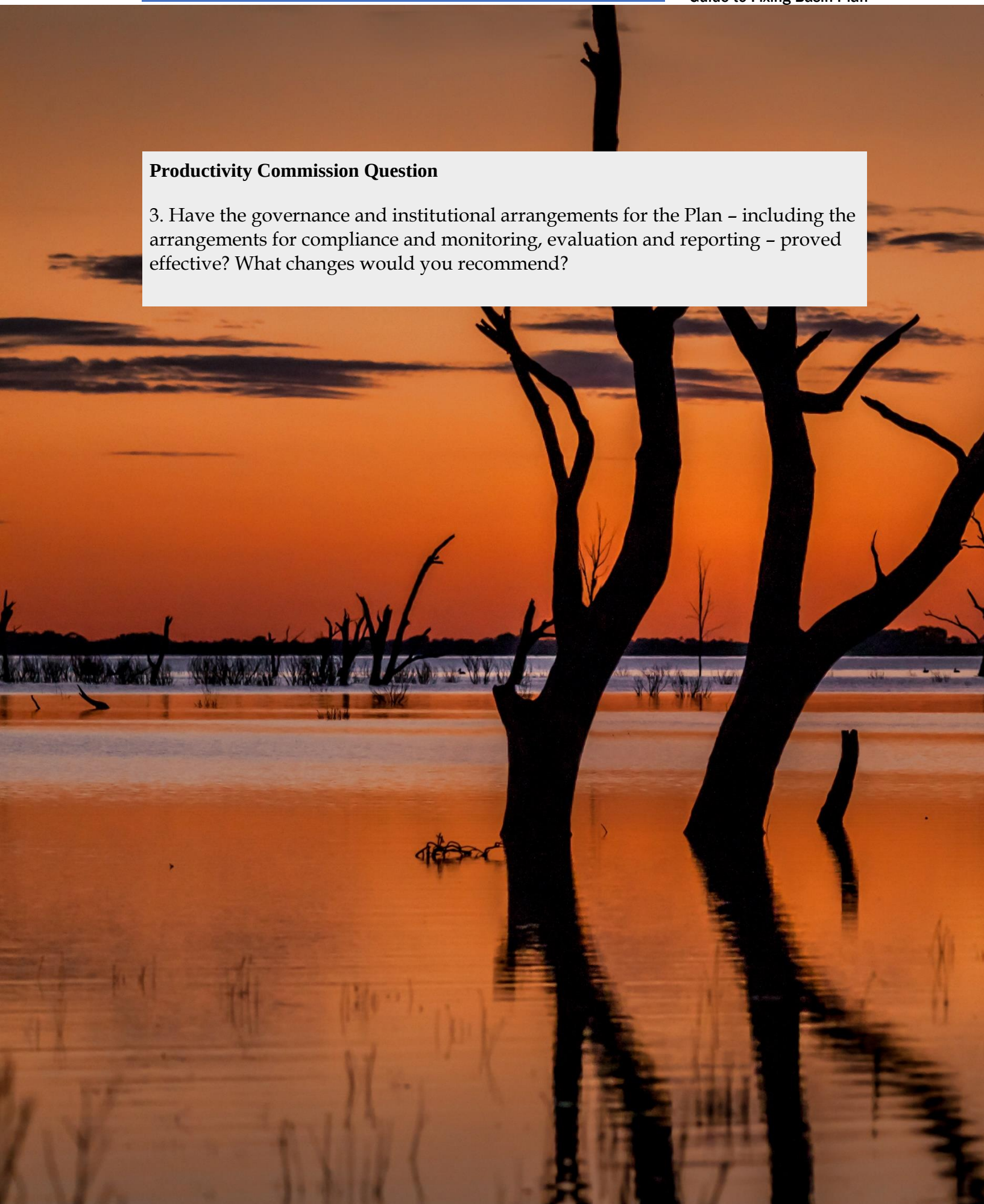
Recommendation 2D) Environmental Planning & Management

a) Implement a strategic, co-ordinated and properly resourced program of complementary measures.

b) Additional water recovery should be, at least, de-prioritised until such a program is in place, as it would only be tinkering at the edges until these measures are in place.

c) Redirect the WESA funding towards complementary measures.

[64] https://onlinelibrary.wiley.com/doi/abs/10.1002/rra.3438



Productivity Commission Question

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

3) Governance

The key areas where governance and institutional arrangements should be improved, include:

- Reporting against actual environmental outcomes is needed, not just progress towards water recovery targets.
- The SDL registers of take are published a very long time after the completion of the water year – this process should be streamlined so the data is more promptly available.
- The role of the Inspector General of Water Compliance is questionable, with concerns that it is duplicating the role of state authorities (i.e. NRAR in NSW) for individual-level compliance. There are concerns the role has become politicised, such as where the most recent SDL compliance report had NSW greyed out to suggest the data was not available, when the data was available (and showed compliance); the report was then used as a stunt to make a political point about NSW WRP accreditation.
- Recommendations from official reviews and inquiries are rarely implemented by Governments, including the recommendations from the 2018 PC 5-yearly review. This has meant that important, evidence-based recommendations have not been adopted, and led to agencies and Basin Governments persisting with a rigid and non-adaptive Plan.
- Pervasive misinformation on Basin water management remains rife, and authorities are not taking a lead role in countering misinformation. Authorities must be more active in this space. Simply putting fact sheets on websites does not go far enough – there needs to be an active effort by authorities to monitor media (mainstream and social) and provide corrections as required.
- There has been significant investment and resourcing into updating the science for environmental assessment / reporting (which is positive), but this has not been met with equal attention in socio-economic or water market impact assessments. This has increased community concerns leading up to the 2026 review.
- There has been concerns that the 2026 review (and other evaluation and reporting processes) will only consider socio-economic and other changes since the Plan was legislated (i.e. in 2012). This, however, excludes consideration of the buybacks which occurred prior to the Plan itself being legislated (which entails a significant amount of the impacts), thereby risking understating the impacts.

Recommendation 3) Governance and institutional arrangements

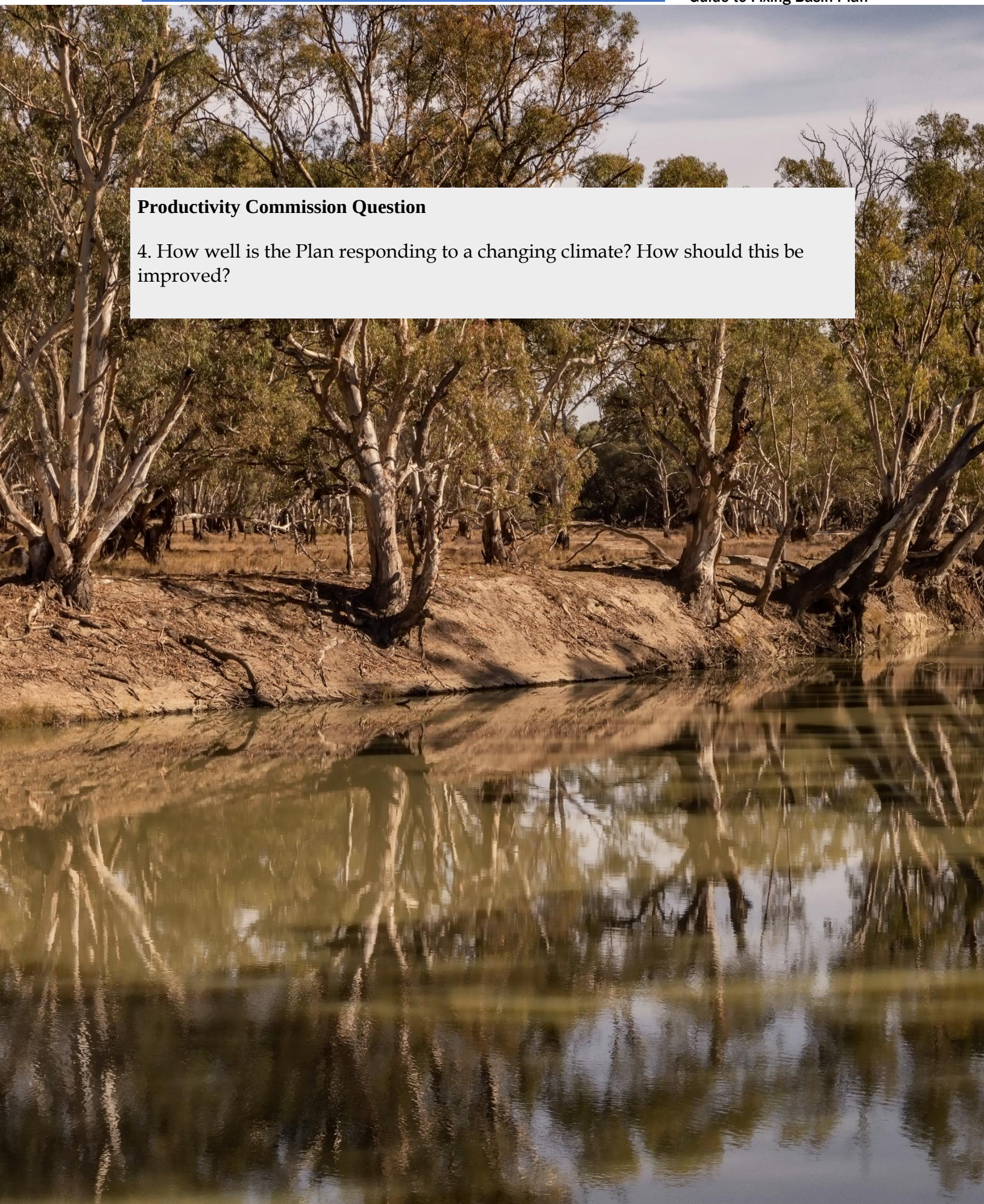
a) Reporting on actual environmental outcomes is required, not just recovery targets or flow volumes as a proxy.

b) SDL Registers of Take / Compliance Report should be published in a more timely manner.

c) Agencies must take a more active role in addressing misinformation.

d) Further investment into socio-economic and water market impacts is required.

e) Evaluation and reporting must consider the full breadth of the Plan's impacts, not just from the legislation commencing.



