

The unrecovered 450GL of water for the environment under the Basin Plan

Executive Summary

1. The revenue generated by agriculture in the Murray Darling Basin is substantial. When criticism of the Basin Plan is made however, rarely is there focus on the benefits (economic and otherwise) of water recovered for the environment. Some of those benefits, particularly in relation to tourism revenue, are mentioned later in this paper. Tourism revenue, which all Basin States share, amounts to about \$11 billion annually¹. Depressed ecologists aside, it is anticipated less people not more would visit permanently degraded rivers and wetlands.
2. The Basin Plan is a child of the commonwealth *Water Act 2007*. That Act, which was drafted to facilitate a compromise between agriculture and healthy ecosystems, has recovered too little water for the environment, not too much. The Basin Wide water recovery target of 2750GL – 605GL – 70GL + 4.5GL/450GL: (see this “equation” in its fully inglorious form at [11] below) does not reflect an “*Environmentally Sustainable Level of Take*” as it must under the *Water Act*. Nor is it a volume determined on “*the basis of the best available scientific knowledge,*” as the law also requires². While the water recovery target for the Basin Plan should have been determined lawfully and in accordance with the requirements of the relevant legislative provisions, the point of this document is not to make out the obvious case for that. It is to highlight that in circumstances where insufficient water for the environment has been recovered under the Basin Plan (environmentally and legally), it is imperative that the Federal Government fulfil its election promise to recover the 450GL now.
3. The assertions put forward in opposition to the recovery of the 450GL for “enhanced environmental outcomes” are just that: in general they amount to no more than claims that lack a proper evidentiary foundation. They are not based on either the best available scientific or economic knowledge. Recovery of the 450GL is mandatory. The object of

¹MDBA, “The Murray Darling Basin and why it is important”, (mdba.gov.au)

² These are not mere assertions. They represent findings made by Bret Walker SC in his “Murray Darling Basin Royal Commission Report” (**RC Report**), and are based on thousands of pages of oral evidence, dozens of expert reports, and hundreds of submissions.

s.86AA of the *Water Act* “is to be achieved”³. Further, failure to recover this water threatens not just the environmental integrity but also the constitutional validity of the Basin Plan, as outlined in Section 2 below.

4. The proposed 605GL SDL Adjustment from “supply measures” is also not based on best available science⁴. There is no independent report, or peer reviewed article that supports this precise volume, as described in Section 3. Again, the purpose of this document is not to advocate for the abandonment of the SDL Adjustment (although an independent science review is needed). Rather, it is to call attention to the enormous environmental risk associated with not recovering this water, which also make it imperative that the Federal Government now recover the 450GL.
5. The combination of the matters summarised in [1] – [3] above, and outlined in more detail below⁵, are why the additional 450GL for the environment must be recovered from the Southern Basin immediately.

³ S.86AA(3)

⁴ A further finding of Walker SC in the RC Report.

⁵ No proper understanding of the complexities of the Basin Plan can be gleaned from merely reading this Executive Summary.

Section 1

Environmentally sustainable level of take

6. No discussion of the 450GL of water that must be recovered for the environment under s.86AA of the *Water Act* can meaningfully take place unless that discussion is had in proper context. That begins with the fact that even if all of the 450GL had by now been recovered as “real” water, the Basin-wide recovery amount would still be so low that it fails to meet the objectives of the *Water Act*, and threatens the validity (including constitutional validity) of the Basin Plan. While that is unacceptable, even the current inadequate water recovery under the Basin Plan has been of some environmental benefit, especially at times of low flows. While it is currently at legal risk, “blowing up” the Basin Plan through legal challenge might be counterproductive. The alternative approach advocated here is to immediately improve it, and the environmental benefit it provides.

7. The water recovery target for the Basin Plan must be based (but currently isn’t) on an *Environmentally Sustainable Level of Take*⁶. For the Basin (or any of its individual water resource areas) this means a level of take which, if exceeded, would compromise (i.e., damage):
 - (a) key environmental assets; or
 - (b) key ecosystem functions; or
 - (c) the productive base⁷; or
 - (d) key environmental outcomes of the Basin.

