

NSW Groundwater Strategy

Implementation Plan: 2023 to 2025

December 2023



Published by NSW Department of Planning and Environment

dpie.nsw.gov.au

Title NSW Groundwater Strategy

Subtitle Implementation Plan

First published December 2023

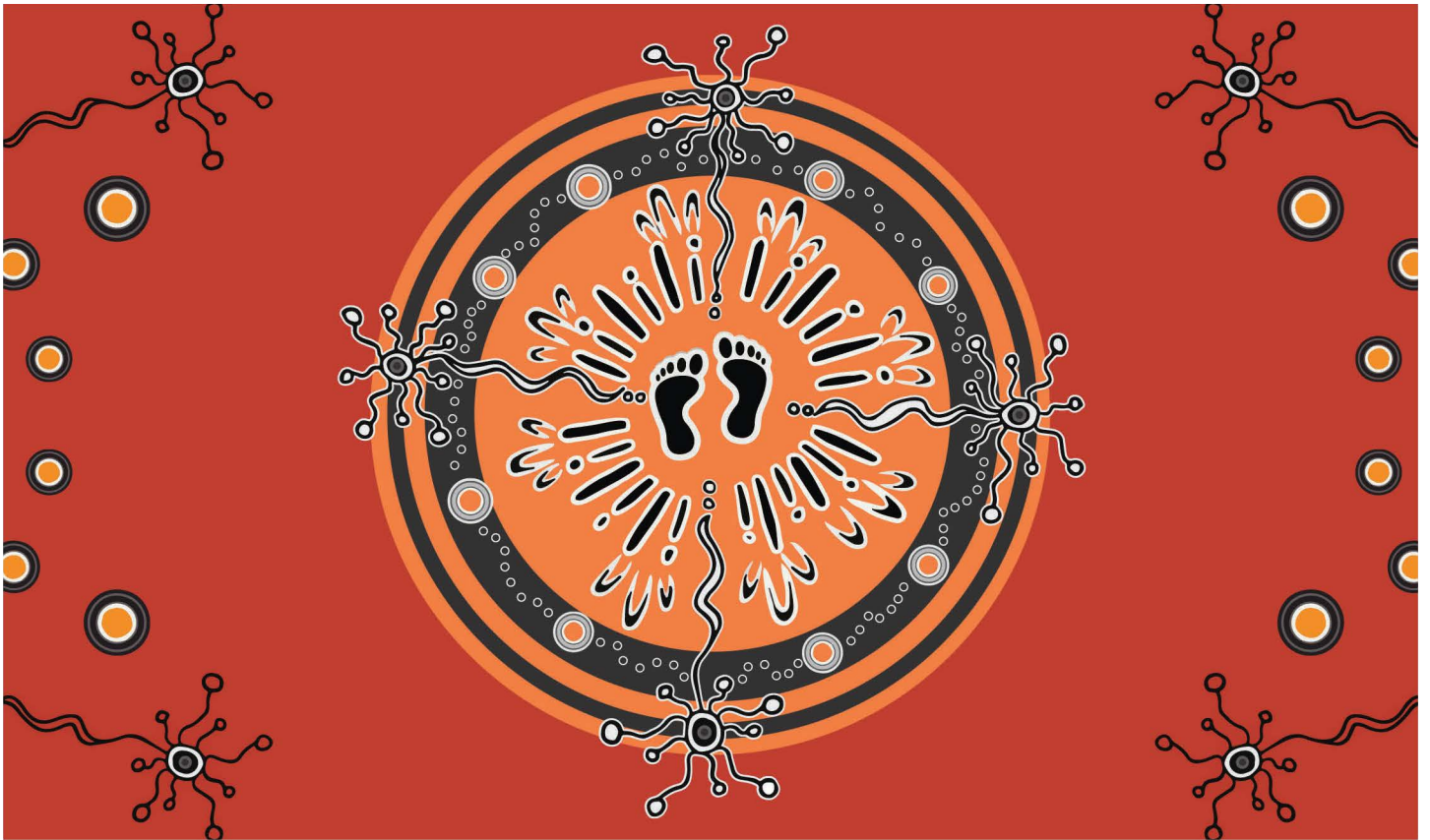
Department reference number PUB23/88

Cover image Image courtesy of Jamie Plaza Van Roon, Department of Planning and Environment. Cattai Wetlands, Coopernook, NSW.