Productivity Commission Question

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

4) Climate Change

NSWIC Report "*Climate Change & Water: Irrigated Agriculture on the Frontline*" available [HERE].

Climate change is undoubtedly one of the greatest challenges to water management.

The impacts of climate change have been observable at both ends of the water spectrum, with more intense extremes of droughts and floods over the last 16 years of the Basin Plan's development and implementation.

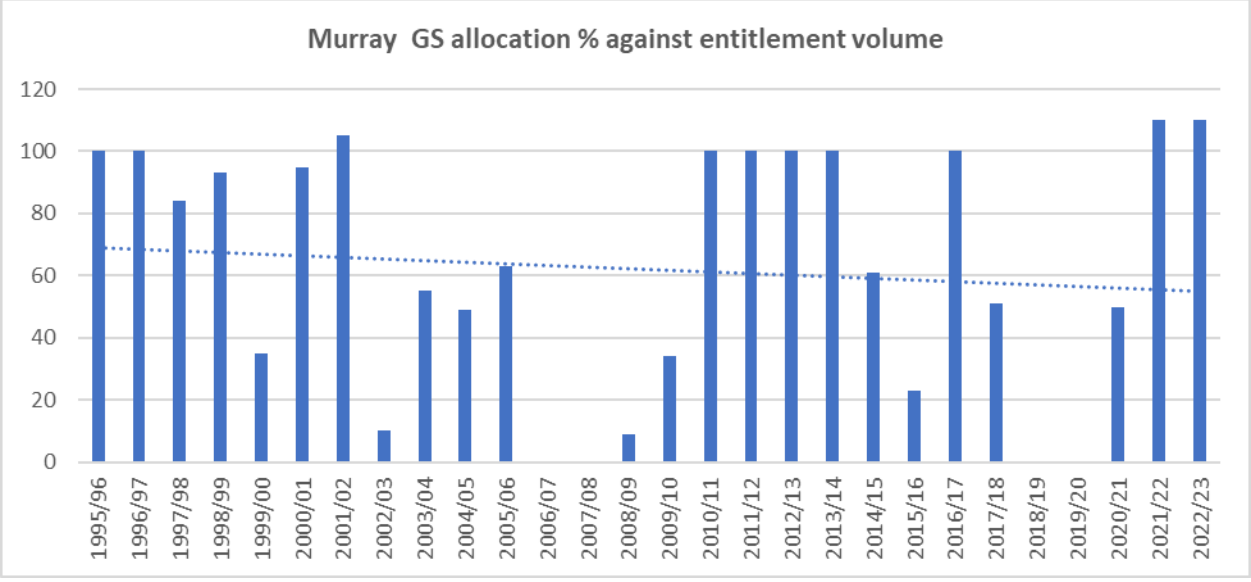
NSWIC refers the Commission to the NSWIC Report "*Climate Change & Water: Irrigated Agriculture on the Frontline*"[65].

In this report, we highlight that climate change (and climate variability) are already factored into water sharing frameworks at a state-level, through Available Water Determinations (AWDs) or water allocations. Put simply, in dry times water allocations decrease (or hit 0), and in wet times increase. NSWIC calls this an 'Automatic Climate Change Response Mechanism' (ACCRM).

The impacts of this framework, under climate change, are already demonstrable with an observable trend in declining water availability for irrigators (and other licence holders including the CEWH and state environmental water holders). For example, licence holders in the NSW Murray were allocated, on average, 81% of their general security licence volume each year before the Millennium Drought but now their licence reliability is only around 62%. Similarly in the Namoi valley in the northern Murray-Darling Basin, reliability has declined from 77% to around 39%.

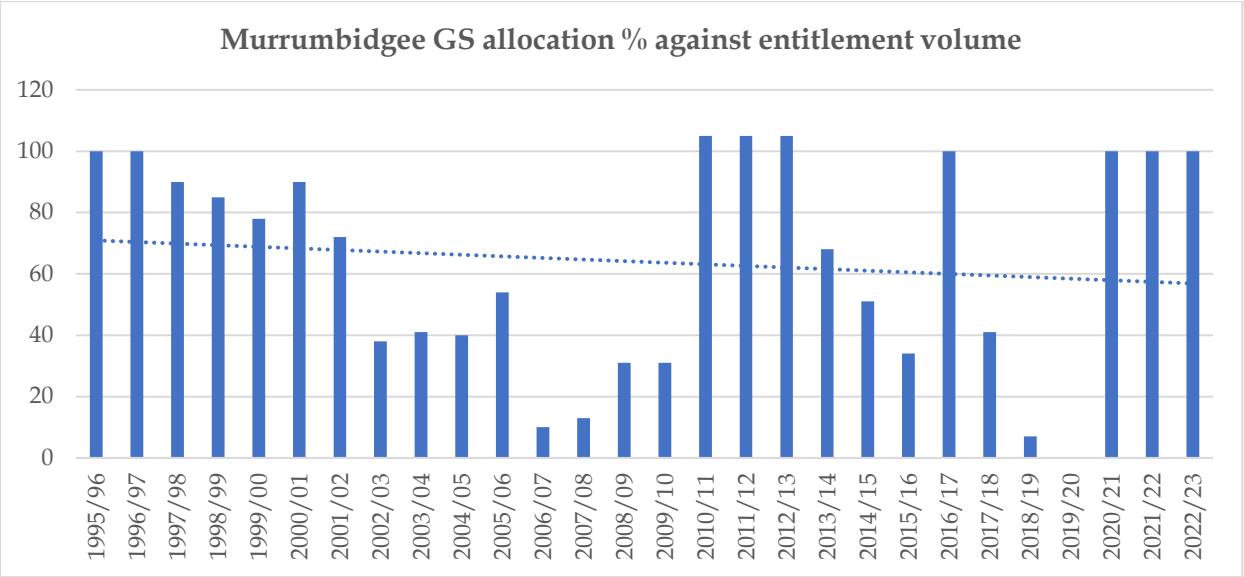
This general declining trend in water reliability is shown below. Of note – this is due to both climate change, and policy drivers.

