



Gwydir Regional Water Strategy

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Acknowledgement of Country

We acknowledge that today we meet on many Aboriginal lands.

We acknowledge the traditional custodians of the lands and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work.



Today's agenda



NSW water strategies and the role of regional water strategies

Approach to developing the Gwydir Regional Water Strategy

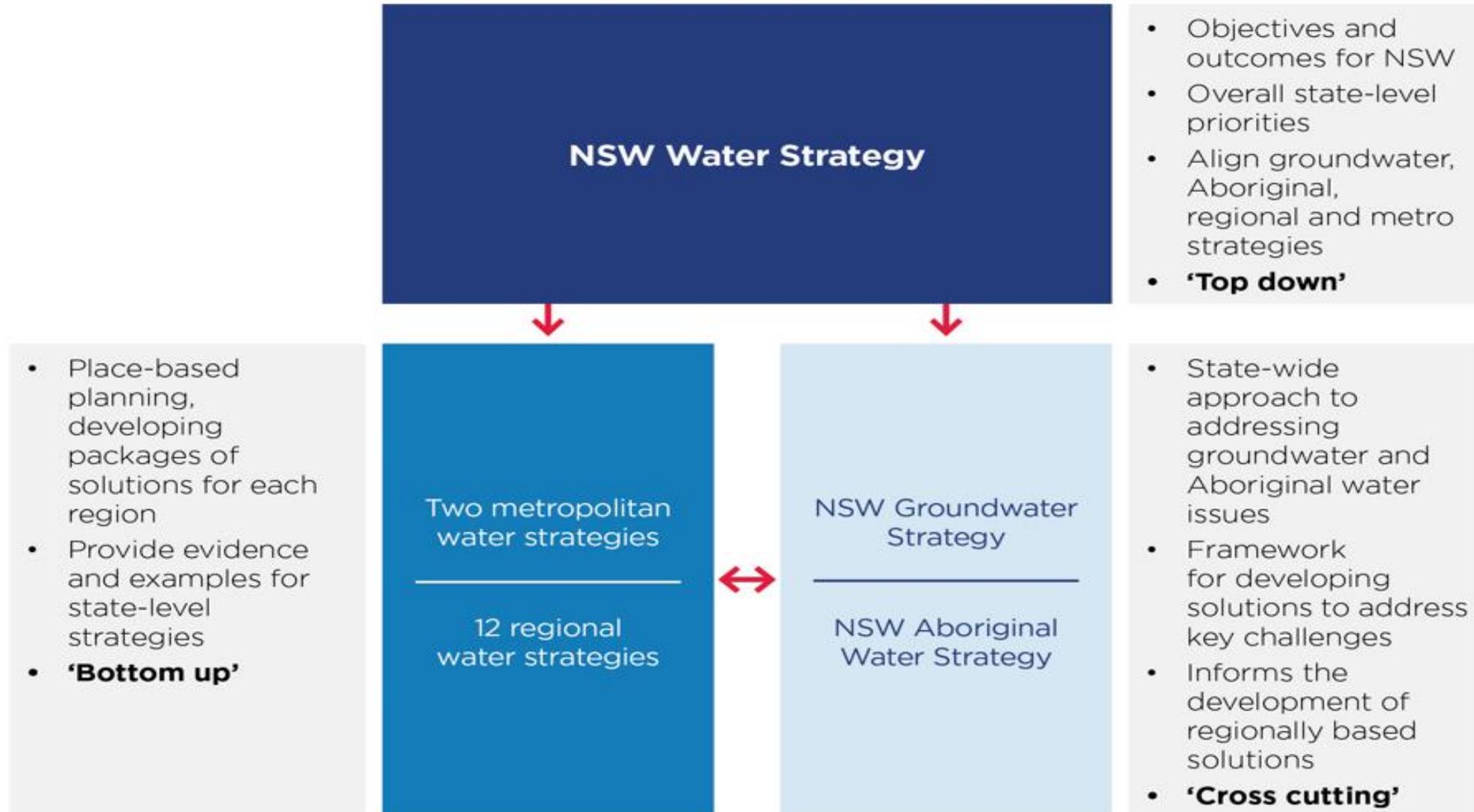
Regional challenges and shortlisted actions