More information www.dpie.nsw.gov.au/groundwater-strategy

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Acknowledgment of Country

The NSW Government acknowledges First Nations people as its first Australian people and the traditional owners and custodians of the country's lands and water. First Nations people have lived in NSW for over 60,000 years and have formed significant spiritual, cultural, and economic connections with its lands and waters.

Today, they practice the oldest living culture on earth.

The NSW Government acknowledges First Nations people as having an intrinsic connection with the lands and waters of New South Wales. The landscape and its waters provide First Nations people with essential links to their history and help them maintain and practice their traditional culture and lifestyle.

We recognise Traditional Owners as the first managers of Country. Incorporating their culture and knowledge into groundwater management in the region is a significant step towards closing the gap.

Through the *NSW Groundwater Strategy*, we seek to establish meaningful and collaborative relationships with First Nations people. We seek to shift our focus to a Country-centred approach; respecting, recognising and empowering cultural and traditional Aboriginal knowledge in water management processes at a strategic level.

We show our respect for Elders past and present through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places where First Nations people are included socially, culturally and economically.

As we refine and implement the *NSW Groundwater Strategy*, we commit to helping support the health and well-being of waterways and Country by valuing, respecting and being guided by First Nations people, who know that if we care for Country, it will care for us.

We acknowledge that further work is required under the *NSW Groundwater Strategy* to inform how we care for Country and ensure First Nations people hold a strong voice in shaping the future for First Nations communities.

Artwork courtesy of Nikita Ridgeway.

About this plan

The *NSW Groundwater Strategy* has a 20-year timeframe

The *NSW Groundwater Strategy* (the strategy) charts the NSW Government's long-term vision that groundwater supports cultural and social values, dependent ecosystems and resilient towns and industries.

It sets out clear and tangible actions for the NSW Government, working collaboratively with partners to tackle groundwater management challenges across the state.

The strategy sets out a new logical framework for the funding and implementation of further reforms in groundwater management over the next 20 years.

We will use a staged approach to implementation

This implementation plan (the plan) describes how the NSW Government will implement the strategy from now to December 2025.

Delivery of the full strategy will be staged over short, medium and longer-term time horizons. This recognises that although all actions are important, we cannot implement them all immediately.

A risk-based approach has guided the choice of activities for the short-term. This has been informed by internal and external stakeholder feedback, as well as the need to meet timeframes of external drivers. Some actions have been selected based on available funding and funding opportunities. This approach has enabled us to prioritise and direct our resources efficiently.

The plan identifies initiatives that work towards the priorities and actions of the strategy and is not intended to capture all 'business as usual' activities.



Image courtesy of Craig Mason, Department of Planning and Environment. Ellenborough Falls, Elands NSW.

We will collaborate during implementation

Responsibility for groundwater management in NSW is shared between federal, state and local governments, authorities and agencies.

As shown in the table below, the NSW Department of Planning and Environment (DPE) – Water will lead each of the actions in collaboration with others (see the far-right hand column).

This plan captures actions being undertaken by a number of NSW Government agencies, State-Owned Corporations and independent authorities.

Local councils are a delivery partner for several actions. The NSW Government is committed to supporting councils deliver outcomes for communities, including through council management and ownership of water supply and sewerage services.

As well as those with legislated roles and responsibilities, there are many other groups and individuals who will play a role in the implementation of the strategy and plan. We will partner with diverse stakeholders including research organisations, peak bodies, and the wider community. We need to listen and learn together to build trust and transparency. Without a partnership focus with meaningful engagement, successful implementation cannot occur.

Periodic reporting and evaluation will provide transparency and accountability

The NSW Government commits to regular reporting on progress made in implementing this plan.

We will develop and publish a Monitoring, Evaluation and Reporting framework. This will ensure the strategy and plan are adaptive to changing community needs.



Image courtesy of Department of Primary Industries. Macquarie River near Bathurst.

