

Submission to the Murray Darling Royal Commission

Prepared by Professor Mike Young,
Centre for Global Food and Resources, The University of Adelaide, Adelaide, SA 5005

Email:

Phone:

5 *Overview*

This submission is written from the viewpoint of someone who specializes in and has been actively involved in the design of robust water entitlement, allocation and management arrangements. Among other things, this experience has included a significant role in the development of the Water Act and its governance arrangements. It benefits, also, from

- the opportunity to be involved in recent attempts to establish robust water sharing systems in the western United States of America; and
- to help the OECD to develop a 14 point checklist for the design of robust water sharing systems.

15 This submission is made in the belief that every attempt should be made to make the MDB Plan and all the institutional arrangements associated with it as robust as possible.

20 Robustness is a word used widely in Australia's National Water Initiative and in the Water Act. Robust systems are characterized by their capacity to adjust quickly to ever-changing supply and demand conditions.

I would also like to stress that while, in recent times, there has been a considerable critique of the Basin Plan, in my opinion, its form and structure is consistent with world best practice.

25 Yes, we are still learning but it is important not to throw the baby out with the bath water. Tremendous gains have been made, especially in the more efficient use of environmental water and in the productivity of the Basin's irrigation sector.

I would also like to stress that Many people fail to understand the differing roles of

1. the Water Act;
2. the underlying agreement among states and territories;
- 30 3. Federal Government Policies associated with securing water entitlements for the environment; and
4. State and Territory approaches to the allocation of water to entitlement holders and the controls these governments place over the use of water.

35 It is equally important to understand the ongoing influence of changes in prices and technology on the welfare of communities and the people who live in them.

As more and more efficient forms of agricultural technology are adopted and, if Australia is to remain prosperous, the number of people employed per drop of water used must be expected to decline. This reality is not the fault of water policy.

40 Many people have and continue to mistakenly blame changes in the economic health of rural communities on water policy. I urge the Commission not to make this mistake.

I would also like to observe that, in recent times, too much public attention has been given to the setting of sustainable diversion limits (SDL) and not enough the rules used to determine how much water is to be allocated at any point in time. An SDL is
45 a limit. The rules relating to the day to day release of water need equal attention.

Opportunities for improvement

This submission draws attention to recent OECD research and insights that derive from it. If asked to identify those insights that I would I would draw attention to, I would emphasize the potential benefits relating to

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1. An increase in MDBA independence;
 2. Supplementing the current “gross” water accounting system with one that is based on “net” water accounting principles;
 3. The clearer specification of conveyance and hands-off flow requirements;
 4. The development of mechanisms to ensure that accountability for climate
55 change risk is assigned fully to entitlement holders; and
 5. A mechanism that links surface water sustainable diversion limits to an end of system indicator of system health.

DETAILED RESPONSES TO EACH TERM OF REFERENCE

60 ***TOR 1 Whether the Water Resource Plans defined by the Act and Basin Plan (which are to include the long-term average sustainable diversion limits for each Basin water resource) will be delivered in full and in a form compliant and consistent with the Basin Plan by 30 June 2019.***

As these plans have yet to be completed, it is impossible to answer this question.

65 It is pertinent to ask, however, consider whether or not these plans are likely to represent the state-of-art in water management arrangements. This would require a formal set of water sharing rules and, in particular, formal down-stream flow sharing rules to be defined and included in each water resource plan. As far as I am aware, the current guidelines do not do this.

70 ***TOR 2 If any Water Resource Plans are unlikely to be delivered in full and in a form compliant and consistent with the Basin Plan, the reasons for this.***

One way of examining this term of reference is to assess how consistent these plans coupled with associated legislative and governance arrangements are with OECD’s

75 14 water allocation “Health Checks”. In an attempt to identify opportunities to improve the Water Act, the Basin Plan and, associated state legislation, each of these health checks are considered below.

OECD Check 1. Are there accountability mechanisms in place for the management of water allocation that are effective at a catchment or basin scale?

80 The recent compliance review suggests that this is not yet the case. In the original vision for the establishment of the MBDA, this Authority was to be an independent decision-making body with a status similar to Australia’s Reserve Bank.

Implicit Opportunity 1. identified by the OECD

85 *That the Water Act be amended so that the Murray Darling Basin Authority is not subject to Ministerial direction on issues associated with the setting of sustainable diversion limits.*

OECD Check 2. Is there a clear legal status for all water resources (surface and groundwater and alternative sources of supply)?

In the MDB, the legal status of water resource ownership is clear.