Options that are not being progressed

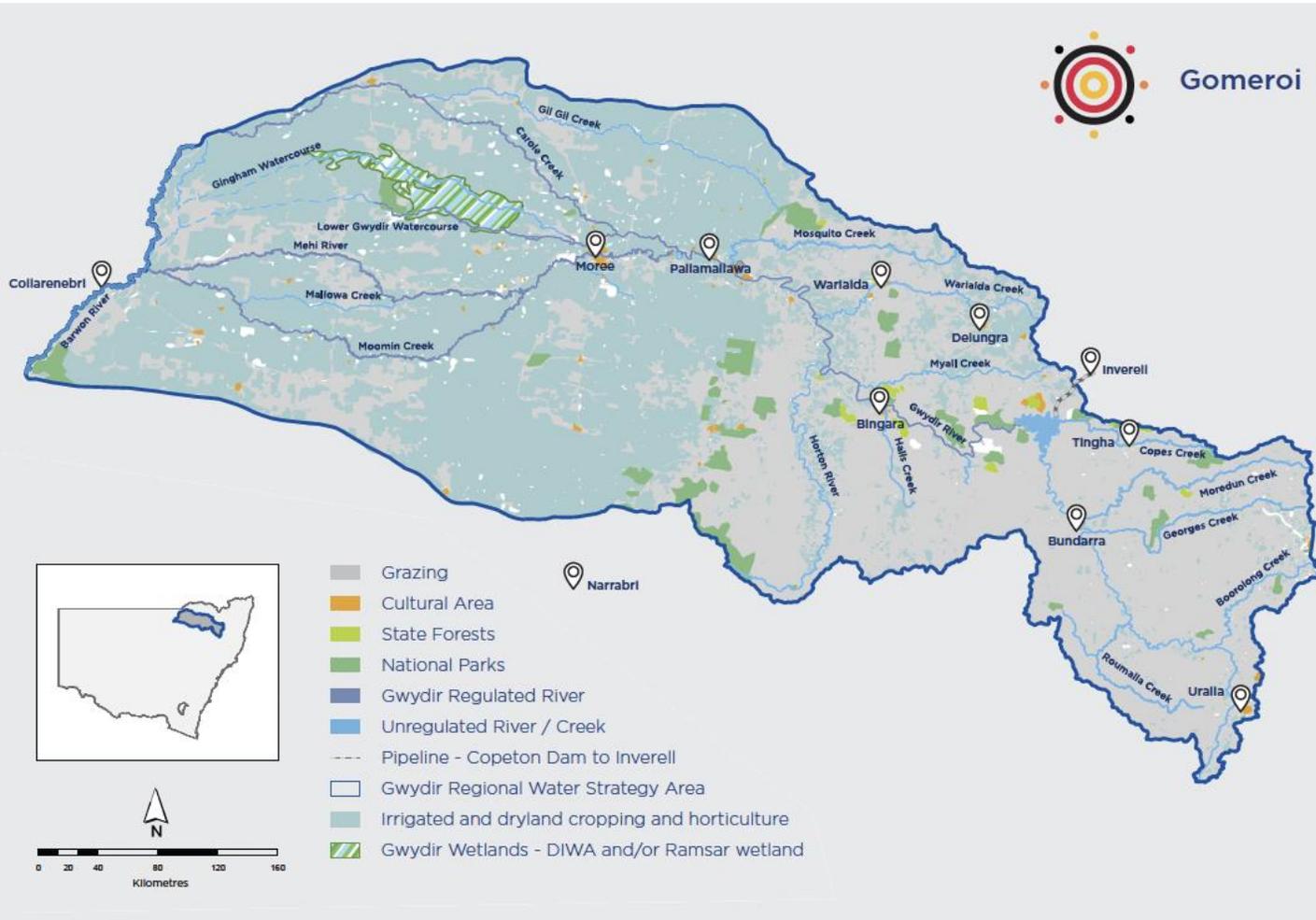
Public exhibition details

NSW water strategies and the role of regional water strategies

Strategies to improve the resilience of water services and resources in NSW



Gwydir Regional Water Strategy



- Long-term strategy that informs future water planning and management
- Contain priorities and actions for:
 - towns and communities
 - industries
 - Aboriginal people
 - environment



Approach to developing the Gwydir regional water strategy

Draft strategy

Identify opportunities and challenges

Understand future water needs

Identify long list of options



Public consultation 1

Final strategy

Assess and shortlist actions

Implement and review



We are here

Public consultation 2

Integrate existing initiatives with new solutions

Process for moving from long to shortlist



Stage 1
Filtering

Does the option help meet a key regional challenge?



Stage 2
Rapid assessments

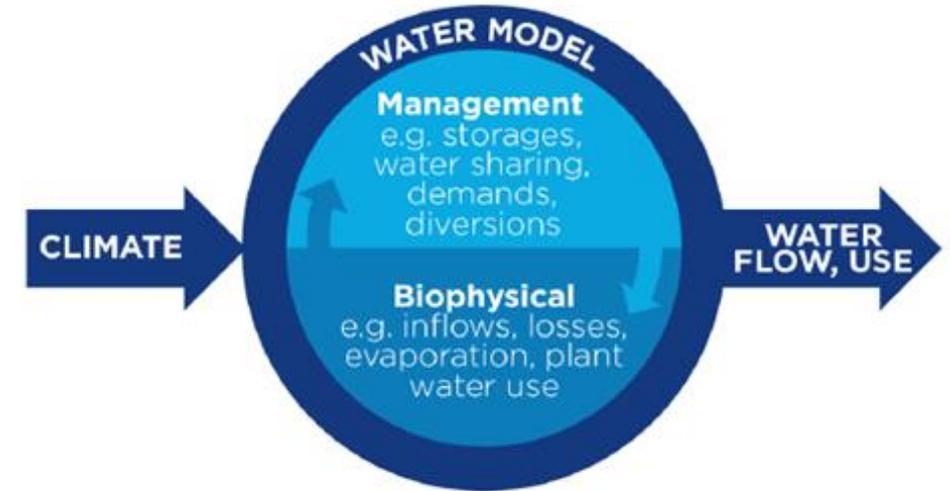
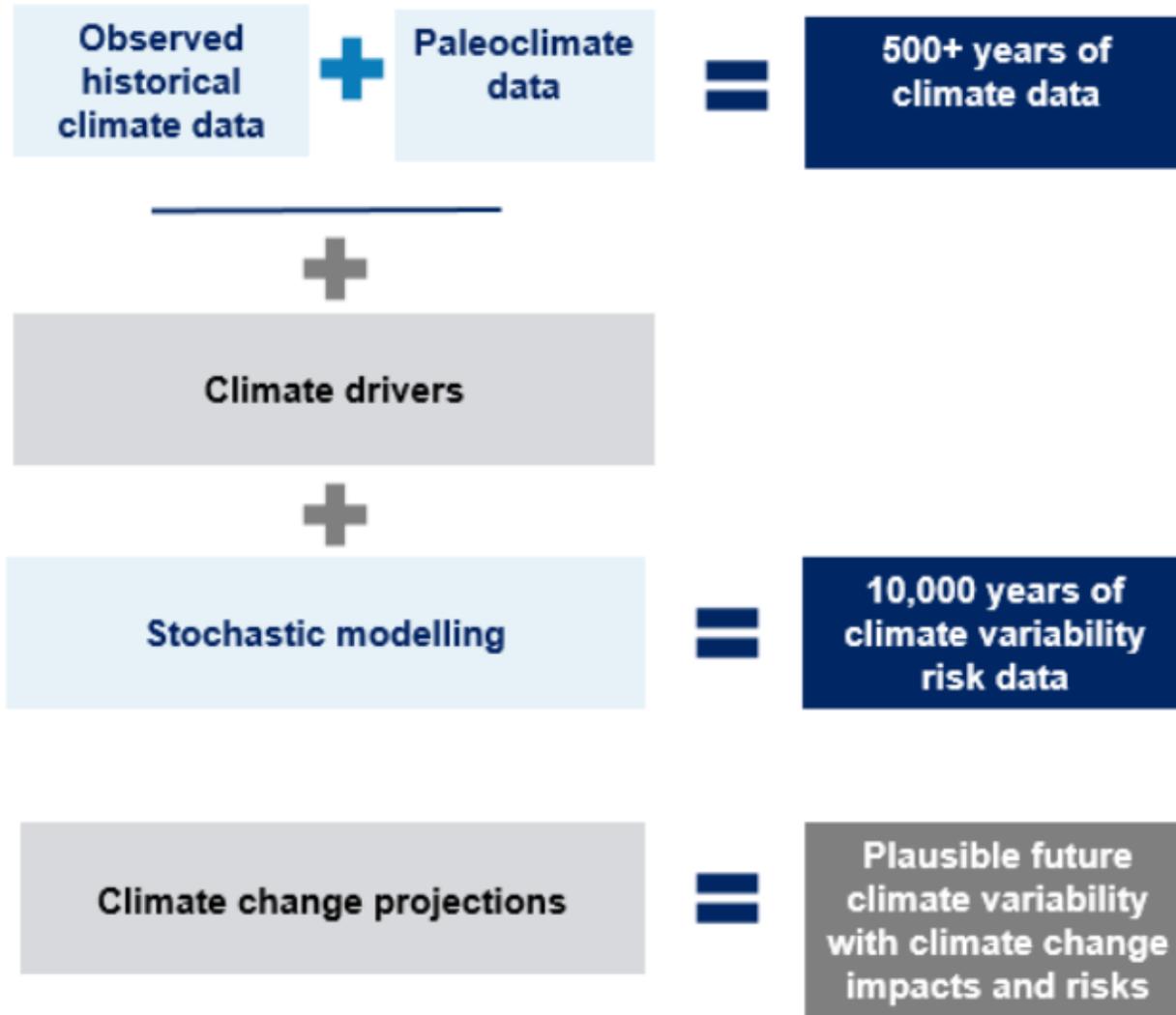
Does the option effectively meet its main objective?