8. These are solely environmental criteria, and are entirely within the judgment of appropriately qualified scientists, not policy or law makers. That is the law Federal Parliament enacted. Unsurprisingly then, the Basin Plan, and the *Environmentally Sustainable Level of Take*, “must” be prepared and determined “on the basis of the best available scientific knowledge”: s.21(4)(b) of the *Water Act*. If Parliament wanted the *Environmentally Sustainable Level of Take* to be merely “informed” by science, or

⁶ S.4 Water Act

⁷ “ecologically” productive base

partly based on science but equally based on certain defined economic considerations, or on the phases of the moon, or on the whims and desires of lobby or industry groups⁸, it could have enacted such a law. It didn't. It instead passed what is undeniably an "environment first" law.

9. The Basin Plan is a legislative instrument of the Federal Parliament. To be legally valid, it must "*faithfully implement*" international environmental conventions upon which the *Water Act* is based. It has to "*give primacy to the environment*" before social or economic effects are considered. If the Basin Plan is "*incompatible with the environmental conventions, then it will be unconstitutional because it is those conventions that were "relied upon to get the constitutional power for the Water Act."*"⁹
10. Not every policy or law maker has found the "environment first" nature of the *Water Act* to be convenient, or appealing. Returning water to the environment has consequences. It means that there is less water available for consumptive use such as the growing of food and fibre. Of course, the provisions of the *Water Act* do not require a restoration of the Murray Darling system to what it was pre-1788, or before the introduction of widespread irrigated agriculture. It requires a compromise to be made. It assumes consumptive uses like irrigated agriculture will continue. It legislates though for science to determine when the level of water take from those uses has reached a limit where the environment will be damaged. It is likely that most rational people, which include environmentalists but also that group of Australians who would simply prefer the environment not to be wrecked, consider this legislative compromise to be both reasonable and sensible. They no doubt include those Australians who, while not (necessarily) part of the radical left¹⁰, believe that this country is unlikely to fall into ruin should it fulfil its international environmental treaty obligations, as the *Water Act* requires. Even that group who "prefers people to fish"¹¹ in general would consider it non-controversial that we should not degrade the environment through the overuse of water, and should base our efforts to restore and sustain it based on science, not press releases.

⁸ God forbid.

⁹ Quote of Professor George Williams: see RC Report, Page 194

¹⁰ A small group in Australia, unrepresented by anyone in the media

¹¹ A philosophy or creed that perhaps requires extensive context to be fully understood.

11. Regrettably, the inconvenience of the *Water Act* resulted in the Basin Plan not being prepared on the basis of the best available scientific knowledge. That is not to say science did not play a role, but that role became secondary to the political compromise¹² that resulted in the ultimate determination of the *Environmentally Sustainable Level of Take*. Science, and no less “best available science,” involves rigour, transparency, testing, and replication. Eminent scientists have said repeatedly (both under oath, and in peer reviewed scientific literature) that the manner in which the 2750GL annual recovery figure was determined is opaque¹³, and as such incapable of being replicated¹⁴. It either does not reflect an *Environmentally Sustainable Level of Take*, or there is no proper evidence that it does¹⁵. Our scientific community, and hence the public, has not been informed in any meaningful way as to how the volume of 2750GL (or the 605GL SDL Adjustment) was determined, and how so called “social and economic” considerations were used to reduce the original volumetric range for Basin-wide recovery (approximately 4000GL to 7000GL¹⁶) to 2750GL. That was an unacceptable state of affairs in 2012, and remains so today. It means scientists do not have the data and information necessary to interrogate the volumes determined by the MDBA. That is the inverse of good governance¹⁷. In any event, that the *Environmentally Sustainable Level of Take* recovery target “had to commence with a 2” was well known at the MDBA in 2011-12¹⁸. Sworn evidence has been given to this effect, which was unchallenged. Further, at the time the Basin Plan was being finalised, it is beyond argument that the final water recovery target was a “political outcome” not a “best available science outcome”¹⁹. In short, science was hijacked by politics, and resulted in this equation for the water recovery target in the Basin Plan:

Water Recovery average yearly volume for an Environmentally Sustainable Level of Take:

¹² Not authorised by the Water Act

¹³ A polite term for it having a woeful level of transparency.

¹⁴ Combined evidence of, amongst others, Professor Jason Brookes; Professor Richard Kingsford, Professor John Williams, Dr Matthew Colloff, Mr Peter Cosier, Dr Theresa Heneker, Professor Jamie Pittock, Dr Celine Steinfeld, etc, etc

¹⁵ Ibid

¹⁶ See “The Guide” to the proposed Basin Plan, 2010

¹⁷ The OECD has long identified poor water governance as a major risk to the environment/water resources.