90 *With regard to this OECD check, there is no implicit opportunity arising from the OECD checklist.*

OECD Check 3. Is the availability of water resources (surface water, groundwater and alternative sources of supply) and possible scarcity well-understood?

95 In the MDB this is the case. Ongoing communication of the need to have Basin Plan because of the extent of water scarcity, however, needs to be kept before the community.

The realities of ground-surface water connectivity and the differences between net and gross water use are not well understood.

100 *With regard to this OECD check, there is no implicit opportunity arising from the OECD checklist.*

OECD Check 4. Is there an abstraction limit (“cap”) that reflects *in-situ* requirements and sustainable use?

The Sustainable Diversion Limits attempt to do this but this limit is weaker than it needs to be to ensure sustainable use.

105 At the catchment and aquifer level, one would expect these limits to be defined as a “net” as distinct from a “gross” limit on use.

In addition, one would expect that there be a simple mechanism that links each SDL to over-all performance. No such mechanism exists. One of the simplest measures to track is the moving average of flows over the barrages.

110 **Implicit opportunity 2. identified by the OECD**

That the Water Act be amended so as to require all local, regional and Basin-wide plans to contain a net diversion limit as well as a gross diversion limit and indicate how the limit on net water use is to be complied with.

115 **Implicit opportunity 3. identified by the OECD**

That the Water Act be amended to mathematically link each surface water SDL to an end of system health indicator such as a truncated moving average of the annual volume of flows over the barrages. (Other measures are possible.)

120 **OECD Check 5. Is there an effective approach to enable efficient and fair management of the risk of shortage that ensures water for essential uses?**

This requires arrangements that allow the carry forward of unused water and the rapid trading of allocations both within a region and, also, between regions and across state borders. It also requires the establishment of emergency management protocols such as the Tier 1, Tier 2 and Tier 3 systems set out in the Water Act.

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Unbundled allocation water trading arrangements and entitlement trading arrangements enable efficient management of supply variation risks during Tier One conditions. Tier Two and Tier Three conditions provide for fair management during emergency conditions.

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The power of any state to force a transition to Tier Two or Tier Three conditions is important.

There are still barriers to the speedy trade of water between states and for the efficient carry-forward of water allocations from one year to the next.

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There is increasing opposition to the idea of unfettered trade between regions and states.

Implicit opportunity 4. identified by the OECD

That all non-biophysical barriers to the trade and storage of water be removed.

140 **Implicit opportunity 5. identified by the OECD**

That the Agreement between states be amended so that South Australian entitlement holders be allowed to carry forward unused water from one year to the next with appropriate offset arrangements put in place to ensure that flows through the mouth are not adversely influenced by this initiative.

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OECD Check 6. Are adequate arrangements in place for dealing with exceptional circumstances (such as drought or severe pollution events)?

See comments for OECD Check 5.

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With regard to this OECD check, there is no implicit opportunity arising from the OECD checklist.

OECD Check 7. Is there a process for dealing with new entrants and for increasing or varying existing entitlements?

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At the individual user scale yes. All entitlements should be defined as shares. In a world best system, the total size of each high-security pool is defined using a moving average of allocations made over the last, say, ten years so that in the case of an adverse climate shift cities, permanent plantation owners, etc are informed of the nature of the shift. Those unaware of the significance of this shift need to be aware of the depth of the shift that occurred in Perth in 1974. Since that date, Perth's surface water system has never received what used to be considered its average inflow.

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Implicit opportunity 6. identified by the OECD

That the Basin Plan be amended to require each State to define the limit on the size of any high-security water allocation pool as a moving average of recent allocations to all entitlement holders.

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OECD Check 8. Are there effective mechanisms for monitoring and enforcement, with clear and legally robust sanctions?

As revealed in recent months, the legal mechanisms are in place but departmental processes are deficient.

At present, too much environmental water use remains untracked.

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Implicit opportunity 7. identified by the OECD

That all water use, including environmental water use, be either metered or the quantity used assessed using remote sensing technologies.

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OECD Check 9. Are water infrastructures in place to store, treat and deliver water in order for the allocation regime to function effectively?

Yes. Further investment in infrastructure will be of the greatest benefit to the Nation if it is funded by water users and not the nation as a whole. Further government investment in infrastructure, whether on a farm or as part of the supply system, is hard to justify.

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With regard to this OECD check, there is no implicit opportunity arising from the OECD checklist.

OECD Check 10. Is there policy coherence across sectors that affect water resources allocation?

185 Yes, although when compared with other states, South Australia is behind on unbundling of water entitlement registers and accounting systems.

Implicit opportunity 8. identified by the OECD

That South Australia, as a matter of priority, update its water entitlement registry, water-use accounting and water-use permitting system.