Stage 3
Detailed assessments

Detailed cost benefit and ecological analysis against different climate scenarios

Ground-breaking climate science underpins our strategies



2 new climate variability datasets: 1,000 years of plausible "current conditions" & 10,000 years of "climate change" datasets. We have used the **most conservative** (driest) results from the NARClIM 1.0 data sets.

This will stress test the water system and understand a worst-case climate scenario.

The scenarios in these models may not eventuate, but it helps us be prepared.

What could the future climate look like?

Long-term climate (paleo-climate)

In the last 100 years, the region has cycled between wet and dry periods.

- 1900s–1950s: comparatively dry
- 1960s – 1990s: comparatively wet
- Since Millennium Drought: comparatively dry

These wet and dry cycles existed before historical records began.

Climate change projections

Seasonal shifts in rainfall

- Reductions in May to July
- Potential increases in summer

Higher evapotranspiration

- Largest increases in winter & spring

Higher minimum & maximum temps

More hot days (temp over 35°C)

Regional challenges and shortlisted actions

Where should we focus first in the Gwydir region?

Regional challenges to meeting our vision and objectives



Reducing water service risks and improving water supply resilience for the region's towns and villages



Supporting licence holders in the face of declining water availability



Delivering water to the end of the river system and connected valleys



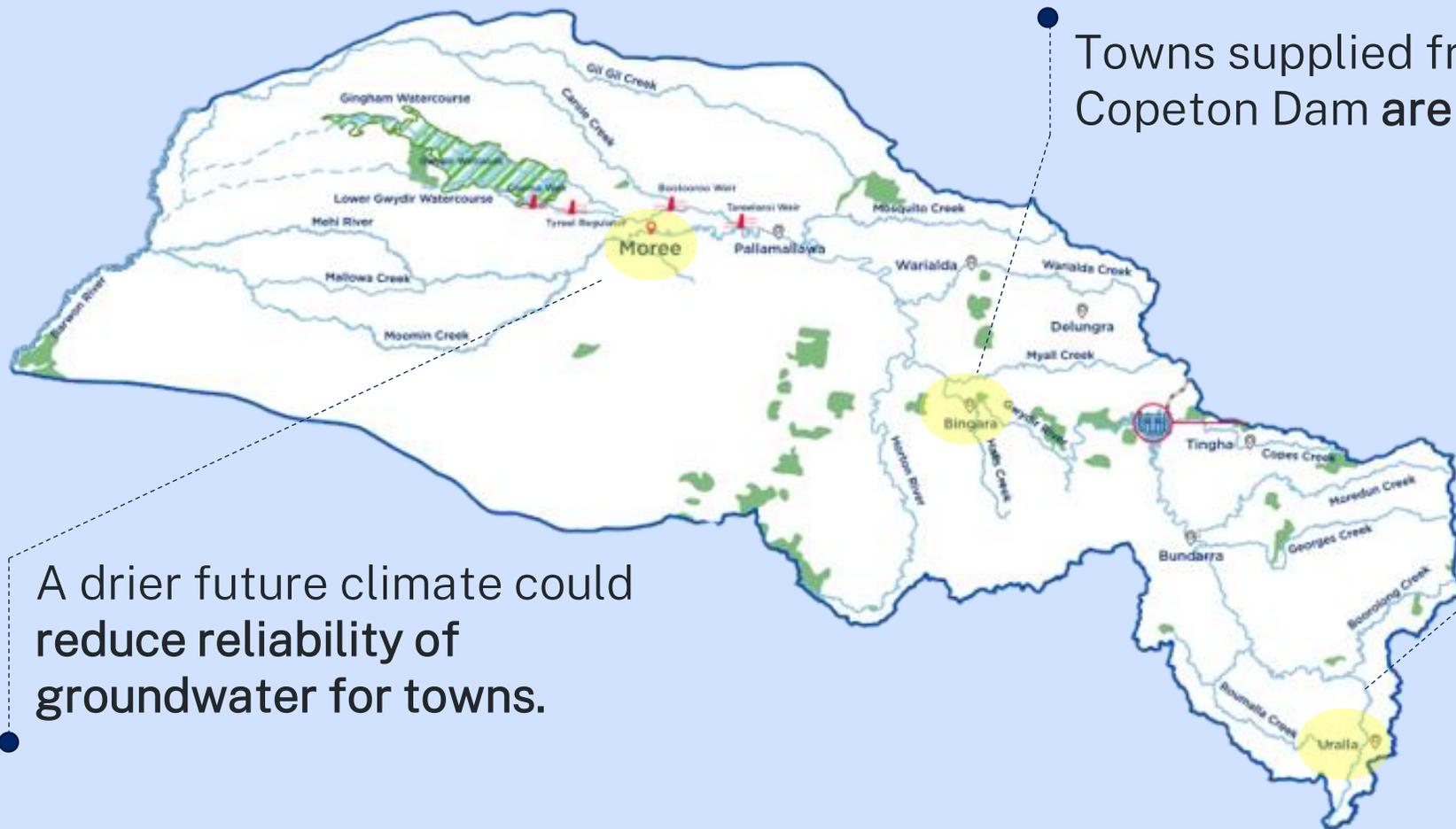
Dismantling barriers to Aboriginal water rights