¹⁸ Sworn evidence of David Bell at Royal Commission, plus multiple other sources

¹⁹ For example, evidence of Karlene Maywald at Royal Commission

= **3856GL** (representing a “high level of uncertainty” of meeting the watering requirements for the Basin’s key environmental assets) to **6983GL** (“low level of uncertainty”)

becomes (after non-disclosed change to computer modelling):

2750GL (on an average yearly basis)

minus 605GL (SDL Adjustment)

plus 4.5GL (should be 450GL)

minus 70GL (Northern Basin Review)

not including any consideration of climate change projections

= (approximately) **2079GL**.

An insufficient number of people seem embarrassed by this equation.

That is so even without also considering the further matters below.

12. There are numerous scientific reports which evidence that the Basin-wide water recovery target (for simplicity, 2750GL on an average yearly basis) does not represent an *Environmentally Sustainable Level of Take*. There are no published scientific reports or peer review reports which evidence a contrary opinion. There are non-scientific assertions to this effect, but they amount to no more than a *Humpty Dumpty-like* claim of “2,750GL is a lawful plan because we say it is”.²⁰ For example, in 2011 the CSIRO (at the invitation of the MDBA) performed a review of the water recovery target which resulted in a report titled “Science Review of the Estimation of an Environmentally Sustainable Level of Take for the Murray-Darling Basin”²¹. Of the many criticisms of the MDBA’s then 2800GL target for water recovery, the authors of this report stated:

- (a) Modelling data for climate change impacts to 2030 was available, but not used.
- (b) A level of take “*represented by the 2800GL/yr. is not consistent with the hydrologic and ecological targets*”.

²⁰ Apologies to Lewis Carroll for dragging him into the politics of the Basin Plan

²¹ Young et al, CSIRO, November 2011

- (c) A 2800GL scenario does “not achieve the majority of the hydrological targets” and meets only “55% of the achievable targets at either “high risk” or “low risk” frequency.”
- (d) “The modelling indicates that the proposed SDLs would be highly unlikely to meet the specified ecological targets even in the absence of future climate change. Operational constraints are a key reason for this, but a large number of achievable targets are also not met in the modelling.”
13. Each of the matters opined above at (a) to (d) by the CSIRO have been confirmed and reinforced by sworn oral evidence, and in substance by other expert reports.²² There is apparently no published or peer reviewed work that challenges the opinions expressed in these reports, which amount to an admission that the recovery target of 2750GL is NOT reflective of an *Environmentally Sustainable Level of Take*.
14. The second part of context relates to the tired assertion that it is pointless to recover an extra 450GL for the environment until such time as all “constraints (relaxation) measures” are in place. Modelling shows that a Basin Plan that returns 3200GL of water on average per year will hit 17 out of 18 key environmental flow indicator markers in circumstances where constraints are addressed.²³ This can be compared to a 2800GL Plan which only hits 11 out of 18 markers. It is sometimes contended that until constraints are addressed, a 3200GL plan would cause flooding and damage, and hence there is no point in recovering the extra 450GL until all issues relating to constraints are addressed. This is a fallacious argument, advanced only by those who fail to comprehend the reality of the current Basin Plan and water recovery pursuant to it.
15. The Basin Plan is not a 3200GL water recover plan. Nor is it a 2800GL Plan, or a 2750GL, or 2670GL plan. It is a 2079 GL plan. Adding 450GL to that does not make it a 3200GL plan in relation to which constraints might (or might not) cause a delivery issue for planned environmental water flows. Even accepting against all the evidence

²² CSIRO, “Assessment of the Ecological and Economic Benefits of Environmental Water in the Murray Darling Basin – The Final Report to the Murray-Darling Basin Authority from the CSIRO Multiple Benefits of the Basin Plan Project,” 28/3/12. Chrissie Bloss et al, “Hydro-ecological Analysis of the Proposed Basin Plan – South Australian Floodplain,” March 2012; Heneker and Higham, “Review of the Basin Plan Water Recovery Scenarios for the Lower Lakes, South Australia: Hydrological and Ecological Consequences”, March 2012.

