

WENTWORTH GROUP

OF CONCERNED SCIENTISTS

Emma Solomon
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NSW Department of Primary Industries
Locked Bag 21
Orange NSW 2800

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Dear Ms Solomon,

Major reforms are required if New South Wales is to address the chronic and systemic issues in the management of water as identified by the Ken Matthew's Report¹ and the MDBA's compliance review.² The Wentworth Group agrees with the overall intention of the NSW Water Reform Action Plan (NSW WRAP) to deliver on the state's responsibility to ensure an equitable and transparent approach to the management of water for current and future generations.

Specifically, if the NSW Government is committed to this objective, the following actions must be delivered:

1. Implement the recommendations of the Ken Matthew's Review in full;
2. Implement the recommendations of the MDBA's Compliance Review in full; and
3. Ensure that NSW fulfils its obligations under the Murray-Darling Basin Plan.

While the NSW WRAP represents significant progress in key areas such as monitoring and compliance, the Wentworth Group has serious concerns that the NSW WRAP will not deliver the key recommendations (e.g. the 'no meter no pump' rule), and further, will fail to adequately ensure that water is managed within the framework of the Murray-Darling Basin Plan. We explain these issues below and put forward recommendations which are essential to avoid serious risks to third parties (e.g. other entitlement holders, downstream states) and undermining the national water reform agenda.

Transparency is central to restoring public trust in the NSW Government's commitment to manage water fairly and effectively. The Wentworth Group urges the NSW Government to provide full transparency in all aspects of the NSW WRAP implementation to restore community confidence in governments to progress water reform.

The Wentworth Group is committed to water reforms which secure the long term economic, social and environmental future of river basins in New South Wales, and we would welcome the opportunity to discuss this advice and other opportunities with you.

Kind regards,



Peter Cosier on behalf of the Wentworth Group of Concerned Scientists

CONSULTATION PAPER: IMPLEMENTING THE FLOODPLAIN HARVESTING POLICY

Large and unaccounted volumes of water are taken from NSW rivers via floodplain harvesting, rendering this form of diversion one of the most significant threats to water security in the Northern Murray-Darling Basin. The approach proposed in the NSW WRAP consultation paper does not guarantee that floodplain harvesting and rainfall runoff harvesting will be accurately monitored and managed to a standard suitable for compliance action, and to meet obligations of water management plans and the Murray-Darling Basin Plan. Further, without accurate monitoring of rainfall-runoff harvesting, the NSW Government's proposal to incorporate rainfall-runoff harvesting into the licencing framework will pose serious risks to the security of water for third parties (i.e. water licence holders) and downstream states. The Wentworth Group proposes that the following recommendations are adopted prior to any policy to change rules for managing floodplain harvesting and rainfall runoff harvesting:

1. MANAGING FLOODPLAIN STRUCTURES

ISSUE: There is no comprehensive assessment in the public domain of the status of floodplain earthworks (levees, channels, on-farm storages, tanks) across all valleys in NSW, raising serious concerns about the legality of existing earthworks. The NSW WRAP does not propose a process for ensuring all floodplain structures are brought into line with the NSW Floodplain Management Plans.

RECOMMENDATION: A comprehensive, state-wide audit of earthworks needs to be urgently completed, and actions undertaken where necessary, to ensure all structures on floodplains comply with works approvals, the NSW Floodplain Harvesting Policy and the Floodplain Management Plans.

2. ENSURING COMPLIANCE WITH BASIN PLAN

ISSUE: In most cases, take from floodplain harvesting has not been included in the estimate of the Baseline Diversion Limits, even though this is a requirement of the Basin Plan. In a few cases, long term average annual floodplain harvesting extractions are included in the estimate of baseline diversion limits however they are based on modelled data on floodplain harvesting and have not been adequately verified against actual data. There are large discrepancies in the baseline diversion limits for floodplain harvesting between the Basin Plan (e.g. 17.7GL for the Gwydir³) and what is proposed in the NSW WRAP (e.g. 600GL for the Gwydir alone). There is a lack of observed data to justify the proposed (modelled) baseline diversion limits for floodplain harvesting.

RECOMMENDATION: Baseline Diversion Limits in the Basin Plan should be revised to include accurate estimates of floodplain harvesting within each SDL unit, based on an independent review of actual data (e.g. satellite imagery, gauged data, storage capacity). The NSW Government should then demonstrate that BDLs in each valley can be satisfied given the proposed Water Sharing Plan rules, account management rules (including 500% account limit), and the available volume of floodplain harvesting licences.

3. ACCURATE MONITORING OF DIVERSIONS

ISSUE: Some of the options presented in the NSW WRAP will not guarantee that all storages used for floodplain harvesting will be metered, and therefore would not comply with the Matthew's recommendation for "a universal requirement for metering: 'no metering, no pumping'" for overland flows impounded on floodplains and/or pumped into storages.