Improving the health and resilience of the region's aquatic ecosystems



Reducing water service risks and improving water supply resilience for the region's towns and villages



Towns supplied from Copeton Dam are **secure**.

Towns and landholders relying on unregulated rivers and creeks are **less secure**.

A drier future climate could reduce reliability of groundwater for towns.



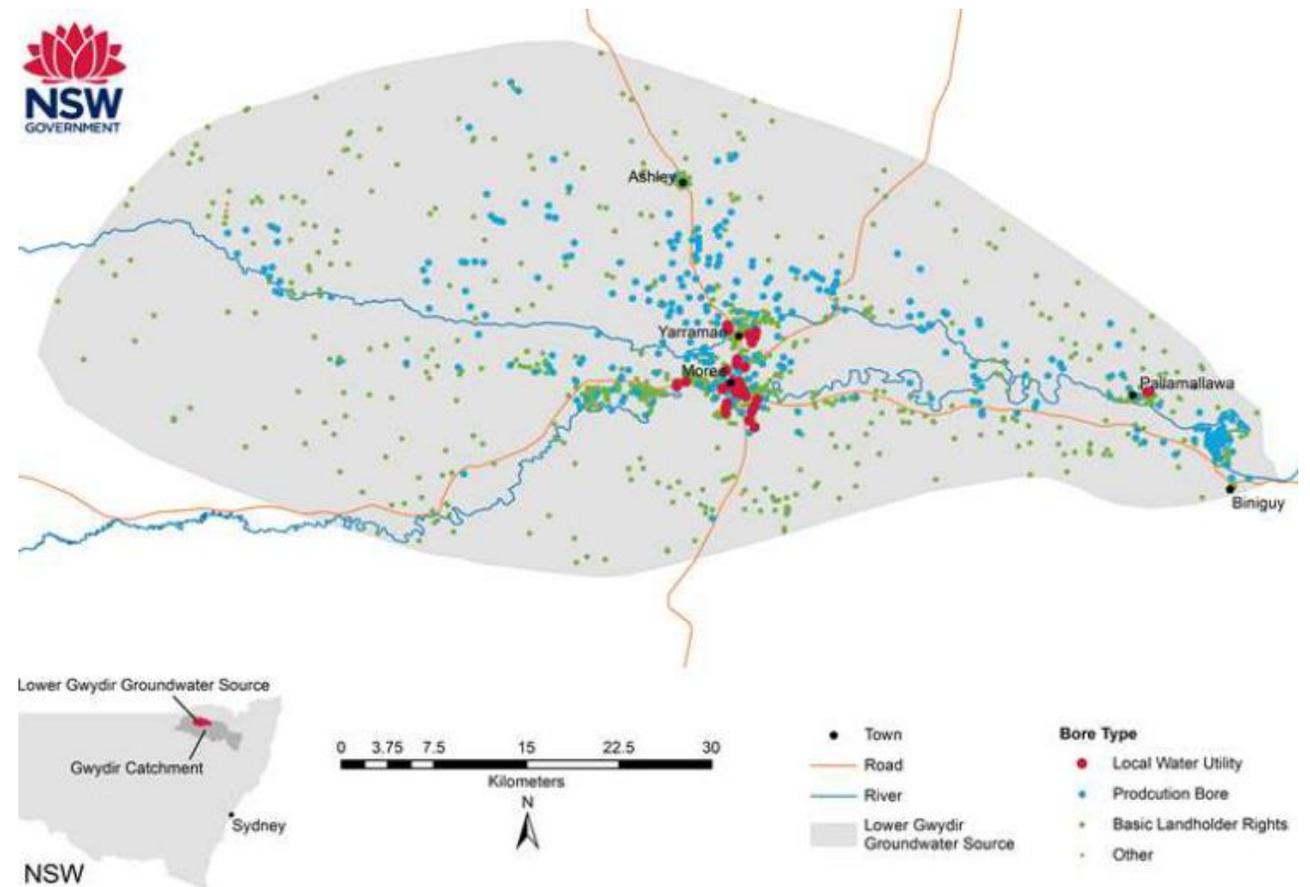
Actions shortlisted to respond to this challenge

- Investigate source augmentation for Uralla's water supply
- Support urban water efficiency measures in Moree
- Develop and publish clear policy on how the region's groundwater resources will be managed sustainably into the future
- Investigate managed aquifer recharge in the Gwydir region

Develop and publish policy on how groundwater resources will be managed sustainably into the future