²³ MDBA, “Hydrologic Modelling of the Relaxation of Operational Constraints in the Southern Connected System: Methods and Results,” October 2012.

that supply measures work perfectly and account for an equivalency of 605GL, that water is not added to the environment. It simply does not have to be recovered. Even with an extra 450GL of environmental water, the Basin Plan would be one in which about 2500GL of real water has been recovered for the environment. There is no evidence that constraints become an issue for any plan less than 2800GL (properly managed environmental flows would not cause flooding at this level of recovery, or likely beyond). As such, there is no basis for any claim that the 450GL of water for enhanced environmental outcomes should not be recovered until constraints are fully addressed. The tired argument that there should be no recovery of this extra environmental water until there is progress on or achievement of constraints measures should be finally rejected now.

16. The third part of the context for the 450GL is the SDL Adjustment involving the thirty-six supply measures said to make up an equivalency of 605GL of water on an average annual basis. These measures and the adjustment do not represent “best available scientific knowledge.” They represent a gamble with the environment for which there is no statutory warrant²⁴. This matter is addressed in more detail in Section 3 below.

17. The overuse of Basin water resources (a statutory fact pursuant to s.21(2) of the *Water Act*), combined with an inadequate water recovery target that does not reflect an *Environmentally Sustainable Level of Take*, are reason alone for the urgent recovery of the 450GL of water referred to in s.86AA(3)(b) of the *Water Act* and Schedule 5 of the Basin Plan.

²⁴ RC Report, page 334

Section 2

450GL

18. There is some misconception that the 450GL of extra water for enhanced environmental outcomes is optional rather than mandatory. The targeted for “aims” of s.86AA(2)) are of course not mandatory. They relate to environmental outcomes which are to be aimed for, but cannot be mandated. For example, you cannot mandate that two million tonnes of salt will be discharged from the Murray Darling Basin as a long-term average, any more than you can mandate that the health of forests or the habitats of fish will be improved. The overall object of s.86AA of enhancing environmental outcomes by an increase in the volume of water available for the Basin by 450GL is however mandatory. It “is to be achieved.”: s.86AA(3).
19. Leaving aside the text of 86AA, the 450GL is mandatory for another reason. This extra water for the environment is essential for the Basin Plan to be considered a law that seeks to “faithfully implement”²⁵ the international treaty obligations that underpin the constitutional validity of the *Water Act*. Any person that says that either the 450GL is either not mandatory or not essential is saying this (wittingly or not):

The Basin Plan is constitutionally invalid, but I don't care.

It should not have to be stated²⁶, but policy and law makers, and governments, should care about this.

20. Delivery of the 450GL of extra environmental water was an election commitment by the Albanese Labor Government. At its core, it is an overdue commitment to act in a manner heading towards lawfulness. In the great tradition of cooperative Federalism, all of the Basin States made this pledge back in 2012. This commitment clearly cannot be construed as one of going down the same path (aimlessly, and not very far) that we have been over the last decade. That would see the 450GL recovered in about a

²⁵ This is constitutionally required, given the reliance on s.51.xxix of the Constitution for the validity of the Basin Plan

²⁶ But does, based on conduct over the last ten years.

thousand years²⁷. Neither on-farm or off-farm efficiency measures are going to achieve anything like the recovery of 450GL being returned to the environment. That is obvious, as found by the authors of the “*Second Review of the Water for the Special Account*,” (December 2021). In any event, the previous Federal government abandoned on-farm efficiency measures, and the same review found that the 450GL could not be recovered by off-farm efficiency measures.

21. There should be no need now to refute the view that the 450GL should largely be recovered for the environment by the voluntary purchase of water entitlements. This must take place in the Southern Basin. Not only has the modelling for the benefits of the 450GL been done on the basis of recovery in the Southern Basin, as was made clear in the MDBA’s “ELST Report”, it is almost impossible to achieve positive environmental outcomes in the south from water recovered in the northern Basin²⁸. Any attempt to recover the 450GL of extra water for the environment from the Northern Basin would be as good as a broken electoral promise, as there is no credible or peer reviewed science that even suggests that the enhanced environmental outcomes outlined in s.86AA of the Water Act and Schedule 5 of the Basin Plan can be achieved by recovering water in the North. This is ultimately a matter for science, not policy makers, but there is no science that properly supports some wild idea that the 450GL can be recovered from the Northern Basin and still achieve the environmental aims of s.86AA of the *Water Act* and Schedule 5 of the Basin Plan.

