WENTWORTH GROUP
OF CONCERNED SCIENTISTS

Proposed criteria for accrediting Water Resource Plans under the Murray-Darling Basin Plan

The primary purpose of the Murray-Darling Basin Plan is to return over-allocated rivers to sustainable levels of extraction. There is $13 billion of taxpayers' money provided to facilitate this outcome.

Water resource plans outline how water resources in a particular area will be managed in line with the Murray–Darling Basin Plan. They set out the rules and arrangements relating to issues such as annual limits on water take, environmental water, managing water during extreme events and strategies to achieve water quality standards and manage risks. Water resource plans include groundwater areas and surface water areas.

The Wentworth Group considers that nine safeguards are required to ensure water resource plans developed for the Basin Plan will achieve the Plan's objectives and ensure that water recovered will not be undermined by changes to state water resource plans, river management and operating rules, changes to baselines or model assumptions, and other land use changes that affect water availability in the catchments (e.g. farm dams, plantations, floodplain harvesting).

Where water resource plans do not contain sufficient information to enable assessment of these criteria, other relevant statutory instruments should be incorporated into the assessment (e.g. water sharing plans, water allocation plans and state water planning legislation).

The proposed nine safeguards for Water Resource Plans are:

1. **The Baseline Diversion Limit (BDL) used for calculating the Sustainable Diversion Limit (SDL) accurately describes the diversion limit that applied before the recovery of water for the Basin Plan** (*as per Schedule 3 of the Basin Plan (BDLs for surface water SDL resource units), and the definition of BDL in s1.07)*

2. **Water Resource Plans enable achievement of the agreed hydrological objectives and support the ecological objectives described in the Basin Plan and related documents** *(as per Basin Plan s10.26: (1): "A water resource plan must provide for environmental watering to occur in a way that: (a) is consistent with: (i) the environmental watering plan; and (ii) the Basin-wide environmental watering strategy; and (b) contributes to the achievement of the objectives in Part 2 of Chapter 8")*

3. **No net reduction in 'planned' environmental water** *(as per Basin Plan 10.28 "No net reduction in the protection of planned environmental water")*

4. **All environmental water ('planned' and 'held' under entitlement) must be protected within and between valleys, including over state borders** *(as per recommendation 10 and 11 of the MDBA's Murray-Darling Basin Water Compliance Review, Recommendation 10 of the independent Review Panel's report (Nov 2017), and Chapter 5 of the Independent investigation into NSW water management and compliance interim report (Ken Matthews, Sept 2017).)*

5. **Each Water Resource Plan should set out the steps that are to be taken to monitor each of the components of the SDL which are currently not metered** *(as per Basin Plan s10.24: "Monitoring impact of interception activities" and Chapter 10 Part 10 (s10.44 to s10.46) "Measuring and Monitoring")*

6. **Each Water Resource Plan should ensure that growth in interception activities does not compromise the ability to achieve an environmentally sustainable level of take** *(as per Basin Plan 10.12 (1) (g): A water resource plan must account for "changes over time in the extent to which water allocations in the unit are utilised.")*

7. **Water resource plan must not compromise groundwater dependent assets, nor connectivity between groundwater and surface water systems** *(as per Basin Plan 10.19 – 10.21 including "A water resource plan must be prepared having regard to whether it is necessary for it to include rules which ensure that, for groundwater that has a significant hydrological connection to surface water, the operation of the plan does not compromise the meeting of environmental watering requirements (for example, base flows).")*

8. **All models used to inform decisions should be up to date and accredited against standards. There should be no change to the baselines, rules and assumptions without a systematic, independent and publicly available review** *(as per Basin Plan 10.49: "A water resource plan must be based on the best available information.")*

9. **Accreditation of water resource plans should be subject to independent and publicly available review** *(as per Basin Plan 10.49: "A water resource plan must be based on the best available information.")*

Table 1. Safeguards to ensure that any changes to state water resource plans, river management and operating rules, or changes to baselines or model assumptions do not undermine the water recovery effort.