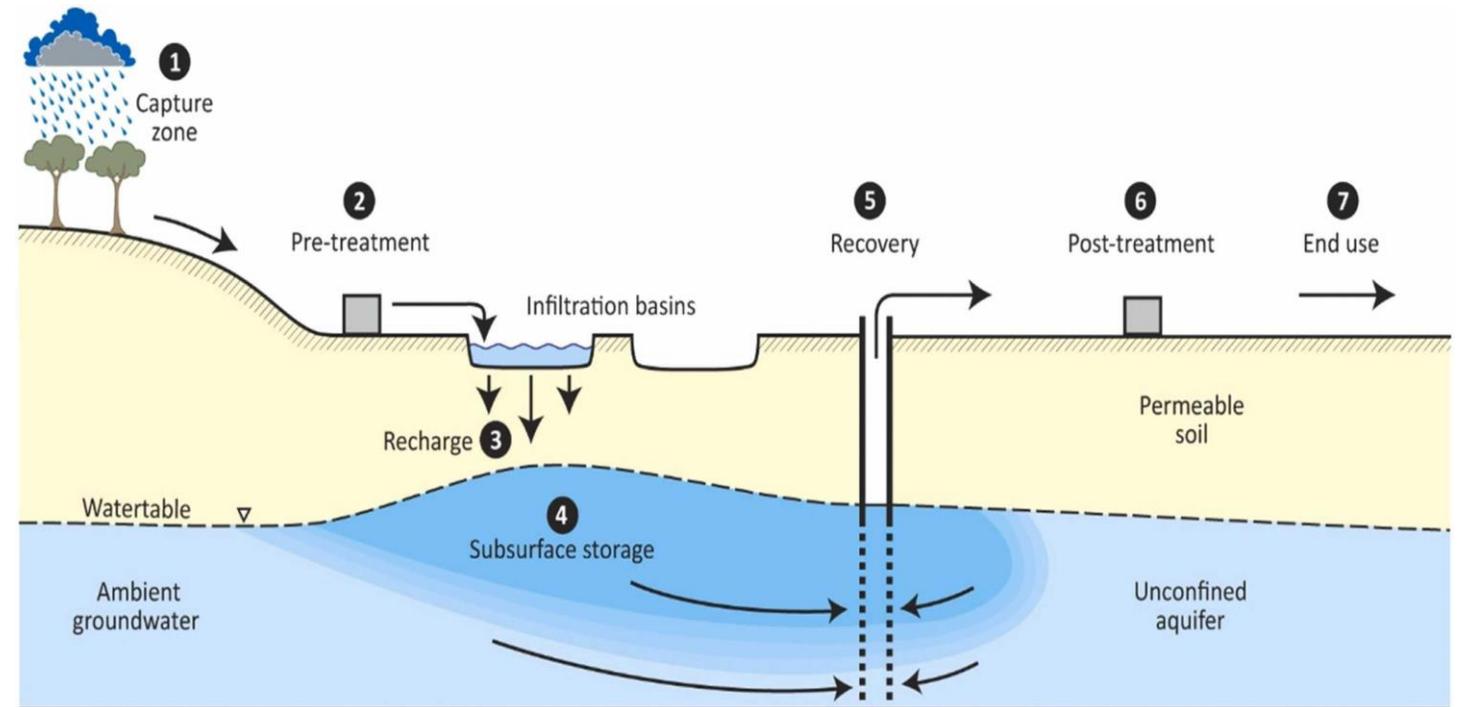
New policy would improve access certainty for Council and industry accessing Lower Gwydir Groundwater Source.

- Determine how to prioritise groundwater for critical needs
- Provide water users greater clarity and certainty about how declining groundwater levels will be managed
- Develop options to best manage fully committed groundwater systems.



Investigate Managed Aquifer Recharge

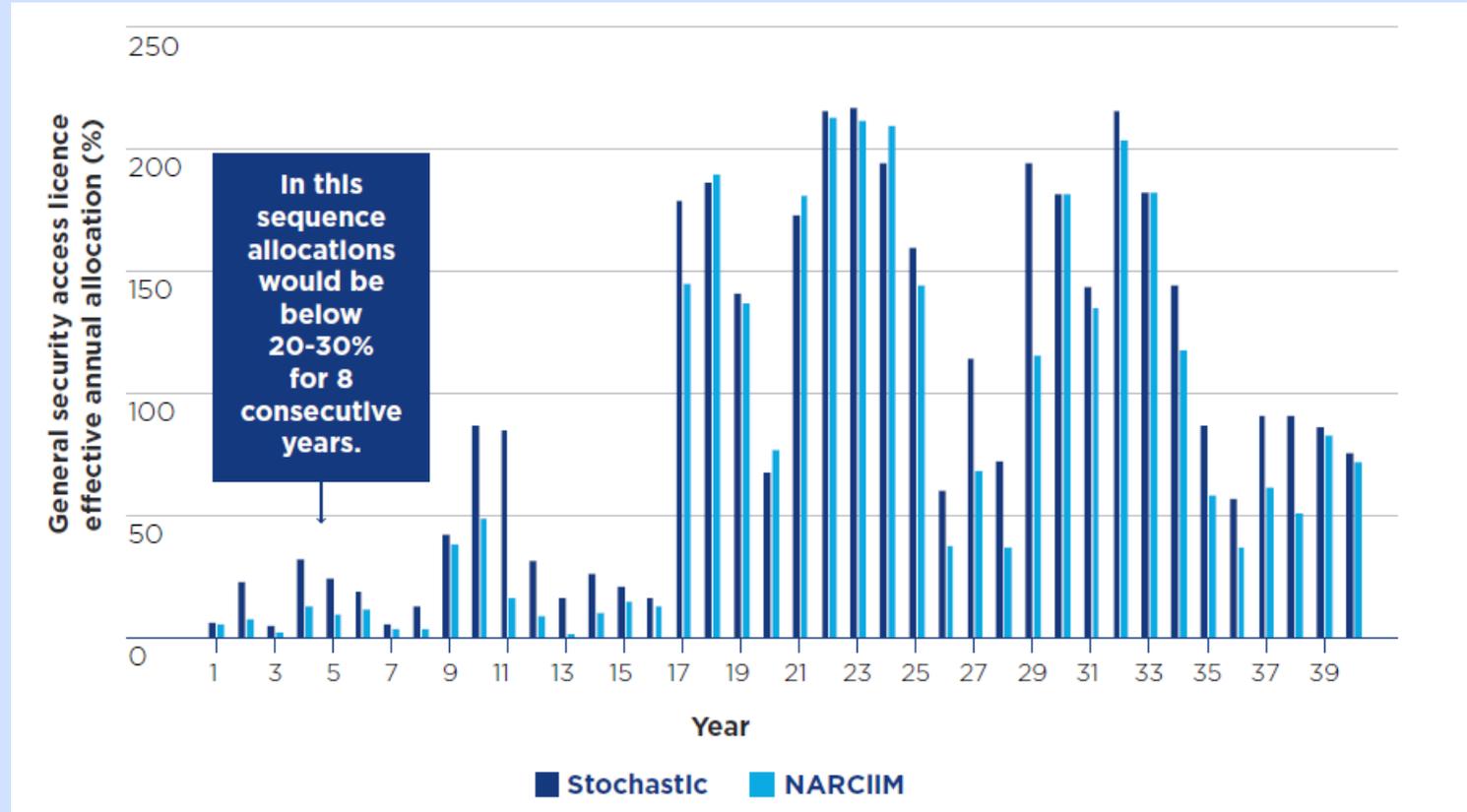
- Managed aquifer recharge is storing water in an aquifer for later use
- The location needs to be carefully considered
- The deeper part of the Lower Gwydir Groundwater Source could be a target for managed aquifer recharge