Strategic priority 1

Protect groundwater resources and the ecosystems that depend on them

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
<p>Action 1.1: Refresh, consolidate and expand our groundwater policy framework</p> <p>Note: for details about what this key action entails, please see the <i>NSW Groundwater Strategy</i>.</p>		<p>Publish a <i>Guide to Groundwater Resources in NSW</i> and a <i>Guide to Groundwater Management in NSW</i> that clearly and succinctly explains our groundwater resources and how we manage them.</p> <p>Review our groundwater policy framework and scope opportunities for improvement. The review will cover our policy approaches to groundwater dependent ecosystems, groundwater quantities and levels, groundwater quality, and groundwater interactions with land and surface water. The output from this review will inform Actions 1.2–1.5.</p> <p>Establish a NSW Water Sharing Plan Evaluation Framework that applies to all groundwater sharing plans.</p> <p>Improve regulation of aquifer interference activities by commencing:</p> <ul style="list-style-type: none"> • a review and update of the <i>NSW Aquifer Interference Policy (2012)</i> • work needed to enable aquifer interference approvals • development of policy and regulatory approaches to manage activities that extract from and impact on groundwater systems, including legacy mining take, monitoring bore construction and use, and temporary and ongoing dewatering activities. <p>Review our policy settings for water-related impacts from mining activities.</p> <p>This work on aquifer interference and mining links with activities listed under Action 1.5.3.</p>	<p>This broad action will require collaboration across NSW Government and beyond. Many of the collaborators listed in this table will be involved in delivering Action 1.1</p>

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 1.2: Improve protection of groundwater dependent ecosystems and baseflows to streams	1.2.1. Review and update our methods and processes for protecting groundwater dependent ecosystems	Develop a process to confirm the dependence of high priority ecosystems on groundwater that will support implementing water sharing plans and regulatory decision-making.	DPE Environment and Heritage
	1.2.2. Deliver a program to improve our understanding of groundwater dependent ecosystems	<p>Continue ongoing improvements to groundwater dependent ecosystem mapping products, including the depth of water tables.</p> <p>Scope a long-term program to improve groundwater dependent ecosystem data and information products to inform sustainable groundwater management approaches and decisions.</p>	



Image courtesy of Destination NSW. Goonoo Goonoo Station, Tamworth.

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 1.3: Review and update approaches to sustainable groundwater extraction Note: for details about improving our climate change information, please see Action 3.3.1.	1.3.1. Review groundwater source extraction limits using new knowledge	<p>Publish a report on approaches used by other jurisdictions to manage groundwater extraction at a water-source scale.</p> <p>Review our approach to setting long term average annual extraction limits in priority areas, to consider resource sustainability and socio-economic factors in a changing climate. This work will build on the science and modelling activities in Actions 3.3.1 and 3.3.2.</p>	DPE Environment and Heritage
	1.3.2. Improve clarity around management of groundwater sources where annual allocations may be significantly reduced	<p>Develop and publish guidance about the current approach to management of groundwater sources where the entitlement 'share value' is low.</p> <p>Note: for details of what 'share value' means, please see Action 1.3.2 in the <i>NSW Groundwater Strategy</i>.</p>	NA
	1.3.3. Better manage impacts of extraction at a local level	<p>Publish a report that reviews approaches used by other jurisdictions to manage groundwater extraction and levels at a local scale.</p> <p>Develop a groundwater level management framework with a series of escalating management actions corresponding to stages of localised water level decline.</p> <p>Improve the transparency and accountability of groundwater licensing and approvals processes as part of the <i>Water Licensing Improvement Program</i>.</p>	

