

Implementing Pre-requisite Policy Measures in NSW

Addressing MDBA criteria for implementation

The Murray-Darling Basin Authority (MDBA) is required to assess the effectiveness of State policies to implement Pre-requisite Policy Measures (PPMs). The criteria used for the MDBA's assessment of PPM implementation are the PPM Assessment Guidelines (the Guidelines) which were developed to provide assistance to states on developing their PPM implementation plans.

The Guidelines advise that arrangements for implementing PPMs should be:

- Secure and enduring
- Fully operable
- Transparent
- Provide for releases of Held Environmental Water from storages on top of other in-stream flows, including unregulated flows (piggybacking)
- Allow environmental water to flow throughout the length of the river, and between rivers; and be protected from extraction, re-regulation or substitution (environmental flow reuse).

The final assessment of implementation will be based on states demonstrating that they have effective policies in place by 30 June 2019 to implement PPMs identified in the Basin Plan (s7.15).

This document aims to outline how the NSW framework for the implementation of PPMs, led by DoI-Water, addresses the criteria outlined in the Guidelines.

The NSW PPM framework

In NSW, PPMs will be implemented in the regulated Murray-Lower Darling and Murrumbidgee River systems through the NSW PPM Implementation Plan and the valley-specific Procedures Manuals, together with supporting rule changes to the respective Water Sharing Plans (WSPs) and water supply Work Approvals.

The NSW PPM Implementation Plan sets out the high level principles to guide PPM development and implementation. It identifies the associated processes required to incorporate PPMs into the regulatory and operational frameworks that guide water management and operation in NSW.

The Procedures Manuals (the Manuals) provide more detailed codification of the operation of PPMs, consistent with the principles and approaches set out in the Implementation Plan. The Manuals are established via rules in the WSP. Importantly, the Manuals set out an adaptive management process that allows for PPMs to be developed, improved and refined as knowledge improves.

To provide statutory support for the process set out in the Implementation Plan and the Manuals, a number of enabling provisions are scheduled to be made to the WSPs via a series of rules for the two regulated river water sources. These WSP amendments will take place with the scheduled WSP gazettal for other plan amendments required as part of the broader Water Resource Plan package (September 2019).

The primary role of the river operator is recognised through the inclusion of specific conditions to the water supply work approvals (work approvals) for the Murrumbidgee and Murray-Lower Darling. These conditions reflect the requirements of the WSP rules relating to PPMs and various elements of the Manuals.

PPMs within the River Murray System require additional inter-jurisdictional agreements and procedures. This is being coordinated by the Murray Darling Basin Authority (MDBA) under the joint venture arrangement on behalf of the NSW, Victorian and South Australia Governments. These arrangements are largely facilitated by the existing Murray-Darling Basin Agreement, the existing *Objectives and outcomes for river operations in the River Murray System document* (O&O

document) and its proposed amendments, including four proposed new specific objectives and outcomes (SO&Os).

Where there are further tasks to be completed, these actions are listed in the schedule provided in Attachment 1.

How are NSW PPMs secure and enduring?

Three key elements provide secure and enduring arrangements for PPMs in NSW:

- **Water Sharing Plan rules** which provide for piggybacking and environmental reuse. WSPs are a statutory obligation under the *Water Management Act 2000* in NSW and developed by the Minister for Regional Water with concurrence from the Minister for the Environment. WSPs are legal instruments with a 10-year term.
- Valley-specific **Procedures Manuals** are administrative requirements under the enabling provisions in the WSPs. The Manuals prescribe an annual reporting and review process which provides for adaptive management (including of the manuals themselves). The Manuals will also be supporting material to the Water Resource Plans.
- New conditions in the **water supply work approvals** reflect the WSP rules and operational requirements prescribed in the Procedures Manual. A requirement of these work approvals is the submission of an Annual Compliance Report.

Additional arrangements which provide for PPMs being secure and enduring in the River Murray System include the Murray-Darling Basin Agreement (the Agreement) and amendments made to the O&O document.

In parallel to the O&O documents, a memorandum of understanding will be developed between Victoria and NSW to establish ongoing arrangements to address those mitigation measures that are not within the MDBA's power to enforce under the joint venture arrangement. Measures which will be included in the bilateral agreement are:

- Environmental water orders should be distributed equally (i.e. 50:50) to allow losses attributed to those environmental water orders to be recouped by each state on the retail level (as losses are shared 50:50 regardless of orders)
- How to manage spill risk so that one state is not substantially and disproportionately drawn down in comparison to the other.

