# Draft Report Executive Summary

## Independent Panel Assessment of the Northern Basin First Flush Event

July 2020

In March 2020, the NSW Government commissioned an independent assessment into the management of the 2020 Northern Basin First Flush event following the 2018-2019 drought in the Northern Murray-Darling Basin.

The objectives of this assessment are to:

1. Provide transparency about the decision-making processes that were used to manage the event under the *Water Management Act 2000* (NSW).
2. Recommend strategies to improve the management of first flush events under the *Water Management Act 2000* (WM Act) in the future, including:

    a. system and process changes which would improve the management of a first flush event by Department of Planning, Industry and Environment – Water (DPIE Water), the Natural Resources Access Regulator (NRAR) and WaterNSW, and

    b. regulatory, planning or policy changes (including to relevant water sharing plans) which would improve the management of a first flush event.

An Independent Panel, consisting of Dr Wendy Craik and Greg Claydon, was appointed to review the actions undertaken, consult with affected water users and communities, and report on how systems and processes, and transparency in water management, could be improved in relation to first flush events.

The draft report from that assessment sets out the Panel's key findings and recommendations based on a review of documents, discussions with government agencies and key stakeholders, and public feedback provided through surveys and written submissions to date.

Further public feedback will be sought on this report prior to its finalisation.

# Key Findings

When the 2020 Northern Basin First Flush event began, environmental systems were under severe stress due to record drought conditions. Since mid-2017, there had been only one period when rainfall produced any significant inflow into the Northern Basin of the Murray-Darling Basin. In 2019, the only source of inflows into some sections of the Barwon-Darling river had come from releases of held environmental water. Individuals and communities from the north to the south were also under severe financial, emotional, cultural and physical distress.

When rain did finally fall in early 2020, it did not do so in a single event. The 2020 Northern Basin First Flush event was the product of a number of rainfall and flow events in many locations, in a large and complex basin. Further, real-time management of uncontrolled flows to provide for critical water needs throughout the Basin, is a relatively new approach to managing water for the NSW Government, and this event was the largest event where real time management has been applied. The event also took place at a time when a number of key water planning and management reforms essential to enabling effective real time management are still being implemented, and while the information and understanding of high and low flows, and extractions and flow behaviour on floodplains, is limited.

The use of discretionary section 324 temporary water restrictions (also known as embargoes) under the provisions of the WM Act to protect these first critical inflows demonstrated the commitment of the NSW Government to protect and restore water for the environment. Ultimately, the 2020 Northern Basin First Flush event led to some wonderful and much needed outcomes for communities in need.

Water supplies were secured for Goondiwindi, Boggabilla, Mungindi, Collarenebri, Walgett, Brewarrina, Bourke, Wilcannia, Menindee, Sunset Strip and Pooncarie. Menindee Lakes received enough water to enable a pulse release which re-started the river without fish kills or blue-green algae outbreaks. Thousands of kilometres of rivers flowed for the first time in many months and the Barwon-Darling was reconnected with its tributaries. It enabled fish and other aquatic animals to move up and down significant lengths of the rivers and catchments in the Northern Basin have shown improvements in water quality

Unfortunately, however, the positive outcomes of the event have largely been overshadowed by an overriding perception across communities and water users that the event was poorly managed, leading to lost opportunities that cannot be regained, from social, cultural, economic and environmental perspectives alike. Management of the 2020 Northern Basin First Flush event was also substantially complicated by floodplain harvesting issues. At the beginning of the event, a regulation was introduced which, for the first time, exempted the need for certain floodplain harvesting to be licenced. On the same day, a temporary water restriction was made which, for the first time, prohibited the take of water via floodplain harvesting.

The Panel recognises that it is easy to judge another's actions with the benefit of perfect information that was not available at the time. However, the actions and decisions associated with the 2020 Northern Basin First Flush event have to be judged by reference to the information that was available to decision makers at the time they were being made. The Panel's task in undertaking this assessment was not to scrutinise each decision (and there were many), or the accuracy of each target used in managing the event. The task of this assessment was to review the systems and processes underpinning the management of the event to identify where improvements can be made.

As a whole, the Panel is of the view that agency officers had reasonable internal decision-making processes in place, and did a relatively good job of ensuring critical human and environmental water needs were met across the whole of the Northern Basin in NSW, based on the information and resources they had at the time. They also demonstrated great focus, courage, tenacity and determination in their efforts to manage what was a very dynamic, complex and imperfect situation.