RECOMMENDATION: Proposed monitoring strategy needs to be immediate in high risk rivers (implemented within the first year), with full monitoring of all take in all river systems by 2022, to a standard suitable for compliance action. Information on floodplain harvesting take needs to be made publicly available. The NSW Government should implement a strategy to verify accurate records using multiple lines of evidence (e.g. satellite imagery, river gauged data).

4. MANAGING GROWTH IN USE

ISSUE: There is no proposed strategy to prevent growth in floodplain harvesting arising from construction or modification floodplain works. Further, combining rainfall runoff harvesting into the floodplain harvesting licencing framework and relaxing the account limits for floodplain harvesting licences could legitimize significantly more take than has historically occurred. This has potential impacts on third parties (e.g. high security, general security, and supplementary licence holders) and downstream states (e.g. Victoria, South Australia), and may increase the occurrence of breaches of the Murray-Darling Basin Cap and Basin Plan sustainable diversion limits.

RECOMMENDATION: A growth in use strategy, focusing on detailed implementation for floodplain harvesting, should be developed and implemented to safeguard water security and reduce third party risks. This should include provisions such as a moratorium on storage growth and pump size, and an independent assessment of extractions. Any growth in water intercepted by floodplain harvesting and rainfall runoff harvesting should be offset by a reduction in consumptive water use (s10.13 in the Basin Plan). Rainfall-runoff harvesting rules should not change until there is accurate monitoring, the growth in use strategy is in place, and diversions are incorporated into the Cap/SDL reporting.

CONSULTATION PAPER: BETTER MANAGEMENT OF ENVIRONMENTAL WATER

Environmental water is not well protected by existing NSW water management rules and even when the Basin Plan is in place, environmental water in the river may be vulnerable to illegal extraction, reducing the overall volume of water that is available to achieve environmental outcomes in the Basin.⁴ While illegal extraction of environmental water is an obvious threat, there are also many different ways in which environmental water can be taken legally with adverse consequences for the river system (Box 1).

Box 1. Types of legal take of environmental water.

- **Unregulated rivers:** Environmental water in unregulated rivers are left instream and can elevate river levels. Raised levels can trigger pumping thresholds, placing environmental flows at risk of extraction.
- **Regulated rivers:** Environmental water in regulated rivers is ordered from dams or actively delivered to achieve specific outcomes. River operators determine how much water to release by taking into account irrigation demand, environmental needs, tributary flows and predicted losses (i.e. evaporation and seepage). If operators underestimate requirements and the full amount of consumptive water is taken, the volume of unregulated flows and any environmental water in channels will be reduced.
- **Interconnected valleys and across borders:** Once environmental water leaves a valley and flows downstream (e.g. in tributaries to the Barwon-Darling), it may contribute to the unregulated pool of flows and without shepherding rules, lose its status as environmental water. These flows may be extracted by irrigators subject to entitlement conditions, or reach a dam or state/territory border where they may be allocated for other purposes (e.g. Menindee Lakes).
- **Groundwater:** Groundwater flows cannot be ordered or actively delivered, they remain in the aquifers after consumptive take and thus at risk of being extracted.
- **All systems:** Water ministers may have discretion to reverse embargos to extraction, or declare flow events available for consumption. Environmental flows are also vulnerable during critically dry periods when water plans are switched off.

It is not known how much environmental water is legally extracted, but all the examples in this Box have already taken place and, without any intervention, could happen again. Currently, both held (entitlement-based) and planned (rules-based) environmental water may be legally extracted. Planned environmental water is particularly vulnerable because volumes are difficult to account for.⁵ This is despite the National Water Initiative, the Water Act 2007 and the Basin Plan all including specific provisions to protect planned environmental water.

The Barwon-Darling river system is one region where environmental water is known to be vulnerable to legal extraction. The 2012 Barwon-Darling Water Sharing Plan contains no event-by-event based protection of environmental flows. That is, environmental water from tributaries is available to be legally taken by irrigators if they comply with specified pumping thresholds. Nine weeks before the Basin Plan was passed in 2012, the New South Wales Government made several changes to the Barwon-Darling Water Sharing Plan to increase the volume water that can be pumped for irrigation. These include tripling the volume of water that can be extracted under some entitlements, and allowing for unlimited carryover. The Murray-Darling Basin Authority acknowledged these changes may have reduced the protection of low flows,⁶ by allowing irrigators to pump larger volumes of water and take advantage of elevated water levels as a result of environmental water arriving from Queensland and rivers of northern New South Wales. It is only over the long-term that this additional diversion results in a breach of the sustainable diversion limits. These long-term diversion controls will be ineffective at protecting many flow events containing purchased environmental water, particularly low flow events.