Figure 7: NSW Murray General-Security



[65] https://www.nswic.org.au/wp-content/uploads/2022/11/2022-11-11-Climate-Change-Report-Final.pdf

Figure 8: Murrumbidgee General-Security



The modelled outlook is also sobering. The Regional Water Strategy for the Lachlan valley, for example, forecasts that irrigators could experience a 60% decrease in their average water availability under long-term climate change projections.

NSWIC is concerned by climate change being used as a justification for further recovery of water from farmers, through buybacks and other means, because:

- Given the AWD process, there is very little, if any, water allocated to most irrigation licence types in droughts, and therefore recovery of these licences for the environment similarly does not deliver more water to the new owner;
- Further water recovery from farmers will compound water scarcity and upward pressure on water prices during droughts, compounding the climate change impact on communities and industries, on top of the automatic mechanisms already in water sharing frameworks.

In assessing how well the Plan responds to climate change, it must be considered that a lot of the climate change mechanisms occur at a State level (i.e. in other instruments outside of the Basin Plan).

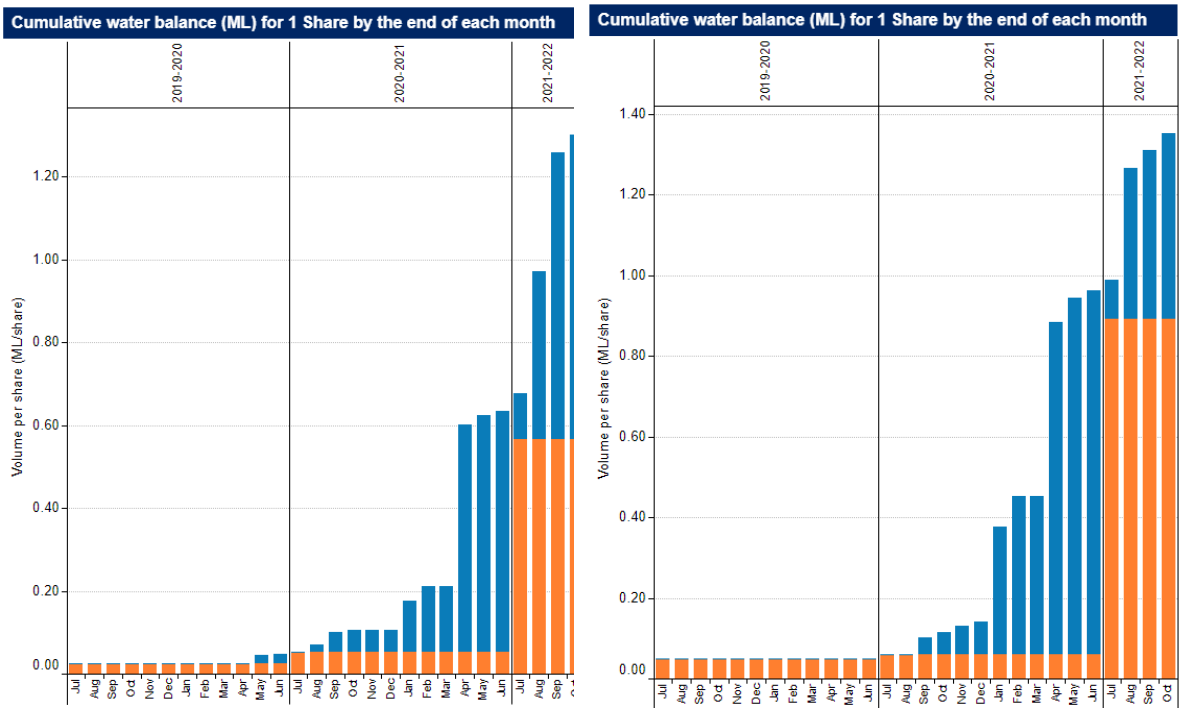
To demonstrate the operation of this water sharing framework in practice, the below table shows that during and preceding the key drought years of 2018 and 2019, general-security allocations were severely reduced, most on 0% – meaning, they got no water. These 0% general security allocation years are marked in red.