190 **OECD Check 11.** Is there a clear legal definition of water entitlements?

The state of the art is to define all water rights as a right to share of all water allocations made to a defined water sharing pool.

Implicit opportunity 9. identified by the OECD

195 *That, without exception, all water entitlements in the MDB be defined using an unbundled unit share structure.*

OECD Check 12. Are appropriate abstraction charges in place for all users that reflect the impact of the abstraction on resource availability for other users and the environment?

200 Government subsidies and support for the purchase of water rights for the environment are inconsistent with the National Water Initiative agreement that entitlement holders should be fully responsible for any need to change allocation arrangements as a result of climate change.

205 From 2024 onwards it should be clear that all water entitlements in the Basin are only to a share of the amount of water that can be taken sustainably from the Basin.

Implicit opportunity 10. identified by the OECD

210 *That, consistent with the National Water Initiative, the Water Act be amended so that entitlement holders, after an appropriate transition period, be fully responsible for planning for and, without compensation, adjusting to the impacts of climate change on water supply.*

OECD Check 13. Are obligations related to return flows and discharges properly specified and enforced?

215 Unlike water use in the United States, at present, return flows, ground-surface water connectivity and unmetered forms of water interception are poorly accounted for.

Implicit opportunity 11. identified by the OECD

220 *That, if arrangements for a transition to net accounting arrangements are not put in place, the Basin Plan be amended so that the MDBA is required to reduce SDLs as quickly as the technical efficiency of water use and/or the unmetered capture or interception of water increases.*

Implicit opportunity 12. identified by the OECD

225 *That the Basin Plan be amended so as to require all entitlements and plans to specify the “net” amount of water that may be taken and fully account for transfers between all connected water resources.*

OECD Check 14. Does the system allow water users to reallocate water among themselves to improve the allocative efficiency of the regime?

230 Yes but the arrangements for the carry forward of water from one season the next are unnecessarily complicated and not available to all entitlement holders.

Implicit opportunity 13. identified by the OECD

235 *That the Basin Plan, the agreement, etc. all be amended so that, with adjustment only for storage and transmission losses all water users are allowed to carry-forward unused water from one season to another.*

Additional Guideline – Are allocations always made to the environment?

240 This requires that the environment hold water entitlement shares and a distinction to be made between water needed for conveyance. Sometimes, this water is referred to as base flow. In the UK, usefully, it is referred to as “hands-off” flow.

Implicit opportunity 14. identified by the OECD

That Basin Plan be amended so that hands-off flows are defined for each river reach.

245 **TOR 3** Whether the Basin Plan in its current form, its implementation, and any proposed amendments to the Plan, are likely to achieve the objects and purposes of the Act and Plan as variously outlined in ss.3, 20, 23 and 28 of the Act, and the ‘enhanced environmental outcomes’ and additional 450 GL provided for in s. 86AA(2) and (3) of the Act, respectively.

250 As yet, the Basin plan does not include a mechanism that accounts for and enables adjustment of water sharing arrangements in response to changes in the capture of overland flows and other significant unmetered water intercepting and using activities such as the planting of trees.

255 The Basin Plan also lacks a mechanism that automatically accounts for climate shifts. The simplest solution to this challenge would be to define SDLs using a moving average of inflows over, say, the last 10 years.

Implicit opportunity 15. identified by the OECD

260 *That the Basin Plan and all state legislation be amended so that the maximum volume of water in each high-security pool be set as a percentage of the moving average of the total volume of allocations made in the last, say, 15 years.*

TOR 4 *Whether the underlying assumptions in the original modelling used to develop the objects and purposes of the Act and the Basin Plan have been sufficiently adjusted for the impact of improved technologies.*

265 The most pertinent shift in technology relates to the use of remote sensing techniques that enable “net” water use to be assessed at the paddock scale. As far as I can determine, there are no plans to adopt this technology in the MDB. If they were many of the arguments about return flows and ground-surface water connectivity would be resolved.

270 The Basin Plan, also, lacks a mechanism that automatically accounts for climate shifts. The simplest solution to this challenge would be to define SDLs using a moving average of inflows over, say, the last 10 years.

Implicit opportunity 16. identified by the OECD

That all regional and basin-wide allocation systems be expressed in “gross” and “net” terms.

275 **TOR 5** *If the Basin Plan is unlikely to achieve any of the objects and purposes of the Act and Basin Plan and/or the ‘enhanced environmental outcomes’ and the additional 450 GL referred to above, what amendments should be made to the Basin Plan or Act to achieve those objects and purposes, the ‘enhanced environmental outcomes’ and the additional 450 GL?*

280 The SDL Adjustment process that I originally proposed was designed as an ongoing adjustment mechanism that could be used adaptively as climatic and other conditions changed.