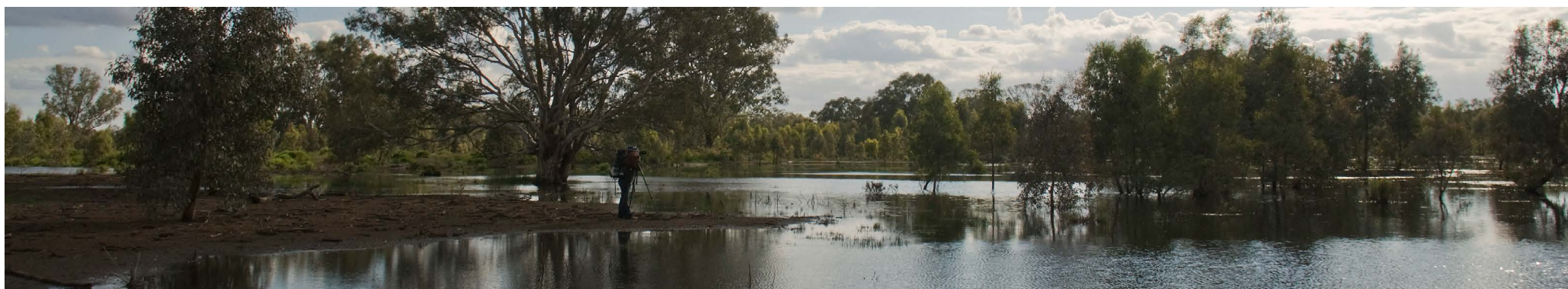


Image courtesy of Boris Hlavica, Department of Planning and Environment. River Red Gums on the Murrumbidgee River outlet, Narrabri.

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 1.4: Protect groundwater quality within natural limits	1.4.1. Review and update our approach to managing groundwater quality	<p>Review governance arrangements for groundwater quality management and monitoring, and consider options to address duplication, gaps and uncertainties.</p> <p>Review governance arrangements for groundwater contamination, risk management and remediation, and identify opportunities for improvement.</p>	<p>DPE Environment and Heritage</p> <p>DPE Planning</p> <p>DPI Agriculture</p>
	1.4.2. Deliver a program to better understand groundwater quality and risks	<p>Publish groundwater quality data collected since 2010 – including the recently completed multi-year, state-wide sampling program.</p> <p>Scope and seek funding for on-going groundwater quality monitoring program with associated analytics.</p> <p>This work links with activities listed under Action 3.4.2.</p>	<p>Local Land Services</p> <p>NSW Environmental Protection Authority</p> <p>NSW Health</p> <p>Hunter Water</p> <p>WaterNSW</p>
Action 1.5: Better integrate groundwater management with other land and water management processes	1.5.1. Manage groundwater and surface water together	<p>Review current approaches and identify opportunities to improve how we manage groundwater-surface water connectivity and access in water sharing plans.</p>	<p>DPE Environment and Heritage</p>
	1.5.2. Integrate groundwater considerations into land use planning decisions and land management	<p>Catalogue information on significant groundwater recharge areas and resources and make accessible online.</p> <p>Seek funding to address key gaps in the above information and develop new online spatial products to support planning decisions.</p> <p>Identify improvements to governance, regulatory and advisory functions to enable better outcomes for groundwater management through strategic land use planning and development assessment pathways.</p>	<p>DPE Environment and Heritage</p> <p>DPE Planning</p> <p>Department of Regional NSW</p> <p>Local Councils</p>

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 1.5: Better integrate groundwater management with other land and water management processes (continued)	1.5.3. Improve management of large developments impacting groundwater	<p>Assess the uptake by industry of the recently released <i>Groundwater Assessment Toolbox for Major Projects</i>.¹</p> <p>This work links with aquifer interference and mining activities listed under Action 1.1.</p>	<p>DPE Planning</p> <p>Department of Regional NSW</p>
	1.5.4. Strengthen management of shared groundwater resources	<p>Contribute to the review and implementation of the <i>Great Artesian Basin Strategic Management Plan</i>.</p> <p>Align groundwater management approaches in NSW with the strategic priorities of <i>National Groundwater Strategic Framework 2016–2026</i>.</p> <p>Work with the Australian Government and other jurisdictions to embed groundwater considerations into future revisions of the <i>National Water Initiative</i>.</p>	<p>These actions will be done in consultation with other state and Commonwealth governments</p>



Image courtesy of Department of Planning and Environment. Irrigation bore outlet, Narrabri.