22. Assertions have been made in the past (and are currently being made) that voluntary purchases of water for the environment (usually called “buy-backs”) cause economic damage to rural or regional communities²⁹. What is said is that water entitlement purchases:
 - (a) cost jobs; and
 - (b) create a “Swiss cheese” effect leaving irrigation suppliers with customers spread out over greater distances; and

²⁷ 4.5 GL recovered in ten years when 450GL is needed indicates that prior governments have not seen time as being of the essence.

²⁸ MDBA, “The Proposed ‘Environmentally Sustainable Level of Take’ for Surface Water in the Murray Darling Basin,” 2011.

²⁹ For certain very water-dependent towns this might have been true for some acquisitions of water entitlements

- (c) harm the social fabric of local communities because they lead to population reduction (and hence closure of schools and services).
23. These assertions are not supported by peer reviewed economic research or papers, or defensible economic reports (there are a few reports floating around, or that have been regurgitated³⁰, but they do not make persuasive arguments. Much of this kind of work was dealt with by Commissioner Walker SC in his Royal Commission report³¹). What has been established by such work concerning the voluntary purchase of water entitlements is that:
- (a) there is no proportional relationship between a reduction in water use and a reduction in agricultural production (and the assertion of such a relationship could be debunked by an “economics undergraduate³²); and
 - (b) buying water is by many factors cheaper to government (and hence all taxpayers) than seeking to recover it through efficiency measure infrastructure upgrades; and
 - (c) the money obtained from sales of water entitlements in the past was almost always spent locally; and
 - (d) a majority of farmers/irrigators sold only a partial entitlement, kept their delivery rights, and remained in farming/irrigation; and
 - (e) resulting reductions and debt meant people had more money to spend locally; and
 - (f) the economic impacts in rural and regional Australia from things like technological change and mechanisation (alone), increased urbanisation, changes in soil condition, and fluctuations in commodity prices are far greater than any impact of the Basin Plan: and
 - (g) water entitlement purchases are a more certain means of recovering water³³.
24. Often forgotten in the debate concerning the voluntary purchase of water is the economic value of recovering it for the environment. Almost every report prepared on

³⁰ The correct word

³¹ RC report, findings 9.4, 9.5 and 9.6. Pages 61-2; 391-398.

³² RC Report, finding 9.5 page 61.

³³ There are too many papers (most peer reviewed) to cite here, as well as other evidence. Note also the ONLY independent review of social and economic impacts from on farm efficiency measures.

the economic impacts of water recovery has neglected the non-market benefits of the recovery of water for the environment. The *Water Act* and Basin Plan seek to protect and restore the rivers, wetlands, and watercourses of the Murray-Darling Basin³⁴. Some people might consider this a moral obligation, not just a legislative one. It is certainly part of the concept of intergenerational equity, itself an aspect of “environmentally sustainable development” (ESD). Are healthy rivers and wetlands (many of international significance) of no value?

25. The principles of ESD are matters the MDBA was bound to take into account when preparing the Basin Plan, and must also be taking into account by the relevant Minister: *Water Act* s.21(4)(a). Accepting though that money is very important, there is real economic value associated with increased environmental flows. It seems however this is another fact that can be ignored by those that do not support further lawfully required water recovery for the environment. That does however mean relegating almost to insignificance that post the millennium drought domestic tourists alone made more than 17 million trips to the Basin, staying a total of 50 million nights, and generating more than \$6.5 billion in revenue. Expenditure from international tourists amounts to about a billion.³⁵ The direct and indirect economic activity from tourism in the NSW and Victorian Murray regions alone amounts to hundreds of millions of dollars.³⁶ Presumably none of these tourists came to see dead fish, algal blooms, dead trees, or degraded wetlands. As a matter of obviousness, tourism in the Basin is heavily dependent on the health and wildlife of its watercourses and wetlands.

26. While the 450GL should be recovered by voluntary purchases of entitlements, in principle some of this water might be recovered through efficiency measures, provided real water is recovered, and provided this can be done by 30 June 2024 (which seems highly unlikely). It can be noted here too that even water recovery from efficiency measures has been claimed by some, including governments, to have harmed rural communities. That was debunked by the only independent review of efficiency measures, conducted by Ernst & Young in 2017-18. The authors of that report concluded off-farm measures were of positive benefit, and on-farm measures had no

³⁴ *Water Act*, s.3(d)

³⁵ See Tourism Australia; see also “Australian Regional Tourism NSW” submission to MDBRC.