Safeguards and permanent rules need to be in place to protect environmental watering events (both held and planned environmental water) from extraction, and ensure that increased river flows resulting from environmental water do not trigger increased diversions. Sustainable diversion limits alone do not protect environmental watering events because they refer to long-term average extraction limits, not individual events. Permanent arrangements must also be in place to protect environmental water on an event-by-event basis, in water resource plans or via agreement between states. Options include applying conditions on water entitlements, embargoes on extractions during environmental watering events, 'shepherding' flows through

valleys and over borders (where an equivalent volume of environmental water available upstream is re-allocated at a downstream location), adjusting pumping thresholds, and short-term extraction limits that restrict the volume of take over a short period of time. There is also a need to ensure that “prerequisite policy measures” for crediting return flows and calling environmental water from storage (s7.15 (b) (ii), including shepherding arrangements) put forward by NSW as part of the sustainable diversion limit adjustment mechanism are implemented in accordance with the Basin Plan.

When the Basin Plan was negotiated, states agreed in principle to revise their water management rules to include rules to protect environmental water in line with the Basin Plan, on the proviso that there will be no changes to the reliability of water available under entitlements.⁷ This proviso provided water users with assurance that the reliability of water entitlements would not be eroded under the Basin Plan, giving certainty to investors. However, it also meant that states could be exempt from including rule changes which affect reliability (both increase and decrease). Under a narrow interpretation, the reliability clause has the potential to release states from their water resource plan obligations, including those for the protection of environmental water. For effective protection of environmental water, the Murray-Darling Basin Authority should clarify their interpretation of the reliability clause⁸ when reviewing water resource plans and the onus of proof should be on states to prove there will be an impact on reliability. In many cases in the Barwon Darling for instance, the purchase of environmental water and its subsequent legal extraction has resulted in an increase in reliability for remaining consumptive users. This is neither appropriate nor consistent with the intent of the Basin Plan.

Recommendations

To ensure the protection of environmental flows, the NSW Government should:

1. Demonstrate there is no net reduction in ‘planned’ environmental water as required by the Water Act 2007 and Basin Plan as a result of any policy changes.
 - a. The Authority must be satisfied that the volume of planned environmental water in each valley under proposed water resource plans is equal to or greater than the volume of planned environmental water in each valley before the commencement of the Basin Plan.
 - b. The NSW Government should agree to a definition of planned environmental water that includes dam spills and unregulated river flow.
 - c. The reliability clause (section 6.14 Basin Plan) should not be interpreted in a way that would release the NSW Government from water resource plan obligations under the Basin Plan. Instead, the effects of any changes to plans, operating rules or baselines should be managed in a way that is consistent with the National Water Initiative Risk Assignment principles.
2. Ensure that all environmental water (‘planned’ and ‘held’ under entitlement) is protected within and between valleys, including over state borders to ensure that environmental water can be delivered without risk of en-route extraction, and without triggering other extractions. This requires permanent arrangements in water resource plans or via agreement by Basin jurisdictions, including:
 - a. Embargoes on extractions during environmental flow events;
 - b. Flow ‘shepherding’ arrangements, allowing an equivalent volume of environmental water initially allocated upstream to be re-allocated at a downstream location (including within and between valleys and over borders); and
 - c. Short-term (e.g. daily) extraction limits, pumping thresholds and other rules that restrict the volume of take to avoid damaging changes to the nature of environmental flow events.
3. Implement a comprehensive monitoring and management programs using multiple lines of evidence (e.g. satellite imagery, river gauges, crop production data and metering) to ensure the effectiveness of environmental water protection arrangements.
4. Ensure that “prerequisite policy measures” for crediting return flows and calling environmental water from storage (Basin Plan s7.15 (b) (ii), including shepherding arrangements) put forward by NSW as part of the sustainable diversion limit adjustment mechanism are implemented in accordance with the Basin Plan.

References

1. Matthews, K., 2017. *Independent investigation into NSW water management and compliance. Interim Report*. Prepared for New South Wales Department of Primary Industries.
2. MDBA, 2017. *The Murray–Darling Basin Water Compliance Review Containing reports by the Murray–Darling Basin Authority and the Independent Review Panel*. Murray-Darling Basin Authority: Canberra.
3. MDBA, 2011. *Comparison of watercourse diversion estimates in the proposed Basin Plan with other diversion estimates*. Murray-Darling Basin Authority: Canberra.
4. ANAO, 2013. *Commonwealth Environmental Watering Activities*. Australian National Audit Office.
5. A typical planned environmental water rule is minimum flows are to be released from a storage to support the health of the river. Before the Basin Plan was agreed, the planned environmental water rule could be met by the release of consumptive water meeting that requirement. That is, planned environmental water has not always been a separate volume of water to be managed or accounted for. This type of rule is easy to measure, but harder to confirm that held environmental water isn't being used in place of consumptive water that met that requirement.
6. MDBA, 2016. *Hydrologic modelling for the Northern Basin Review*. Murray-Darling Basin Authority: Canberra.
7. Clause s6.14 in the Basin Plan states that nothing in the Basin Plan requires a change in the reliability of water allocations of a kind that would trigger the compensation provisions in the Water Act 2007.
8. MDBA, 2014. *Water resource plan requirements: Policies and guidelines. 1H - Changing reliability*. Murray-Darling Basin Authority: Canberra.