Safeguard	Description
1. **The Baseline Diversion Limit (BDL) used for calculating the Sustainable Diversion Limit (SDL) accurately describes the diversion limit that applied before the recovery of water for the Basin Plan** (*as per Schedule 3 of the Basin Plan (BDLs for surface water SDL resource units), and the definition of BDL in section 1.07)*	To ensure that there is no creep in the definition of the BDL in each resource unit, the following questions are addressed: a) Is the Cap model a valid representation of 1993/94 conditions? b) Has the proper allowance been made for the reductions to the Cap introduced by NSW when they developed their water sharing plans in 2003? c) Has proper allowance been made for the reductions resulting from permanent inter-valley trade and the recovery of water for the environment prior to the Basin Plan including for The Living Murray and Water for Rivers? d) Does the BDL model run for 1895-2009 include all the above changes and is there valid justification for changes from Cap? e) Are reasonable allowances made in the BDL model for unmetered diversions such as floodplain harvesting, overland flow harvesting, runoff harvesting, riparian use, unmetered unregulated stream use, and plantation forestry? f) Do changes made to the BDL model to produce the SDL model reflect the water resource plan and water sharing plan? g) Do long term diversion limit equivalent (LTDLE) factors for each valley reflect allocation and usage prior to the Basin Plan as well as agreed growth in use assumptions? h) Has the BDL been reduced by the correct amount to derive the SDL? i) Does the reduction in diversion when comparing the SDL model run to the BDL model run equal the entitlement purchased multiplied by the relevant the long term diversion limit equivalent (LTDLE) factors for each valley? j) Does the SDL model generate the SDL diversion when run from 1895-2009? k) Will the collection and collation of the weather and flow data that will be input to the SDL model in future years be similar to the methods used to generate the data for the 1895-2009 SDL model run? l) Have planning assumptions been properly documented and justified in the water resource plan?
2. **Water Resource Plans enable achievement of the agreed hydrological objectives and support the ecological objectives described in the Basin Plan and related documents** *(as per Basin Plan s10.26: (1): "A water resource plan must provide for environmental watering to occur in a way that: (a) is consistent with: (i) the environmental watering plan; and (ii) the Basin-wide*	Where the SDL model run fails to achieve the outcomes described in the environmental watering plan, the Basin-wide environmental watering strategy under Chapter 8 of the Basin Plan, and the objectives in Part 2 of Chapter 8, the water resource plan should be changed and/or other statutory measures should be implemented.