Despite the positive outcomes for critical human and environmental water needs in this event, some improvements are required to the decision-making framework. Not all elements were quantified (for example, cultural flows, stock and domestic requirements, harvestable rights and town water supplies) and greater rigour could be applied to the decision-making framework. The evidence base had some shortfalls (for example, there was limited data regarding unregulated and floodplain flows and extractions, flows entering NSW from Queensland, and the impacts of extractions and extremely dry conditions on river flows). The extent of connectivity being sought in the river system was not always clear, and some decisions lacked the requisite local knowledge or expertise, which was of concern to the community. Nevertheless, there was strong internal clarity of roles and responsibilities between the agencies, which worked

collaboratively together and showed great dedication and commitment, and mutual support of colleagues in their attempt to manage the event under sometimes very stressful conditions.

Ultimately though, insufficient planning and preparation was undertaken for the 2020 Northern Basin First Flush event - most significantly, in regard to not informing and engaging water users and the community when preparing the objectives, targets and principles, not preparing water users and the community for the first flush event, and not developing adequate incident management arrangements. Floodplain harvesting, and how this would be incorporated into the management framework, was not taken into account in any substantial way. Nor was any information provided to stakeholders (in particular floodplain harvesters) about its treatment in a first flush event. While WaterNSW has some incident management capabilities associated with flood incidents, those systems were not applied to the 2020 Northern Basin First Flush event.

NSW made substantial efforts to use the best available information to make decisions, but there were some significant data gaps relating to flows out of Queensland, floodplain harvesting and flow data, channel capacity and allowances for water to move to downstream locations. The dynamic nature of the event, coupled with inadequate incident management preparedness, meant that local scale insights, needs, demands and impacts did not factor into decision making as they ideally would. While the decision-making framework met statutory requirements for making temporary water restrictions under section 324 of the WM Act, the decision-making process was opaque. The community was not clear on who was doing what, or why, which led to communication and confidence issues, and frustrations. All of this contributed to a lack of trust and a strong perception that the ‘goal posts’ shifted during the event.

Community levels of trust in NSW water management have been low and in need of rebuilding since the July 2017 Four Corners program “Pumped”. Not releasing information prior to the event was a significant shortfall in transparency. Inadequate systems to communicate information during the event made it very difficult for people to have confidence in the integrity of the Government’s decisions, and even those with good knowledge of water issues and rules had difficulty following the decisions made during the event.

The lack of clarity denied water users the ability to plan their operations, compounding already high levels of stress and anxiety following the prolonged drought, and it denied indigenous communities the opportunity to celebrate the positive cultural outcomes that were being generated by flows through the river system as the event unfolded.

There remains a strong unmet demand for information about the event. The limited publication of information has allowed speculation about extraction, impacts and outcomes of the event to become de facto truths, and promote perceptions of mistrust, secrecy and mismanagement. It has inhibited a productive, fact-based discussion on the benefits and costs of first flush events.

Given the level of mistrust in water management in NSW, the continued use of section 324 temporary water restriction orders outside of a clear, publicly consulted framework (to manage first flushes) and the absence of information on the outcomes are likely to consistently lead to accusations of favouritism and incompetence. As an alternative to the use of section 324 restriction orders in times of severe droughts, which are expected to increase in frequency and severity with a drying climate, water users and the community have expressed strong support for including details about first flush management arrangements in the WM Act and water sharing plans.

Management of the event demonstrated consistency with the Ken Matthews Inquiry recommendations in the sense that internally, there was clarity of roles and responsibilities between agencies and collaborative relationships between the agencies lifted overall performance during the event. However, this internal clarity did not translate to clarity for water users and communities who did not necessarily have a good understanding of who was doing what, or where a point of contact could be found.

While NRAR compliance investigations related to the temporary water restrictions are ongoing, this event reinforced the need for the agreed reforms to be fully implemented. Both management of the event, as well as compliance and enforcement activities, would have benefited from the pending metering and telemetry reforms. The use of LiDAR remote sensing technology to measure on-farm water storages is also an important development, but further progress is required.

A key finding of the Matthews Inquiry was a need for transparency in water regulation. The Panel is of the view that genuine transparency was not achieved before, during or after the 2020 Northern Basin First Flush event. Information that was available was not necessarily accessible, and there was a lack of communication to water users and the public about the objectives and rationale for water restrictions prior to the event. There was a lack of consultation and public communication regarding both the introduction of the floodplain harvesting regulation and the floodplain harvesting restriction, and there has not been accessible timely reporting during or after the event. Further, there was no clear framework to ensure equitable access to information for the full range of stakeholders, or a transparent set of engagement arrangements in place before or during the event.

However, management of the 2020 Northern Basin First Flush event did successfully protect water for towns and the environment, consistent with the Government's response to the Vertessy Report and the NRC Review. Two years of water supply was secured for 11 communities across the Northern Basin, Menindee Lakes received 12-18 months of water supply, and sufficient water was protected to restart the Lower Darling River without fish kills, a salinity problem or blue-green algae outbreaks.