1. water.nsw.gov.au/_data/assets/pdf_file/0004/507613/Groundwater-assessment-toolbox-for-major-projects-in-NSW.pdf

Strategic priority 2

Build community and industry resilience through sustainable groundwater use

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 2.1: Support Aboriginal rights, values and uses of groundwater	2.1.1. Protect groundwater-dependent places of significance to Aboriginal communities	Action 2.1 of the <i>NSW Groundwater Strategy</i> and its sub-actions align with Priority 2 of the <i>NSW Water Strategy</i> : 'The NSW Water Strategy recognises First Nations/Aboriginal people's rights to water and aims to secure a future where water for First Nations/Aboriginal people is embedded within the water planning and management regime in NSW, delivering cultural, spiritual, social, environmental and economic benefit to communities.'	First Nations/ Aboriginal people's peak groups and communities
	2.1.2. Better integrate Aboriginal knowledge into groundwater management	<p>Actions include:</p> <ul style="list-style-type: none"> strengthening the role of First Nations/Aboriginal people in water planning and management developing an NSW Aboriginal Water Strategy 	
	2.1.3. Increase access to groundwater for Aboriginal people	<ul style="list-style-type: none"> providing Aboriginal ownership of and access to water for cultural and economic purposes working with First Nations/Aboriginal people to improve shared water knowledge and maintain and preserve water-related cultural sites and landscapes. <p>The NSW Aboriginal Water Strategy will be co-designed with First Nations/ Aboriginal people throughout 2024. This will help to frame groundwater specific implementation activities.</p>	

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 2.2: Support towns and cities using groundwater to improve their urban water planning	2.2.1. Support improved management of urban groundwater supplies	<p>As part of the <i>Regulatory and Assurance Framework for Local Water Utilities</i>, develop and publish revised strategic service planning guidance for water security that describes the NSW Government's:</p> <ul style="list-style-type: none"> • approach to managing groundwater resources and what information and models it will make available on groundwater availability and quality to support strategic planning for town water security • requirements and processes for water access licenses and works approvals, including how works approvals are assessed. <p>Continue to support local water utilities with strategic service planning for communities that rely on groundwater for current or future water security, including understanding groundwater resource availability and quality at a local scale.</p> <p>Continue to support local water utilities to develop groundwater models for their borefields, including Dubbo, Bega, Rous, and Kempsey Councils.</p> <p>Review our policy settings for how new work approvals (e.g. bores) or dealings are assessed in terms of impacts on existing groundwater users (including shallow bores) and the priority of different water uses (e.g. town water supply, basic landholder rights, etc).</p>	<p>Water Directorate</p> <p>Local Councils</p>
	2.2.2. Enable efficient and timely integration of groundwater supply options to provide for growing regional towns and cities, particularly during drought times	<p>Collaborate with <i>Geological Survey of NSW</i> on groundwater investigations to identify potential potable water for communities and industries from deep sandstone aquifers in far western NSW.</p> <p>Collaborate with <i>Geoscience Australia</i> on groundwater investigations to identify potential sources of potable water for communities and industries from the Upper Darling Floodplain.</p>	<p>Geological Survey of NSW</p> <p>Geoscience Australia</p>

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 2.3: Support resilient groundwater dependent industries in NSW	2.3.1. Provide better information to communities and industries on groundwater development opportunities and constraints	<p>Embed groundwater challenges and opportunities into our regional and metropolitan water strategies.</p> <p>Ensure sustainable use of groundwater is considered in regional planning and development initiatives.</p> <p>This work links with activities listed under Action 1.5.2.</p>	<p>DPE Planning</p> <p>Department of Regional NSW</p> <p>Local Councils</p>
	2.3.2. Enable the increase of sustainable groundwater use in targeted areas <small>Note: these are areas where extraction is below the sustainable limit.</small>	<p>Review, update and publish a transparent framework for making Available Water Determinations for groundwater sources.</p> <p>Review, update and publish a transparent framework for making controlled allocations for groundwater sources.</p> <p>Collaborate with Flinders University to build our understanding of groundwater flow in the Great Artesian Basin to improve groundwater supply security for primary industries.</p>	<p>Department of Regional NSW</p> <p>Flinders University</p>
	2.3.3. Foster innovative groundwater solutions, including managed aquifer recharge, to support communities and industries	<p>Continue to develop a policy framework that will enable managed aquifer recharge (MAR) (see <i>NSW Water Strategy</i> Action 6.8) and return flow rules for groundwater.</p> <p>Collaborate with CSIRO to produce MAR feasibility maps for aquifers across NSW.</p>	<p>WaterNSW</p> <p>Commonwealth Scientific and Industrial Research Organisation</p>