Supporting licence holders in the face of declining water availability

- Irrigated agriculture and the environment rely on low reliability surface water licences
- Droughts of multiple years impact the region's economy
- Potential for an increase in consecutive years of low water availability for general security licence holders



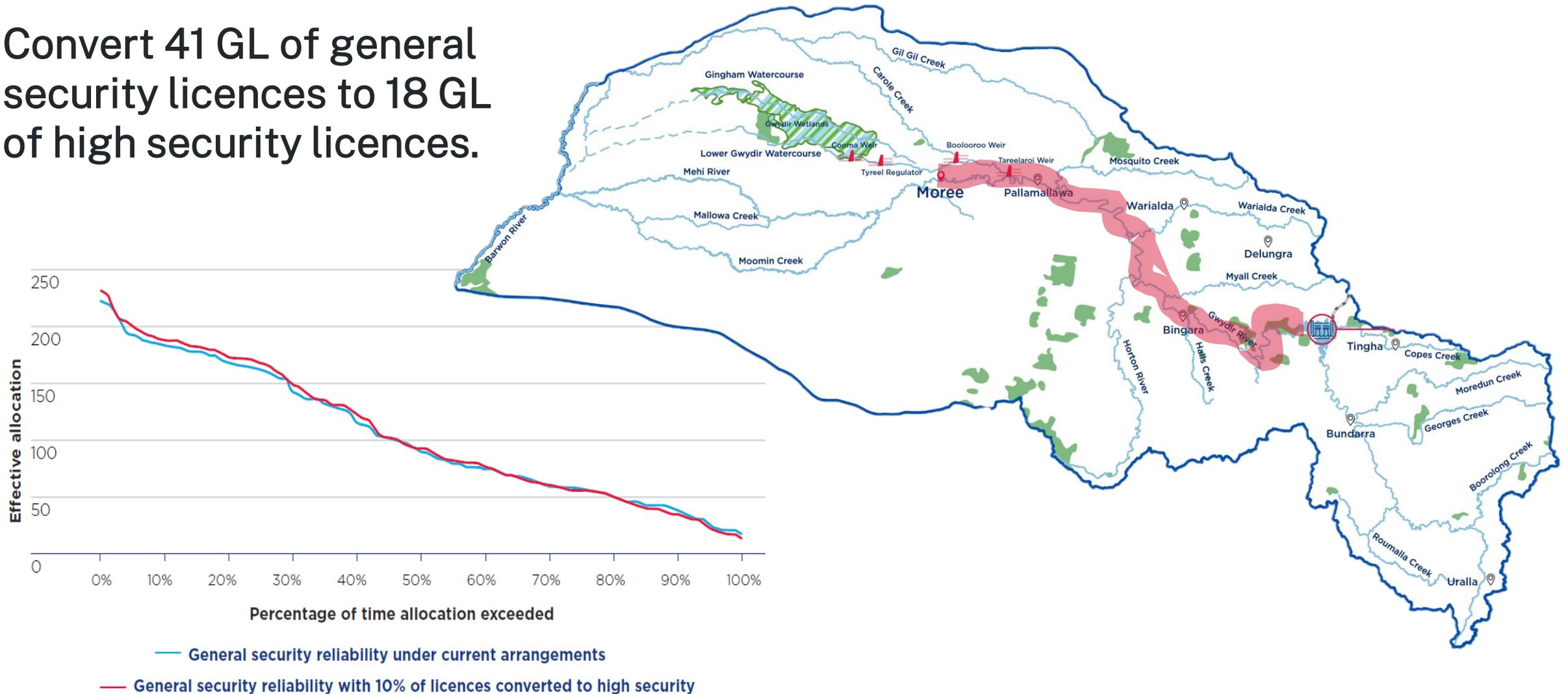


Actions shortlisted to respond to this challenge

- Improve public access to climate information and water availability forecasts
- Support adoption of on-farm water efficiency measures
- Increase the availability of high security water access licences
- Ensure the water management framework can support sustainable economic diversification

Increase the availability of high security licences

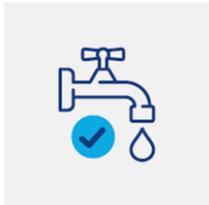
Convert 41 GL of general security licences to 18 GL of high security licences.





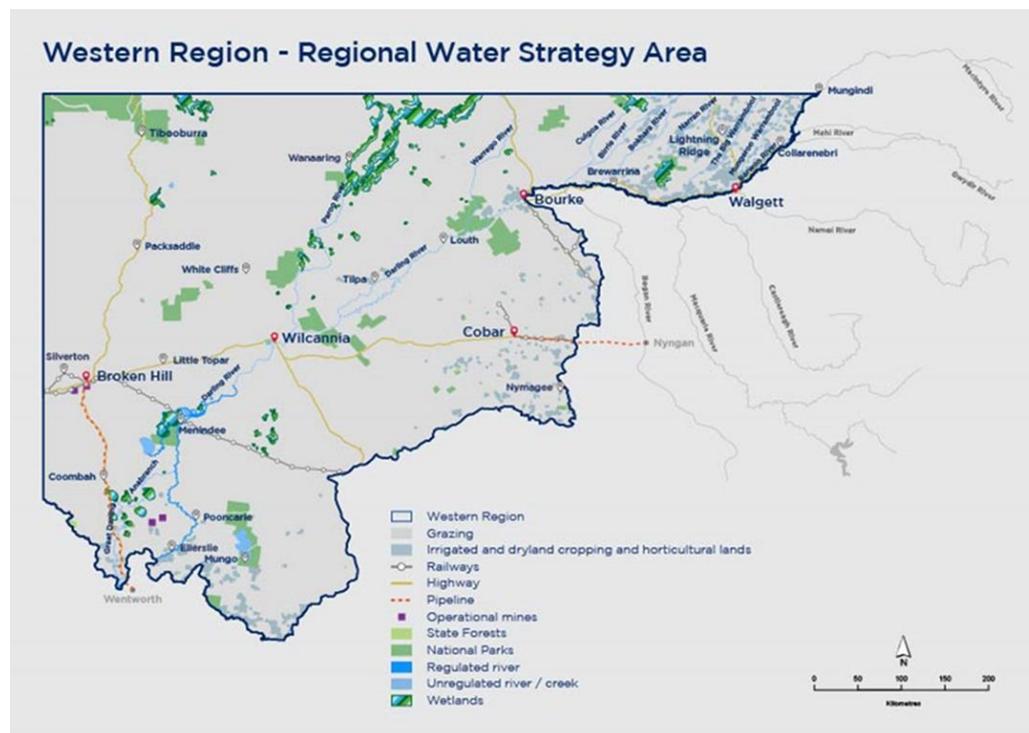
Actions shortlisted to respond to this challenge