285 As indicated above, I now consider that the full costs of climate change risks should be borne by water users. Without compensation, ongoing climatic SDL adjustment and any adjustments considered necessary to keep water use within sustainable limits should be expected. That is all entitlements should be defined and an entitlement to a share of that amount that can be used sustainably not an entitlement to a proportion of inflows irrespective of system outcomes.

Implicit opportunity 17. identified by the OECD

290 *That the time constraints on the SDL adjustment mechanism be removed from the Water Act so that ongoing SDL adjustment is expected.*

TOR 6 *Any legislative or other impediments to achieving any of the objects and purposes of the Act and Basin Plan and/or the ‘enhanced environmental outcomes’ and additional 450 GL referred to above, and any implicit opportunities for legislative or other change if needed.*

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The main impediment here is the need for a budget allocation and a lack of political willingness to proceed with the purchase of this water.

A related issue is the failure of the current plan to fully account for the capture of over-land flows and the increase in water use as a result of the interception of water by trees, etc.

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Implicit opportunity 18. identified by the OECD

The Water Act and the Basin Plan be amended so as to allow the MDBA to control all forms of water interception and water use in the Murray Darling Basin.

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TOR 7 *The likely impact of alleged illegal take or other forms of non-compliance on achieving any of the objects and purposes of the Act and Basin Plan, and the ‘enhanced environmental outcomes’ and the additional 450 GL, referred to above.*

The MDBA has the powers necessary to ensure full compliance with the plan and States have the powers they need to ensure compliance. The question is primarily one of resource allocation and culture.

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Implicit opportunity 19. identified by the OECD

That the effectiveness of the changes now being made at Basin, State and local level be reviewed towards the end of 2018.

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TOR 8 *In relation to any found instances of illegal take or work, whether appropriate enforcement proceedings have been taken in respect of such matters and if not, why.*

See the Implicit opportunity relating to terms of reference 7.

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TOR 9 *Whether, in any event, the enforcement and compliance powers under the Act are adequate to prevent and address non-compliance with the Act and the Basin Plan, and any Implicit opportunities for legislative or other change if needed.*

There is a need for the MDBA to be more independent.

Implicit opportunity 20. identified by the OECD

That the MDBA be established as a fully independent body empowered to make final decisions in a manner similar to those given to Australia’s Reserve Bank.

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TOR 10 *Whether monitoring, metering and access to relevant information (such as usage data) is adequate to achieve the objects and purposes of the Act and Basin Plan and the ‘enhanced environmental outcomes’ and additional 450 GL referred to above.*

330 Too much water use remains outside the accounting systems used to ensure compliance. Where-ever it is technically feasible all water use should be metered and or assessed using remote sensing technology. This monitoring should include formal arrangements for the use of water by the Commonwealth Environmental Water Holder and all other environmental water entitlement holders.

335 **Implicit opportunity 21. identified by the OECD**

That all forms of consumptive water use either be metered or assessed on a fortnightly basis using remote sensing technology.

TOR 11 *Whether water that is purchased by the Commonwealth for the purposes of achieving the objects and purposes of the Act and Basin Plan and/or the ‘enhanced environmental outcomes’ and the additional 450 GL referred to above will be adequately protected from take for irrigation under water resource plans, and any Implicit opportunities for legislative or other change if needed.*

340 For this to be the case, there is need to define a hands-off flow and make it clear that water this water is not for the delivery of enhanced environmental outcomes.

345 **Implicit opportunity 22. identified by the OECD**

That plans be amended so as to make it clear that allocations made to the Commonwealth Environmental Water Holder are not to be used and may not be used to maintain a base flow.

TOR 12 *Whether the Basin Plan in its current form, its implementation, and any proposed amendments to the Plan, are adequate to achieve the objects and purposes of the Act and Basin Plan, the ‘enhanced environmental outcomes’ and the additional 450 GL referred to above, taking into account likely, future climate change.*

350 As indicated in this submission, there is considerable room for improvements to the Basin Plan, the Water Act and local water entitlement, allocation and accounting arrangements.

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Implicit opportunity 23. identified by the OECD

That careful consideration be given to the Implicit opportunities made in this submission.

TOR 13 *Any other related matters.*

360 Internationally, Australia has a reputation for excellence in water management. This reputation, however, is now at risk as we decommissioned the National Water Commission and played avoided the need to continue with many of the reforms and principles embedded in the National Water Initiative.

Implicit opportunity 24. identified by the OECD

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That the National Water Commission be re-established.