³⁶ Regional Tourism Satellite Account Tourism Research Australia.

negative impacts³⁷. The Murray-Darling Basin Ministerial Council commissioned this report. It appears to be collecting dust somewhere. Not because it does not represent best economic opinion based on rigorous analysis of data, but seemingly because that opinion was inconvenient to some governments³⁸. Similarly, a Report prepared by Marsden Jacobs on the economic impacts of buybacks in the Murrumbidgee Irrigation Area (commissioned by the then Department of Agriculture, Water and Resources) is usually not quoted by governments or opponents of the Basin Plan, presumably because the authors' opinion was that the economic impacts of buybacks were likely to be "very small if not neutral"³⁹.

27. Related to the recovery of water for the environment, although not addressed in this paper, is the issue of indigenous water justice. Respectfully, that subject matter requires separate discussion, and by a different author. Suffice to say that overuse of water to the extent it degrades our environment is arguably a scam on the First Nations Peoples of the Murray-Darling Basin. So too is inadequate recovery for the environment now.
28. Finally, this observation concerning the purchase of water for the environment should be made. Those that oppose the voluntary sale of water entitlements are in effect saying this:

if you own a water licence or entitlement, you should not be able to sell your water voluntarily to your government for environmental purposes.

The moral and ethical justification for this position has not yet been made clear.

³⁷ Ernst & Young, "Analysis of Efficiency Measures in the Murray-Darling Basin: Opportunities to recover 450GL in additional Environmental Water by 2024 through Efficiency Measures by 2024 with Neutral or Positive Socio-Economic Impacts – Independent Report to the Murray-Darling Basin Ministerial Council", Jan 2018.

³⁸ The fierce determination of those governments in respect to the Basin Plan to ignore facts, as well as best science and economics, has at least been consistent.

³⁹ Dwyer, Clarke, Carr, "Economic Effects of the Commonwealth Water Recovery Programs in the Murrumbidgee Irrigation Area" (Marsden Jacobs), October 2017.

Section 3

SDL Adjustment – 605GL

29. Opponents of the recovery of 450GL of water for enhanced environmental outcomes, whether by efficiency measures or the voluntary sale to the Commonwealth of water entitlements, have so far consistently maintained that the “supply measure” projects under the SDL Adjustment represent a volume of 605GL that need not be recovered. It is claimed these measures will produce “environmental equivalency” against a benchmark without recovering that water.

30. The SDL Adjustment mechanism is best described as an idea or “concept.” Whatever word is picked, at the level of concept, using less water for the same environmental outcomes is obviously a good thing if it can be achieved. A mechanism for water recovery under the Plan to be adaptable is also potentially of benefit. The SDL Adjustment mechanism however cannot properly be described as even as a scientific “hypothesis,” much less a theory, as it appears only to be based on certain modelling outcomes, not (and contrary to the Basin Plan) actual empirical observations⁴⁰. As such, any contention that it is “best available scientific knowledge” (in other words, lawful) is currently an impossible assertion to make good. The SDL Adjustment on its own risks both the ecological and legal legitimacy of the Basin Plan.

31. The 605GL SDL Adjustment is founded on, in large part, an “Ecological Elements Method”. An increase in sustainable diversion limits as a result of the various supply measure projects must have “equivalent environmental outcomes” compared with “benchmark environmental outcomes”: section 7.15 of the Basin Plan. The benchmark environmental outcomes are assessed on model runs following the assessment of “benchmark conditions of development.” A model run comparing the “benchmark environmental outcomes” is compared to a model run which includes an SDL adjustment for the supply measure contributions. The comparison is conducted using ecologically weighted “scores” using twelve ecological elements: four waterbirds, two fish species, and six “vegetative elements.”