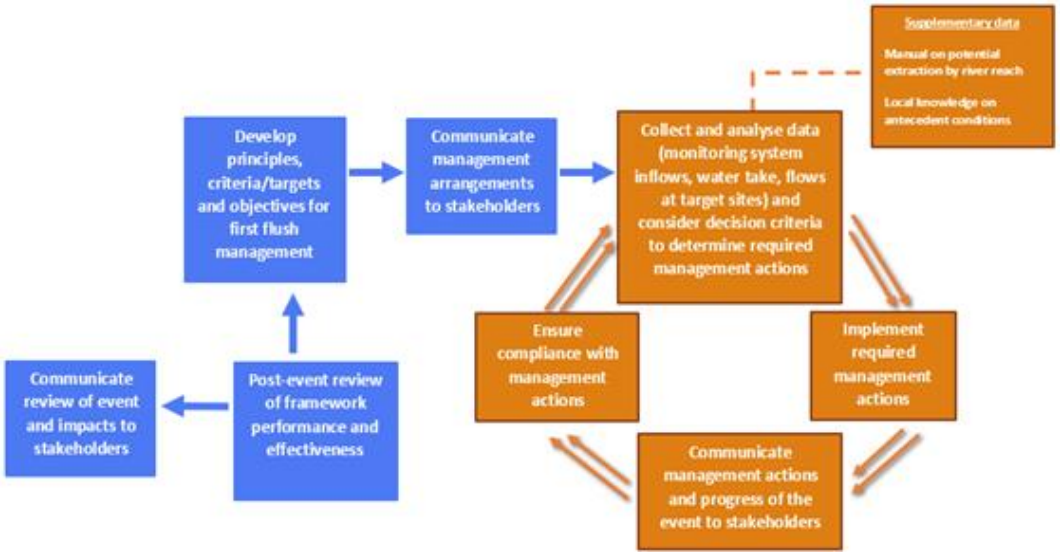
Regrettably, there was an overall failure to engage with indigenous communities in managing this event to ascertain Native Title rights and cultural flow requirements, and to enable communities to enjoy the social and cultural benefits of protecting first flushes. Further, while there was some communication between NSW and Queensland in managing the first flows, there was no formal coordinated approach.

It is vital that reforms continue, not only for reasons of achieving better water management generally, but also because they will help to improve management of future first flush events. Communicating progress with the reform agenda will also help to keep water users and the community informed, with a view to building understanding and trust. All of this will take time and resources, with associated costs and benefits having to be weighed up against other priorities of Government. With the demonstrable positive outcomes possible from first flush events, the Panel considers the time and resources needed to improve their management would be well worthwhile.

# Recommendations

Following its assessment, the Panel recommends the NSW Government takes the following steps to improve first flush management in NSW:

1. Ensure that water management provides for and promotes connectivity between water sources.
2. Make any temporary water restrictions required to manage first flush events on a proactive basis (that is, prior to specific forecasts of rain).
3. Until there are further statutory provisions for first flush event management, publish guidance materials which outline how the NSW Government will use temporary water restrictions to manage first flush events.
4. Incorporate learnings from the 2020 Northern Basin First Flush event into systems that will be used to manage any future first flush event that arise in the short term, including by undertaking consultation with communities, Aboriginal people and water users on the objectives, principles and targets. A diagram of the suggested system is set out below. Blue boxes indicate steps to be undertaken outside of the event and orange boxes indicate steps to be undertaken during an event.




5. Take steps to ensure the evidence base and methodology for first flush management is quantified, science-based and made publicly available.
6. Review and update incident management systems for managing first flush events.
7. Embed the management of first flush events in the regulatory and policy framework for managing drought. An example of the types of matters that could be incorporated into the WM Act, Extreme Events Policy, water sharing plans and incident response guides is set out in the table below. However, any framework adopted should be developed in discussion with communities, Aboriginal peoples and water users.