Table: General security closing allocations (2017-18 to 2021-22)

Valley	2017-18	2018-19	2019-20	2020-21	2021-22
INLAND					
Border Rivers (GS B)	16%	0%	0%	47%	100%
Belubula	0%	0%	0%	0%	83%
Cudgegong	38%	0%	0%	68%	100%
Gwydir	18%	0%	0%	58%	150%
Lachlan	2%	0%	0%	70%	121%
Lower-Darling	96%	0%	30%	52%	100%
Macquarie	38%	0%	0%	68%	100%
Murray	51%	0%	3%	50%	110%
Murrumbidgee	45%	7%	11%	82%	100%
Namoi (lower)	7%	0%	0%	90%	105.3%
Namoi (upper)	95%	100%	50%	72%	100%
Peel	100%	38%	0%	84%	100%
COASTAL					
Bega / Brogo	75%	65%	60%	50%	50%
Hunter	100%	100%	95%	100%	100%
Paterson	100%	100%	100%	100%	100%
Richmond	100%	100%	100%	100%	100%

The below figures show this occurring diagrammatically in the Gwydir and Lower Namoi valleys, as case studies. During the drought, there was 0% general security allocations (i.e. no blue columns) and negligible unused general security allocations from previous year carried over (orange columns; this water could not be delivered, however, as most would be lost in seepage and evaporation from drought-affected rivers). As conditions began to improve (i.e. the drought began to break) particularly in 2021-22, water allocations then increased (i.e. shown by the appearance of blue columns).

Figure 9: General-security water allocations over drought period 2019-20 to 2021-22, Gwydir (left) and Lower Namoi (right).



As a further example, in NSW, WSPs implicitly adjust for both climate variability and climate change in their fundamental existence and operation. The climatic record used as input for these planning decisions is based on the full available climate record. This includes in determining the Long-Term Annual Average Extraction Limit (LTAAEL) and the priorities according to which allocations must be adjusted if extraction limits are exceeded. This is based on modelling of inflows and extraction over the full climatic record held by the Department up to the date of the finalisation of the relevant hydrological model (for example, in the Border Rivers, this is up to 2019 which includes the most recent worst drought on record).

For example: Extract from Border Rivers WSP, Division 2 Long-term average annual extraction limit:

27 Calculation of the long-term average annual extraction limit

(3) For the purposes of subclause (2), the long-term average annual extraction limit is to be calculated **over the duration of available climate records** using the plan limit hydrological computer model approved by the Minister.
Notes. 2 The long-term average annual extraction limit recognises the effect of climatic variability on the availability of water in accordance with section 20 (2) (c) of the Act, as historic climate and river flow information is used in its determination.

28 Calculation of long-term average annual extraction

The Minister, using the current conditions hydrological computer model approved by the Minister, is to calculate the long-term average annual extraction following the end of each water year, calculated **over the duration of available climate records** and based on the following…

As new climate information becomes available (including during the term of the WSP), the LTAAEL is updated (i.e. it is not a fixed number but is determined by the model).

NSWIC is concerned by the (incorrect) view that climate change is not already considered in water management frameworks, or factored into the Murray-Darling Basin Plan.