⁴⁰ See Royal Commission Report p297 and s.7.17(2)(a) of the Basin Plan

32. For any reader of this paper that finds the paragraph above to be confusing, all of this and more is “explained”⁴¹ in Schedule 6 of the Basin Plan⁴².
33. It is a mystery why Federal Parliament enacted Schedule 6 of the Basin Plan. How wise it is for a country to legislate highly complex and uncertain “science” can be debated elsewhere⁴³. What has been legislated more than risks being described as incomprehensible. Whether or not what has been legislated is science, or only something masquerading as science, no one really seems to know. Not even scientists, as is made clear from what follows.
34. Reports commissioned to support the Ecological Elements Method are highly qualified. Brewsher Consulting conducted one review, and expressed the opinion that the models used had been operated in accordance with Schedule 6 of the Basin Plan. This is hardly of comfort, given that their review expressly excluded the components of the modelling⁴⁴. A computer model might be fine as a form of simplification of reality, but the inputs should be disclosed. A second independent review panel concluded that the Ecological Elements Method was defensible and fit for purpose within the limits of its terms of reference. However – and this is crucial both legally and environmentally – it described the method as “*novel and untried,*” “*without precedent,*” and one in which “*no one should assume that the adoption of the [method] is without significant uncertainty or risk*”⁴⁵, that is based on a “*limited*” state of scientific knowledge. A separate expert advisory panel said there was a “*substantial error space*” inherent in the model used which was “*heavily reliant on expert judgments*” and “*only partly based on knowledge of robust providence.*”⁴⁶

⁴¹ A euphemism

⁴² No responsibility for the well-being of anyone who reads Schedules 6 or 6A of the Basin Plan is taken by the author of this paper. Liability Limited by a Scheme under the Professional Standards Legislation.

⁴³ It was described as “difficult, bordering on impenetrable, statutory drafting” by Commissioner Walker SC in his Royal Commission report at page 293, and an unusual “attempt to distil into statutory language what is a scientific procedure”.

⁴⁴ Brewsher Consulting, “Independent Review of Hydrologic Modelling for SDL adjustments,” 30/9/17

⁴⁵ Justin Brookes et al, “SDL Adjustment Ecological Elements Method Development Report: Review of Final Project Report,” 30/3/14

⁴⁶ Peter Davies et al, “Murray Darling Basin Plan SDL Limits of Change Review: Independent Expert Advisory Panel Report,” September 2017

35. If the above is not sufficient to sound the alarm on the SDL Adjustment as not being within light years of legality⁴⁷, there is currently no available report, or independent review, which provides support for the volumetric change to the water recovery target under the Basin Plan as a result of the adjustment. That is, there is no publicly available or tested science that supports the 605GL figure. A volume which could have been written on the back of an envelope.⁴⁸
36. All of this ought to be considered very embarrassing. That is not a criticism of the authors of the abovementioned reports and reviews. It is a criticism of the manipulation that has been used to suggest they provide support for a reduction in the Plan of 605GL (or any amount), and that this part of the Plan represents “best science”.
37. It may be that one day the uncertainties in the Ecological Elements Method will be reduced. With improved science, maybe, one day, some iteration of it might constitute “best available scientific knowledge.” The fact is, for now, it represents no more than a speculative hope and an uncertain experiment with the environment. It is untenable to suggest that such an approach is countenanced by the *Water Act*. The potential fraud on the environment represented by the 605GL SDL Adjustment was described by Bret Walker SC as a “*gamble that is wholly contrary to the objects and purposes of the Water Act*”⁴⁹.
38. The point of all this is that it has been an extraordinary position for governments to take over the last decade or more that the 605GL associated with supply measures should be considered as “in the bag”⁵⁰, but we need not bother recovering the 450GL. The massive uncertainties surrounding the non-recovery of 605GL per year based on the supply measure projects⁵¹ is all the more reason why time is of the essence to recover the 450GL of water for the environment pursuant to s.86AA of the *Water Act*. If that means legislative changes to the *Water Act*, so be it. If that means repealing the cap on water buy-backs, so be it. There is no principled way of moving forward other than for the

⁴⁷ A paraphrase of Commissioner Walker SC

⁴⁸ And is rumoured to have been arrived at this way.

⁴⁹ Royal Commission Report p334

⁵⁰ Or “in the rivers”

⁵¹ A government acting responsibly might think it a good idea to stand up an independent science review of the SDL adjustment mechanism.

Federal Government to urgently recover the 450GL of water on the best possible terms for all taxpayers – that is, by prompt voluntary purchases of that water.

Conclusion

39. The Basin-wide water recovery target is unlawful, not based on best science, and risks the constitutional validity of the Basin Plan. The SDL Adjustment does not represent best science, and there is no publicly available science which justifies the 605GL reduction in water recovery. It is a potential fraud on the environment, which warrants independent scientific review. Recover of the extra 450GL for the environment is a minimum step toward environmental and legal integrity that should be taken now, primarily (perhaps entirely) by the voluntary purchase of water entitlements in the Southern Basin. Any legislative changes to facilitate this should be promptly enacted.

Richard Beasley SC

Commissioner for Murray River (SA)

16 May 2023.