Strategic priority 3

Improve groundwater information and knowledge

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 3.1: Develop the groundwater components of a water knowledge plan		Identify and prioritise knowledge needed to underpin Strategic Priorities 1 and 2 of the <i>NSW Groundwater Strategy</i> . The output will inform implementation of Actions 3.2 to 3.4.	This broad action will require collaboration across NSW Government and beyond. Many of the collaborators listed in this table will be involved in delivering Action 3.1
Action 3.2: Better share and integrate groundwater information		Commence a project to improve the ICT capabilities to house historical groundwater datasets and databases including continuous data quality improvements and uplift programs. Continue to share groundwater information on <i>Sharing and Enabling Environmental Data</i> (SEED) and other online portals.	WaterNSW



Image courtesy of John Spencer, Department of Planning and Environment. Southern Lagoons, Macquarie Marshes Nature Reserve.

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 3.3: Improve our understanding of groundwater resources	3.3.1. Expand our multi-disciplinary understanding of groundwater	<p>Collaborate with CSIRO to research impacts of climate change on groundwater resources across NSW.</p> <p>Using the results of the research above, scope a long-term program to ensure we have up-to-date information on priority groundwater resources under a changing climate.</p> <p>Scope and seek funding for a program of projects to understand the groundwater processes needed to inform groundwater management decisions in NSW, including:</p> <ul style="list-style-type: none"> • recharge and infiltration • connectivity between surface water and groundwater • groundwater needs of ecosystems • dynamics of groundwater levels • changing patterns in groundwater quality and contaminant pathways. <p>Undertake targeted connectivity investigations to support water sharing planning.</p> <p>This work will contribute to delivering Action 1.3.1 and 1.5.1.</p>	<p>Geoscience Australia</p> <p>Commonwealth Scientific and Industrial Research Organisation</p> <p>Australian Nuclear Science and Technology Organisation</p> <p>Universities and research organisations</p> <p>Local Councils</p>
	3.3.2. Improve our groundwater models where required	<p>Continue upgrading our numerical groundwater models for priority inland alluvial systems including the Namoi, Murray, and Lachlan.</p> <p>Publish peer-reviewed documentation for numerical groundwater models for priority inland alluvial systems.</p> <p>Commence development of 3D conceptual geological models as the basis of future improvements to our groundwater models.</p> <p>This work will contribute to delivering Action 1.3.1.</p>	
	3.3.3. Increase our capacity and capability to apply leading groundwater science	<p>Develop, consult on, and publish a renewed <i>NSW Groundwater Research Prospectus</i>. This will identify key research gaps in the cultural, ecological, resource, social and economic aspects of groundwater management.</p>	

Action	Sub-action	What we will do by December 2025	Led by DPE Water in collaboration with:
Action 3.4: Expand and target our groundwater data collection	3.4.1. Improve our groundwater monitoring infrastructure	<p>Work with WaterNSW to seek funding for maintenance, refurbishment or replacement of the existing 4,700 monitoring bores.</p> <p>Seek funding to expand the monitoring bore network to meet current and future management needs.</p>	<p>WaterNSW</p> <p>Hunter Water</p> <p>Local Councils</p>
	3.4.2. Improve our groundwater monitoring programs	<p>Develop and publish a NSW groundwater quality monitoring strategy.</p> <p>Develop and implement a two-year groundwater quality program for the Murray–Darling Basin.</p> <p>This work links with activities listed under Action 1.4.2.</p>	



Image courtesy of Joshua Smith, Department of Planning and Environment. Flowing bore for water stock, Narriearra Station.



Image courtesy of Jason King, Department of Planning and Environment. Murray River at Broken Creek Junction, NSW.