- Assess the potential costs and benefits of event-based trade of supplementary flows
- Investigate ways to improve connectivity with the Barwon-Darling River on a multi-valley scale
- Fully implement the NSW Floodplain Harvesting Policy
- Remediate unapproved floodplain structures



Context for connectivity action

- The Barwon-Darling and Lower Darling rely on flows from upstream catchments
 - Approx 6% of inflows into the BD come from the Gwydir
- Connectivity is important during wet, dry and average years
- Connectivity during extended dry periods is most challenging
 - Water management can influence short cease to flow periods, but not long dry periods
- Some stakeholders believe water is being taken by lower priority licences upstream when downstream needs have not been met



There is no clear agreement on what an acceptable level of connectivity is and how we can improve it

Connectivity objectives – what should we focus on?



Proposed connectivity objectives

- Reduce the impact of cease to flow periods
- Protect the first flush of water after an extended drought
- Support water quality and reduce risk of algal blooms forming
- Support fish migration

The work is not intended to:

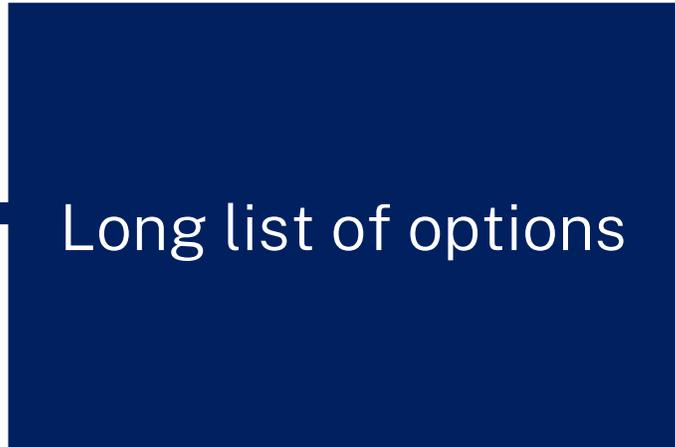
- maintain a constantly flowing river
- reduce the overall amount of water being taken out of rivers, consistent with limits set by the Basin Plan
- move productive use of water from one valley to another
- secure connectivity between groundwater and surface water

How can we achieve these objectives?

1. Use emergency powers in the legislation (temporary water restrictions)
2. Change the timing around when licence holders can take water
3. Major reform programs
 - Overhaul water sharing arrangements
 - New or larger infrastructure

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Detailed analysis

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Long list of options

1. Proposed draft triggers under s324 of the *Water Management Act 2000*

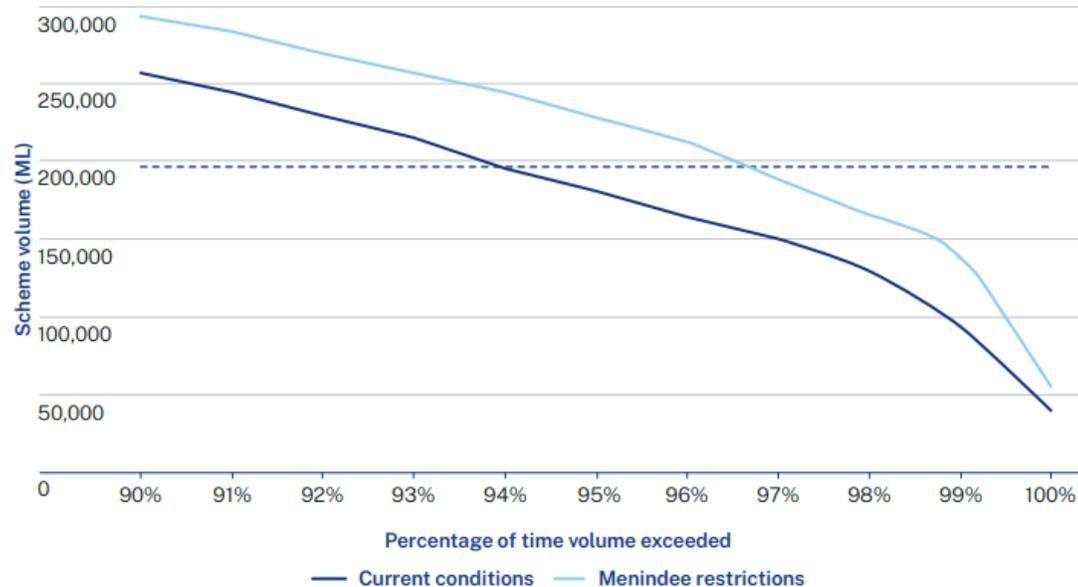


Objective: protect the first flush of water after an extended dry period

	Implementing	Lifting
Wilcannia	Cease-to-flow for 120 days	400 ML/day for 10 days (or 4,000 ML)
Bourke	Cease to flow for 60 days	972 ML/day for 10 days (or 9,720 ML)
Menindee Lakes	<p>Lakes fall below 195 GL</p> <ul style="list-style-type: none"> - Up to 12 months critical human needs - Wetted habitats in Lake Wetherell 	When there is enough water to restart the river
Northern valleys	<p>Stage 4 drought or: cease to flow for 30 days:</p> <ul style="list-style-type: none"> • Border Rivers: below Goondiwindi Weir • Gwydir River : below Yarraman • Macquarie: below Warren Weir • Namoi: below Mollee Weir 	Resumption of flow targets for each of the Northern tributaries