As identified in the MDBA's *Addressing the criteria to assess the Pre-requisite policy measures* document, the MDBA will work with the states to clarify the objectives of the mitigation measures and when they might best be used.

What measures have NSW put in place to ensure PPMs are fully operable?

The Procedures Manuals codify the operational process of delivering PPMs, including how proposals and orders for watering actions relying on PPMs are developed, and the roles and responsibilities of the operational framework. The Manuals are consistent with the rules of the WSPs and further supported by conditions nominated in the work approvals.

The Manuals have been developed in consultation with both the environmental water managers, being the NSW Office of Environment and Heritage (OEH) and the Commonwealth Environmental Water Office (CEWO) and the river operator (WaterNSW).

The Manuals follow a process similar to that adopted in the River Murray System for the multi-site environmental watering trials. They provide a process for trialling, reviewing and modifying

watering actions that rely on PPMs. Similar to the proposed new SO&Os which codify several years of environmental watering trials in the River Murray System as a 'starting point', the trial actions included in the Murrumbidgee Manual provide a 'starting point' based on the previous trials conducted under the Bulk Entitlement Delivery Mechanism.

Importantly, the Manuals prescribe a structured review process, which includes annual reporting. An annual environmental river operations report must be submitted by the river operator and the environmental water manager is required to submit an annual environmental water statement. These reports are included in the annual review to be undertaken by DoI-Water. The objectives of the review process are to:

- Consider if the agreed and trial actions and their associated supporting measures provide for the effective and efficient use of held environmental water,
- Assess whether there are sufficient mitigation measures in place to manage potential risks,
- Consider any proposals for variations or new actions and/or supporting measures that may be brought forward by the river operator or the environmental water holder,
- Consider and address any issues raised through consultation with stakeholders,
- Consider the results and recommendations of the annual reports,
- Report on the implementation of improvements from previous review.

The adaptive management approach provided in the Manual provides the framework in which knowledge, management, evaluation and feedback can be linked over time to learn and adapt as knowledge improves.

PPMs are currently operable in NSW via the existing and proposed arrangements in the River Murray System, and through the bulk entitlement delivery (BED) arrangement under the Agreement (clause 98).

What measures have NSW put in place to ensure that PPMs are transparent?

The key documents that give effect to PPM implementation will be publicly available. The WSPs and the Water Supply Works Approvals are available on the DoI-Water website. The Manuals will also be made available on the website together with relevant supporting measures. The supporting measures will include any assumptions and methods used to deliver and account for environmental water. Annual reports and reviews will also be provided on the website.

Consultation has been undertaken during the development of the PPM framework, including the NSW PPM Implementation Plan. Consultation undertaken during the development of the Procedures Manuals and new WSP rules and Water Supply Works Approvals conditions are summarised in Table 1.

Table 1 Consultation activities completed for implementation of PPMs (June 2018 forward)

Valley	NSW PPM element		
	Overview of PPMs	Procedures Manual	WSP rules
Murrumbidgee	<ul style="list-style-type: none"> All SAP*: 18 June 2018 SAP #5 8 Aug 2018 	<ul style="list-style-type: none"> SAP #6: 14 Nov 2018 (presentation and draft document) 	<ul style="list-style-type: none"> Final SAP: April 2019 (<i>date TBD</i>) WRP Public Exhibition: 6 May - 19 June
Murray-Lower Darling	<ul style="list-style-type: none"> All SAP*: 18 June 2018 SAP #4: 4 April 2018 SAP #5: 22 Aug 2018 	<ul style="list-style-type: none"> SAP #6: 28 Nov 2018 (presentation and draft document) 	<ul style="list-style-type: none"> Final SAP: April 2019 (<i>date TBD</i>) WRP Public Exhibition: 3 June – 14 July
* SAP: Stakeholder Advisory Panel			

In addition, workshops and meetings have been held with NSW agencies (the NSW Office of Environment and Heritage, the NSW Natural Resources Access Regulator and WaterNSW) and the Commonwealth Environmental Water Office).