environmental watering strategy; and (b) contributes to the achievement of the objectives in Part 2 of Chapter 8")	
3. **No net reduction in 'planned' environmental water** *(as per Basin Plan 10.28 "No net reduction in the protection of planned environmental water")*	There must be no net reduction in 'planned' environmental water as required by the Water Act 2007 and Basin Plan. All Basin governments should agree to a consistent definition of planned environmental water that includes dam spills and unregulated river flow. a) The Authority must be satisfied 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 Authority should not interpret the reliability clause (section 6.14) in a way that would release states from their 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. The onus should be on states to prove there is an impact on reliability.
4. **All environmental water ('planned' and 'held' under entitlement) must be protected within and between valleys, including over state borders** *(as per recommendation 10 and 11 of the MDBA's Murray-Darling Basin Water Compliance Review, Recommendation 10 of the independent Review Panel's report (Nov 2017) and Chapter 5 of the Independent investigation into NSW water management and compliance interim report (Ken Matthews, Sept 2017))*	Prior to accrediting a state water resource plan, the Murray-Darling Basin Authority must be satisfied that environmental water (both held and planned) 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) Pre-requisite policy measures to credit environmental return flows for downstream environmental use; or allow the call of held environmental water from storage during un-regulated flow events; b) Embargoes on extractions during environmental flow events; c) Flow 'shepherding', allowing an equivalent volume of environmental water upstream to be re-allocated at a downstream location (including within and between valleys and over borders); and d) Short-term (e.g. daily) extraction limits, pumping thresholds and other rules that restrict the volume of take to protect environmental flow events.
5. **Each Water Resource Plan should set out the steps that are to be taken to monitor each of the components of the SDL which are currently not metered** *(as per Basin Plan s10.24: "Monitoring impact of interception activities" and Chapter 10 Part 10 (s10.44 to s10.46) "Measuring and Monitoring")*	a) Water volumes in all on-farm storages on properties associated floodplain and overland flow harvesting should be metered immediately and there should be gradual adoption of remote sensing to monitor water use on these properties. b) All irrigation diversions on unregulated streams should be metered. c) The baseline conditions relating to plantation forestry and farm dams should be rigorously defined by remote sensing or other means.
6. **Each Water Resource Plan should ensure that growth in interception activities does not compromise the ability to achieve an environmentally sustainable level of take** *(as per Basin Plan 10.12 (1) (g): A water resource plan must account for "changes over time in the extent to which water allocations in the unit are utilised.")*	The following must be ensured: a) Any growth in water intercepted by farm dams, commercial plantations or water taken under a riparian right must be offset by a reduction in consumptive water use (s10.13 in the Basin Plan), requiring improved and up to date estimates of the scale and impacts of interception activities; b) Growth in interception activities should not lead to an increase in take over the SDL (s10.13);

	c) Risks from water interceptions resulting from mining activities including coal seam gas mining, and floodplain harvesting are managed to ensure they do not compromise the flow requirements which are necessary to achieve agreed environmental outcomes (s10.23 – 10.25); d) Water resource plans must include rules to preserve the productive base of groundwater (s10.20); e) The activation of underused water entitlements (i.e. sleeper and dozer licences) is reviewed to ensure models accurately reflect expected utilisation over the life of the Plan.
7. **Water resource plan must not compromise groundwater dependent assets, nor connectivity between groundwater and surface water systems** *(as per Basin Plan 10.19 – 10.21 including "A water resource plan must be prepared having regard to whether it is necessary for it to include rules which ensure that, for groundwater that has a significant hydrological connection to surface water, the operation of the plan does not compromise the meeting of environmental watering requirements (for example, base flows).")*	This policy should ensure that: a) The operation of the water resource plan should not compromise the meeting of environmental watering requirements of priority environmental assets and ecosystem functions that depend on groundwater (see Basin Plan 10.19); b) The operation of the water resource plan should not compromise the meeting of environmental water requirements (e.g. base flows) in systems where groundwater has a significant connection to surface water (see Basin Plan 10.20); and c) The water resource plan should ensure that there is no structural damage to the aquifer arising from take within the SDLs, and that hydraulic relationships and properties between and within groundwater/surface water systems are maintained (see Basin Plan 10.21).
8. **All models used to inform decisions should be up to date and accredited against standards. There should be no change to the baselines, rules and assumptions without a systematic, independent and publicly available review** *(as per Basin Plan 10.49: "A water resource plan must be based on the best available information.")*	Without this policy, there is a risk of incremental changes to rules or assumptions in the flow models without appropriate scrutiny, undermining the goal of recovering water for the environment. Any change to the accredited models for assessing the baseline diversion limit (MDBA Baseline Model Run 2012) and sustainable diversion limits (model not yet assessed) should therefore require independent review. This includes changes to assumptions which influence the reliability of water available under entitlements. Modelled sustainable diversion limits for that year should be compared with actual metered use to assess compliance.
9. **Accreditation of water resource plans should be subject to independent and publicly available review** *(as per Basin Plan 10.49: "A water resource plan must be based on the best available information.")*	This policy is aimed at ensuring the accreditation of water resource plans is a transparent process that can be publicly scrutinised and questioned.