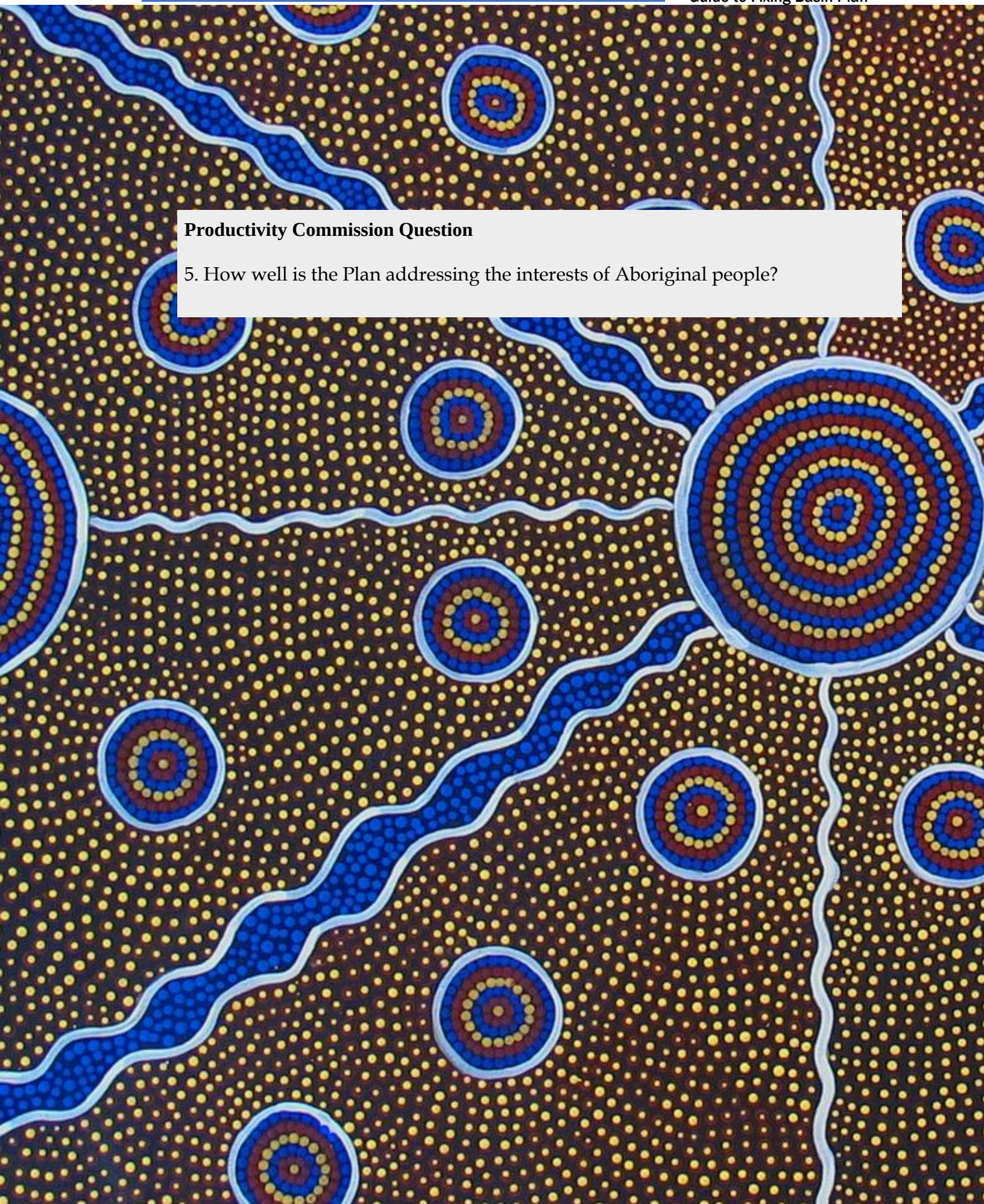
Recommendation 4) Climate Change

e) The role of State-based instruments to respond to climate change should be highlighted by the Commission, including the already observable demonstration of this occurring in practice.

f) The Commission should note that the Basin Plan is a specific policy instrument to address over-allocation, which sits alongside these state-based instruments.

g) Given the declining reliability of water entitlements, with the risk borne by water entitlement holders, consideration should be given to how Australia will maintain water security to supply of food and fibre.

h) The Commission should note that climate change modelling in the Murray-Darling Basin Plan must account for both extremes – floods as well as droughts – rather than the singular focus to date on drought impacts alone on the environment.



Productivity Commission Question

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

5) Cultural Water

Preamble
NSWIC recognises and supports the traditional and cultural uses of water by Aboriginal people.
NSWIC has formally appointed a First-Nations advisor to advise the Council on First-Nations water matters, and to work on cultural water projects.

Cultural Values
The National Cultural Flows Research Project[66] has been significant in providing a greater understanding of Aboriginal values relating to water. This research should be drawn upon to shape any management objectives and plans, in consultation with First Nations.
Research for the National Cultural Flows Research Project identifies many cultural water outcomes, including:

- *'retain Indigenous population with quality of life and wellbeing improvements',*
- *'fulfilment of spiritual/cultural obligations through landscape management',*
- *'Aboriginal cultural, social and environmental perspectives in water management',*
- *'re-establishment of cultural practices including ceremonies and passing of knowledge to many generations',*
- *'public health benefits of traditional medicine',*
- *'improved pest and weed management',*
- *'increase in nesting locations and habitat'*, as well as many more.[67]

Importantly, these outcomes cannot be achieved with a simple 'just add water' approach alone – but require on-ground management (including land management) and participation by First Nations peoples through custodianship and relationship.

Project Example
NSWIC sees significant opportunity for partnership-based models to be expanded in the Basin to achieve cultural outcomes.

Led by our First-Nations advisor, NSWIC is pursuing a cultural water project, which is an Indigenous-designed methodology to close-the-gap and incorporate Indigenous science and knowledge into water management.

The 'Billabong Restoration Project' offers culturally-appropriate employment to care-for-country on billabongs and riparian areas. As our First-Nations advisor says:

> *"Billabongs, through First Nations' eyes, are the kidneys of the river. They produce the 'antibiotics' for the rivers 'immune systems'".*

> *"The Ngemba people feel empowered to work and connect with their rivers, floodplains and billabongs for all of Australia. This brings many current benefits to their society: hope, motivation, value, employment, health, education, understanding, equity and reconciliation."*

[66] https://culturalflows.com.au/about
[67] https://culturalflows.com.au/images/documents/Preliminary%20findings.pdf

The Project offers an important paradigm shift to recognise Indigenous science in water management, and is a significant feat of collaborations between traditional owners and our irrigation communities.

For further information, see [HERE].

Recommendation 5) Cultural Water

a) Adopt the Cultural Billabong Restoration Methodology into Basin water management and planning, as a partnership based model, with adequate resourcing to support willing landowners.

Planning Example

NSWIC emphasises that the vast majority of water in the Basin is not the subject of water entitlements (i.e. approximately three-quarters). Put simply, the vast majority sits above extraction limits, and is not on a licence. NSWIC encourages authorities to focus on how the full water balance can better reflect cultural values, rather than just 'ownership' based models alone (which look at a very small portion of the resource).