The requirements for ongoing consultation are also provided for in the Manuals, including:

- The regulator (DoI-Water) will consult with WaterNSW, OEH, MDBA, and the CEWO when conducting each annual review,
- The regulator (DoI-Water) will consult with representative groups of licensed water users regarding changes to any agreed actions or new trials,
- The river operator (WaterNSW) will consult representative groups of licensed water users prior to submitting the Annual Environmental River Operations Report, and
- The environmental water manager (OEH) will consult at various stages, including:
 - The river operator regarding proposed watering actions before placing an order,
 - Impacted stakeholders and the broader community when developing and delivering environmental water that relying on the use of agreed and trial actions as appropriate,
 - Other environmental water managers and stakeholders (including environmental water advisory groups (EWAGs),) when preparing annual environmental watering statements.

The review process and consultation requirements provide the opportunity for timely and direct feedback on watering actions.

How will NSW ensure that risks are identified and mitigated?

Piggybacking allows the ordering and release of held environmental water from headwork storages during regulated or unregulated flow conditions. This differs from historical practice whereby downstream orders were met using the most efficient means available, which may have come from tributary inflows. Under unregulated conditions, orders placed would be met by uncontrolled flows.

Directed releases via piggybacking can, either positively or negatively, impact the reliability of water allocations, depending on factors including the timing of the release and potential to replace later spills. Additionally, “out of balance” or deliverability issues in the Murrumbidgee system may be exacerbated by large volumes of directed releases from Burrinjuck Dam.

Large scale environmental watering using PPMs provides significant challenges for water accounting and protecting the volume of environmental water for downstream use. This is due to uncertainties of identifying how much environmental water is used (e.g. for events that are directed onto floodplains), how much is returned to the river and determining incremental transmission

losses along the system. These all influence the water available for use further downstream (by the environment and water availability for other water users).

Risks associated with environmental water delivery via PPMs can vary depending on the watering action, over time and the water availability scenario. Each watering action identified in the Procedures Manual will have supporting measures, including linked delivery pathways, relevant assumed use methods and mitigation measures that consider risks and commensurate mitigation measures to minimise potential impacts to other licensed water users.

The review process outlined in the Procedures Manual aims to identify if any further actions are required or if there are sufficient mitigation measures in place to manage potential risks. It also allows consideration for variations or new actions and/or supporting measures that may be brought forward by the river operator or the environmental water holder.

The proposed SO&Os related to PPMs outline the relevant risks and mitigation measures that will be undertaken under the joint venture arrangement in the River Murray System. NSW will also consider advice provided by the MDBA on actions that may be required in the River Murray System to further mitigate under the joint venture arrangement.

Where there are considered to be risks and uncertainties regarding assumed environmental water use and other system losses, initially conservative measures will be applied. These will be gradually improved as a body of knowledge is developed and more accurate measurement and modelling becomes available. As much as possible, net impacts will be considered while also taking into account specific risks of the proposed watering action and the current water availability scenario.

As identified in the Procedures Manuals, the development of water orders for significant watering events must commence well in advance of the target release period. Importantly, the water orders must be sufficiently detailed to provide guidance for river operators over a range of potential climatic conditions and may also require protocols for within-event decision making.

Provide for the releases of held environmental water from storages on top of other in-stream flows, including unregulated events

The ability for NSW or Victoria to order water from a specified MDBA storage (i.e. a directed release, or piggybacking) is facilitated under clause 98(3)(iv) of the Agreement and further detailed in the O&O document. In NSW, new provisions in the WSPs for PPMs allow for the holder of an environmental water access licence to request water be delivered from a particular water storage. Importantly, this new provision allows HEW to be released from storage on top of other instream flows, rather than being met by flows already in the system.

New rules in the WSP also specify that flows that result from water orders that use piggybacking (or environmental flow reuse) cannot be used to meet other licence water orders, planned environmental water requirements or other general system operational rules. This means that a water order made by the environmental water access licence holder will not be included in the volume of water available to supplementary licence holders for take, as this volume will not be included in the uncontrolled flow portion of the hydrograph.

The volume of directed release will be calculated as the difference between the actual release (with environmental water) and a hypothetical release without the directed release (without environmental water). Debiting rules have been included in the WSP which reflect the principles of this debiting arrangement and are further detailed in the Manuals and the supporting documents for each watering event.