| What will be set out? | Rationale | Example |
|---|---|---|
| **WM Act** | | |
| · Objectives for managing first flush events<br>· Requirement for water sharing plans (WSPs) covering the Murray Darling Basin to include rules for first flush management which must provide, to the extent practicable, for:<br>o connectivity within and between water sources, and<br>o the protection of critical needs. | The objectives for first flushes should be consistent across all areas of the Basin and, given their broad nature, should not change over time. They should also be tied to the existing legal requirements under the WM Act and the Basin Plan. | Objective of first flushes<br>· meet critical human needs – provide flow locally and downstream, particularly to replenish town water supply weir pools and provide water supply for basic landholder rights<br>· meet critical environmental needs – provide flow along the length of the river systems to ensure re-connection of rivers and drought refuge pools. |
| **Extreme Events Policy** | | |
| · Scope to be expanded to explain how water will be managed as intensity of drought reduces, as well as increases<br>· Principles for allowing access to flows in first flush events | The principles for allowing access to flows should be consistent across all areas of the Basin.<br><br>However, given the level of detail and likely need to adjust these with time and experience, it is not appropriate to embed these in the WM Act at this stage. | **Principles**<br>· Consider providing access to upstream water users under normal rules if the nearest downstream targets are met or forecast to be met ***and*** there is an assessment that this event will not meaningfully contribute to meeting any other downstream targets.<br>· Where an event is predicted to meaningfully contribute to meeting the next downstream target, the temporary water restriction should not be lifted<br>· When an event has met local targets and is no longer expected to contribute to meeting downstream targets or is in excess of that required to meet downstream targets, some local extraction relief could be allowed.<br>· Temporary water restrictions should apply to a consistent upstream network of both unregulated and regulated rivers systems in a valley, to provide sufficient volumes of water to meet critical needs, avoid interceptions by extractors, and avoid inequitable sharing between users.<br>· Early relaxation of upstream access restrictions prior to downstream targets being met should only occur if there is high confidence in downstream flow predictions meeting targets.<br>· When flow predictions are used for early relaxation of restrictions on upstream access, river system distribution efficiency assumptions should reflect the antecedent extended dry conditions |
| **Water Sharing Plans** | | |

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|---|---|---|
| · Describe and establish the point at which first flush rules kick in (triggers for first flush management)<br>· Describe the process to be followed to achieve the objective of first flush events in the relevant water source:<br>○ what critical needs will be provided for<br>○ what local factors are to be considered (e.g. channel capacity)<br>○ how requirements for the critical needs (targets) are to be quantified<br>○ how the community will know when take is restricted or permitted<br>· Require Incident Response Guides to set out critical needs at each stage of drought | The procedure for managing first flush events should take into account unique local factors.<br><br>Embedding this in WSPs will provide transparency and certainty to community members that relevant matters will be taken into account, and how the water source will be managed. Embedding triggers for first flush management will ensure that water sharing plans are better equipped to deal with drought scenarios and will avoid the need for section 324 orders to override water sharing plan rules.<br><br>Implementation will require quantifying native title / cultural rights and developing reasonable use guidelines | **Trigger for first flush rules**<br>· Normal access rules cease to apply when the decision-maker determines that a water source is in stage 4 drought<br>· Instead, access is only allowed by Ministerial announcement<br>· Generally, the decision-maker must not allow access unless satisfied that the requirements for the following critical needs have been, or are forecast to be, met:<br>○ stock and domestic watering (under Basic Landholder Rights)<br>○ native title rights<br>○ town water supply for X years<br>○ the critical environmental needs in the specific water source<br>· However, access may be permitted where the decision-maker is satisfied that access will not compromise the ability to provide for critical in-stream or downstream needs<br>· The decision-maker is to determine the requirements to meet critical needs having regard to:<br>○ Long term water plan<br>○ Antecedent conditions<br>○ Advice from a local committee<br>Announcements are to be published on XX website at YY time |
| **Incident Response Guides** | | |
| Updated based on the WSP process at each stage of drought to identify:<br>○ What are the specific needs for the WSP area?<br>○ What are the current antecedent conditions?<br>○ What are the targets (numbers) required to meet the specific needs, based on the antecedent conditions?<br>○ how first flush targets can be modified during an event if circumstances warrant. | Provides transparency to targets but enables best available evidence to be taken into account at the time it is required. | **Example targets**<br>As at [insert date]:<br>· River Gauge A: XW ML<br>· River Gauge B: XY ML<br>· River Gauge C: XZ ML |

8. Improve flow forecasting modelling and real-time monitoring capability, including measurement of extractions and the hydrometric system for inflows and monitoring end of system flows.

9. Ensure that current (and future) reform programs are accompanied by clear implementation plans and regular communication of progress to the public.
10. Improve and resource communication coordination and capability.

Generally, the recommendations recognise the need to focus the use of limited resources on those efforts that will provide the greatest value in that they will support both first flush and other areas of water reform. Sufficient resourcing will be required to make these changes.

In the face of climate change, the occurrence of cease to flow events is increasing. And while the 2020 Northern Basin First Flush event ultimately led to some wonderful outcomes for the environment and communities, the NSW Government must take steps to avoid a repeat of some of the aspects of the 2020 Northern Basin First Flush event in the interests of agency staff, communities and water users.

# Final report

The draft report is on public exhibition from 13 July 2020 to 9 August 2020, seeking the community's written feedback. An information webinar is scheduled for Monday 27 July from 1.00pm to 2:30pm. Further information can be found here under 'Draft report on public exhibition - Have your say now'.
The Panel proposes to deliver its final report in late August 2020.