Most WSPs include cultural objectives from water above the LTAAEL at present, however, they are generally caveated with notes indicating an absence of specific management strategies, or simply rely on non-targeted outcomes from other WSP rules. For example:

WSP	WSP Objective	Note inc. in WSP Objective
Water Sharing Plan for the Gwydir Regulated River Water Source 2016	*(h) manage the Gwydir Regulated River Water Source to preserve and enhance cultural and heritage values.*	*Note —* *Although there are **no specific strategies** directly related objective (h) in this Plan, the **environmental water provisions in the Plan make a contribution towards** the preservation of cultural and heritage values.*
Water Sharing Plan for the Lachlan Regulated River Water Source 2016	*(c) support water-dependent Aboriginal cultural values within this water source and in downstream water sources, and*	*Note—* *The rules in clause 27 ensure that an **environmental water allowance** is maintained and lists supporting environmental assets or functions that have been identified as **water-dependent Aboriginal cultural values as a purpose for which this water can be released.***
Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016	*(a) protect, preserve, maintain or enhance the important river flow dependent environmental features and Aboriginal, cultural and heritage values of these water sources,*	*Note—* *Although there are **no specific strategies** directly related to Aboriginal, cultural and heritage values the limits placed on the taking of water*

		under supplementary water access licences and the long-term extraction limit provisions may provide some protection or enhancement.
Water Sharing Plan for the Murrumbidgee Regulated River Water Source 2016	*(c) support water-dependent Aboriginal cultural values within this water source and in downstream water sources, and*	*Note—* *The rules in Division 2 of Part 6 of this Plan ensure that environmental water allowances are maintained and list supporting environmental assets or functions that have been **identified as water-dependent Aboriginal cultural values** as a purpose for which this water can be released.*
Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016	*(d) recognise and respect Aboriginal cultural responsibilities and obligations to the landscape.*	*Note—* *Although there are **no specific strategies** directly related to objectives in paragraphs (c) and (d), the specific environmental water provisions in this Plan and the bulk access regime in general, assist to address these objectives.*

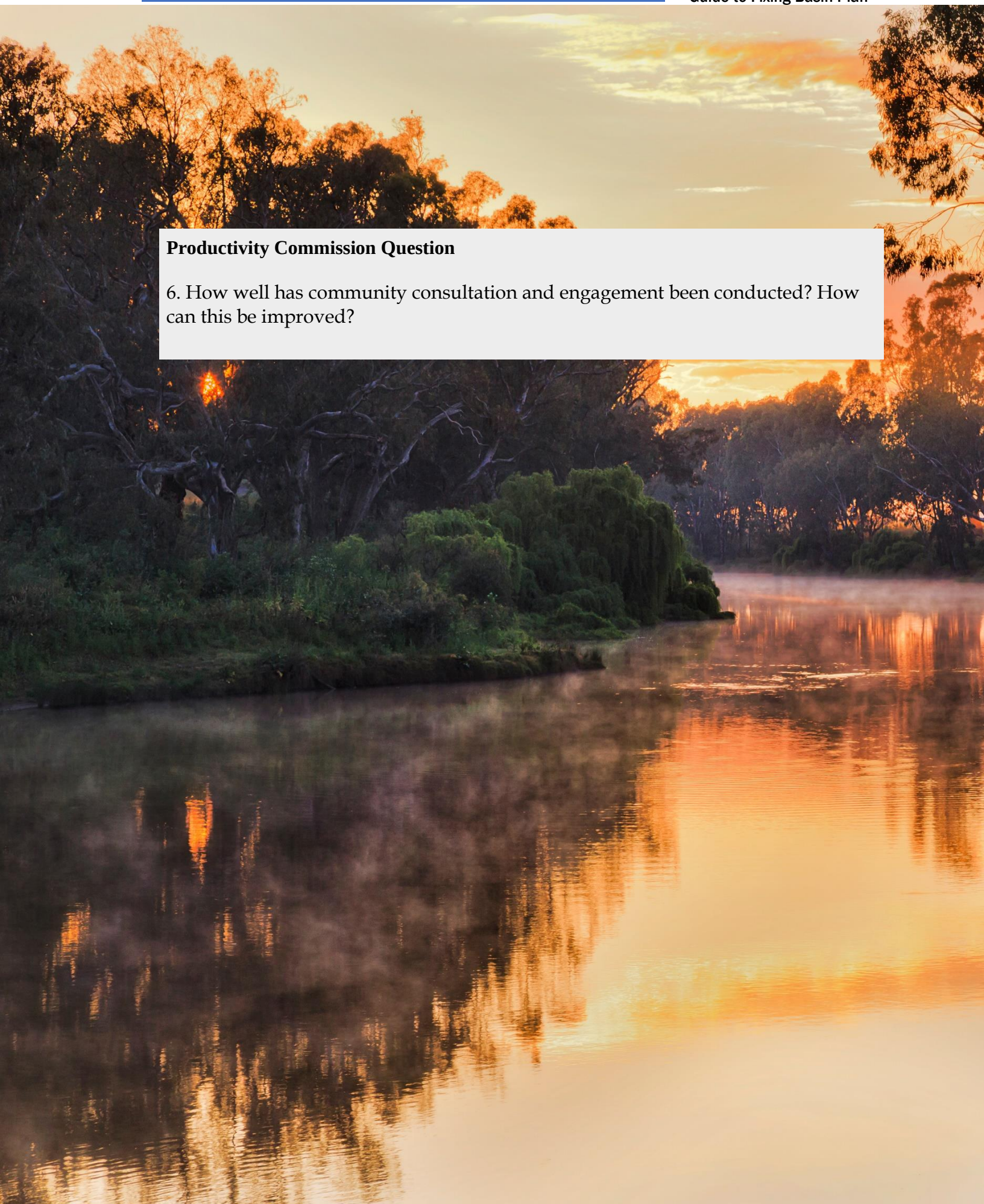
As the above Table makes clear, while the WSP framework does include cultural objectives:

- there is generally a lack of specific strategies to achieve Aboriginal cultural values and objectives; or,
- objectives are seen to be met indirectly through environmental measures.

There would be significant opportunity to look at specific management strategies to realise these outcomes in WSPs.

Recommendation 5) Cultural Water

b) Identify specific management strategies in each WSP to ensure the WSP objectives relating to cultural outcomes can be achieved.



Productivity Commission Question

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

6) Consultation

It is widely regarded that community consultation has been poor in relation to the Basin Plan. Communities report feeling 'over-consulted and under-listened to'.

Common concerns include:

- Consultation feeling like a 'tick the box' exercise, rather than seeking genuine input;
- Feedback not being taken onboard, i.e. a predetermined outcome being pushed through regardless of community feedback;
- Consultation occurring too late in the process, which causes a feeling of top-down rather than bottom-up management;
- A lack of notice of consultation, and a lack of coordination between agencies, resulting in additional time burden on communities;
- Community feedback being dismissed or not valued;
- The MDBA, agencies and departments ignoring recommendations on how to improve consultation, engagement and collaboration such in as the 2020 'Sefton' report.

To address this, authorities should move to genuine models of participation and bottom-up policy development. This will enable communities to feel a sense of ownership in decision-making, and help to rebuild the now deeply entrenched trust-deficit.

NSWIC refers the Commission to the *Independent Assessment of Socio-Economic Conditions in the Basin* (the Sefton report), with analysis and recommendations on this.

NSWIC also refers to the Commission to the Journal Article "*Contemporising best practice water management: lessons from the Murray-Darling Basin on participatory water management in a mosaiced landscape*"[68], and the NSWIC Working Together campaign[69].

Recommendation 6) Consultation

a) Communities have significant concerns about consultation and engagement, which requires a shift from top-down to bottom-up policy development.

[68] https://www.tandfonline.com/doi/abs/10.1080/13241583.2022.2097365

[69] https://www.nswic.org.au/wp-content/uploads/2022/11/Working-together.pdf

Conclusion

The 10-year Review of the Implementation of the Basin Plan provides a pivotal point to reflect on the lessons learnt to date, and the new models of best practice, and incorporate these into the improved delivery of the Plan.

Adaptive management is necessary to ensure the Basin Plan is delivered in an effective way, and responsive to the implementation challenges and learnings. The Murray-Darling Basin Plan to date has not been adaptive due to its rigid timelines and its narrow focus on water recovery alone as a proxy for delivering its intended environmental outcomes.

While challenges and next steps remain, this should not overshadow the progress already achieved.

The Basin Plan has been a significant transition, and NSWIC considers that the best opportunity going forward will be in genuinely working together with communities, landholders and water users to best manage the full landscape, with co-beneficial outcomes. Put simply, to shift from a water-recovery Plan, to a plan of management.

Kind regards,

NSW Irrigators' Council.

Key NSWIC Resources

- NSWIC Report – "Where's the Gap: A Report into Water Recovery Targets Against SDLs", see: https://www.nswic.org.au/wp-content/uploads/2023/03/2023-03-21-Wheres-the-Gap-FINAL.pdf
- NSWIC Report - "450 GL UpWater – What it means for consumptive water in the Southern Connected Basin', see: https://www.nswic.org.au/wp-content/uploads/2022/08/2022-08-01-450-Report-FINAL.pdf
- NSWIC Report - "Job Impacts – From Water Recovery for the Environment in the Southern Murray-Darling Basin", see: https://www.nswic.org.au/wp-content/uploads/2023/04/2023-04-19-Jobs-impacts-socio-economic-report.pdf
- Journal Article by Freak et al "*Contemporising best practice water management: lessons from the Murray-Darling Basin on participatory water management in a mosaiced landscape*" see: https://www.tandfonline.com/doi/abs/10.1080/13241583.2022.2097365
- UN Water Action Agenda SDG Action 50827 by NSWIC "*Boost partnerships with irrigation sector for environmental water delivery, to public and private lands*", see: https://sdgs.un.org/partnerships/boost-partnerships-irrigation-sector-environmental-water-delivery-public-and-private
- NSWIC Working Together Campaign, see: https://www.nswic.org.au/wp-content/uploads/2022/11/Working-together.pdf
- NSWIC Beyond Buybacks Campaign, see: https://mcusercontent.com/c6e5c2d75b14461767c095feb/files/a5b591bb-6d1a-9475-a5e5-119d75679d5d/2023_01_31_Beyond_buybacks_Campaign.pdf