The Manuals prescribe the process for developing and placing a water order using PPMs, including the requirement for river operators to be involved in the development process to ensure that events can be managed over a range of climatic and operational conditions. While the river operator is required to provide advice regarding system flow limits and risks in delivery of the proposed order, the environmental water managers are responsible for estimating the volume of water required to meet their environmental objectives, having regard to advice provided from the system operator.

To assess potential reliability impacts in the Murrumbidgee, DoI-Water are working with WaterNSW to determine historical tributary contributions to meeting downstream water orders, using CAIRO data. This analysis will also consider periods of substantial tributary contributions and seasonal differences. A 'tributary factor' may be developed and applied to offset long-term reliability impacts. Alternatively, constraints may be used (such as limiting the window of release for water called directly from storage), or volumetric limits applied. Consultation and discussion with the system operator and the environmental water holders will take place before any such mitigation measures are applied.

To support this assessment of historical data, valley-specific modelling to confirm the potential impact on reliability of allocation as a result of directed releases in the Murrumbidgee will be undertaken. A key unknown for the modelling process to date is the likely use of the environmental water portfolio; this uncertainty has reduced the ability to assess whether there would be any impacts from new water delivery mechanisms such as directed release using long-term models. It is likely that the development of environmental water use scenarios into long-term modelling for the Murrumbidgee will be completed during the early years of PPM implementation. DoI-Water are currently working with partner agencies to develop a collaborative approach to understanding use of the environmental water portfolio in the Murrumbidgee which can then be reflected in long-term modelling.

Environmental water to flow throughout the length of a river, and between rivers; and be protected from extraction, re-regulation or substitution

PPMs require environmental water to flow throughout the length of a river, and between rivers, and be protected from extraction, regulation or substitution (environmental flow reuse).

New WSP rules allow for a water order to be placed that requests water to be delivered along a specified delivery pathway, which may include one or more extraction points. This rule allows for environmental flow reuse at one or more sites along a river system.

Rules have also been drafted into the WSPs that prohibit flows resulting from water orders that use piggybacking or environmental flow reuse from being used to meet other licence water orders, planned environmental water requirements or other general system operational rules.

Additional rules have also been drafted to prevent any inflows to a system that result from a PPM watering action from being captured, stored or re-regulated. Instead these inflows will be allowed to naturally attenuate.

Debit rules have been included in the WSPs that prescribe the principles that apply to give effect to the NSW PPM Implementation Plan. The Manuals also require an assumed use method to estimate and account for the use of HEW where water take and return (use) cannot be accurately measured. Importantly, these assumed use methods also assist in determining the resident component of the HEW for use at a downstream environmental site or and/or protection to the end of the system. These methods will be used to produce Assumed Use Statements for the purposes of debiting accounts of HEW licences.

Whenever an environmental watering event relies upon an action that requires the use of an assumed use method, an Assumed Use Statement shall be prepared that sets out the calculation of the volumes of water debited from Water Access Licence accounts, and (where relevant) the volume of water accounted as environmental water that is passed into the downstream system.

Assumed use statements must include summary information for each element of the Assumed Use method and the source of data used for that element. A summary of the calculations shall be made available to the relevant environmental water holder when the accounts are debited.

The Manuals, established under the WSP, provides a register of accurate environmental sites and sites that are not considered accurate. This register can be updated as better information becomes available as part of the adaptive management process.

Schedule of actions for PPMs

2019	Action
27 March	NSW interagency workshop to confirm trial actions for 2019/20 water year and ; outcome will be a detailed workplan of assessments to develop supporting documentation.
11 April	Murrumbidgee SAP meeting – presentation of Water Sharing Plan rules and WaterNSW works approval conditions for comment; presentation of PPM Procedures Manual for noting only.
6 May – 16 June	Public exhibition of the Water Resource Plan for the Murrumbidgee Regulated Rivers Water Source (including Water Sharing Plan rules for PPMs).
3 June – 14 July	Public Exhibition of the Water Resource Plan for the Murray and Lower Darling Regulated Rivers Water Source (including Water Sharing Plan rules for PPMs).
April – May	Establish MoU with Victoria to establish ongoing arrangements for mitigation measures that are not within the MDBA's remit under the joint venture arrangement.
September	Water Sharing Plans: - concurrence with Office of Environment and Heritage - gazettal of Water Sharing Plans.
October	Amend WaterNSW works approvals.