1. Initial analysis of 195GL Menindee target

Menindee Lakes volumes over time when applying restrictions when Menindee Lakes is below 195GL



Region	Reduction in overall water take
Border Rivers	1%
Gwydir	1%
Namoi	1%
Macquarie	No change
Barwon-Darling	Small reduction likely

Modelling assumptions:

- use total Menindee storage (not active) across all lakes.
- Restricted supplementary licences, B-Class licences, C-Class licences when the lakes were below 195GL and lifted when lakes were above 250GL (total storage)
- Data does not include last drought

2. Will restricting lower priority licences help meet downstream connectivity needs?

Target	Trigger for restrictions
<p>Menindee Lakes and Lower Darling</p> <p>Protect the first flush and support drought recovery.</p>	<p>Restrictions could be implemented if Menindee Lakes Storage⁶⁸ is forecast to fall below 195 GL.</p> <p>If releases have ceased below the Menindee Lakes, restrictions would not be lifted until the Lakes were forecast to have enough water to provide up to 12 months of water for human needs and allow the river to be restarted.</p>
<p>Northern Valleys</p> <p>Protect the first flush and support drought recovery.</p>	<p>Cease to flow for 30 days:</p> <ul style="list-style-type: none"> • Border Rivers: below Goondiwindi Weir • Gwydir River: below Yarraman • Macquarie: below Warren Weir • Namoi: below Mollee Weir. <p>Resumption of flow triggers are being developed for each of the Northern tributaries for lifting restrictions.</p>
<p>Algal suppression</p> <p>Preserve a flushing flow event to break up and disperse algal blooms.</p>	<p>To achieve a flow of 3,000 ML/day for 7 days at Wilcannia if flows are below the following triggers throughout the spring/summer period:</p> <ol style="list-style-type: none"> Walgett – 250 ML/d Brewarrina – 510 ML/d Bourke – 450 ML/d Wilcannia – 350 ML/d.
<p>Fish migration</p> <p>Preserve events needed for fish dispersal, spawning, and migration at appropriate times of the year.</p>	<p>Achieve the following:</p> <ul style="list-style-type: none"> • Dispersal and condition: 15,000 ML/d for 15 days at Bourke between July and September • Spawning: 15,000 ML/d for 15 days at Bourke between October and April • Migration: 14,000 ML/d for 15 days at Brewarrina between October and April. <p>These targets will be revised once fishways are installed.</p>

We have looked at:

- Flows needed to meet connectivity objectives
- Whether changing the timing of water taken by lower priority licences helps improve downstream needs
- High level impact analysis

2. Will restricting lower priority licences help meet downstream connectivity needs?

Objective	Effectiveness in meeting objective	Impacts on diversions over the long term
Reduce impact cease to flow	N/A	N/A
Protect first flush	✓ 3% reduction in time Menindee Lakes is below 195GL	Initial estimate of potential change in overall water taken by licences: Gwydir: 1% reduction Namoi: 1% reduction
Algal suppression	✓	Changes in total long-term diversions: Gwydir: 3% reduction Namoi: 3% reduction
Fish migration	Minimal benefits	

Assess the potential costs and benefits of event-based trade of supplementary flows

Explore the feasibility and potential benefits and risks associated with a framework for trading supplementary allocation between water users in any individual event.

Identify:

- the size of the potential market
- systems needed to ensure compliance with water allocation account rules and support trade approvals
- any environmental implications that may affect the effectiveness of supplementary flows contributing to environmental outcomes.



Improving the health and resilience of the region's aquatic ecosystems

There are challenges to using water for the environment to best effect.

- Physical and operational system constraints
- Impacts of drought operations measures
- Public and private infrastructure limits fish movement and degrades habitats





Actions shortlisted to respond to this challenge

- Provide clarity and certainty for environmental needs during drought operations
- Mitigate the impact of water infrastructure on native fish
- Identify regionally significant riparian, wetland and floodplain areas to protect or rehabilitate
- Modify or remove barriers to deliver water for the environment in the western Gwydir
- Protect ecosystems that depend on groundwater
- Identify cooperative actions to reinstate gaps in the flow regime

Mitigate the impact of infrastructure on fish



- Remediate fish passage at 5 priority sites
- Fish diversion screens
- Cold water pollution measures at Copeton Dam



Dismantling barriers to Aboriginal water rights

'We can't sing our song no more, we can't live on the river no more to look after her, for you all.'
(Gomerioi)



- Aboriginal people have lost access to water
- Seek involvement in water consultation processes
- Needs between communities vary

Develop ongoing arrangements for participation of Aboriginal people in water management

Aboriginal communities told us we need to

- Earn their trust
- Acknowledge needs differ between communities
- Adopt flexible approaches that can be driven locally

Improving arrangements will assist implementation other actions:

- Support place-based initiatives to deliver cultural outcomes for Aboriginal people
- Support Aboriginal business opportunities



Options not progressed

Analysis outcomes for major infrastructure

The long list contained 44 options

- 30 options shortlisted into 22 proposed actions
- 10 options are being progressed through other processes
- 4 options not progressed

Costs outweighed benefits

Option	Net Present Value	Benefit Cost Ratio
Enlargement of Tareelaroï Weir	> -\$100 million	<0
Lower Gravesend Dam	>-\$1.5 billion	<0

Next steps

Draft Regional Water Strategy

Gwydir:
Shortlisted Actions – Consultation Paper

June 2022



We are seeking your feedback

- Do you support the shortlisted actions?
- Are there options that did not make the shortlist that you think should have?
- How should government prioritise the implementation of the shortlisted actions?
- How do you want to be involved in the implementation of actions?
- Are there existing initiatives that would support delivery of any actions, or vice versa?

Public exhibition

1 June to 29 June 2022

Webinar – 20 June 2022

Visit our website for more details

www.dpie.nsw.gov.au/gwydir-regional-water-strategy

Final strategy - end 2022



Questions