

Regional Water Strategy

Namoi – Executive Summary

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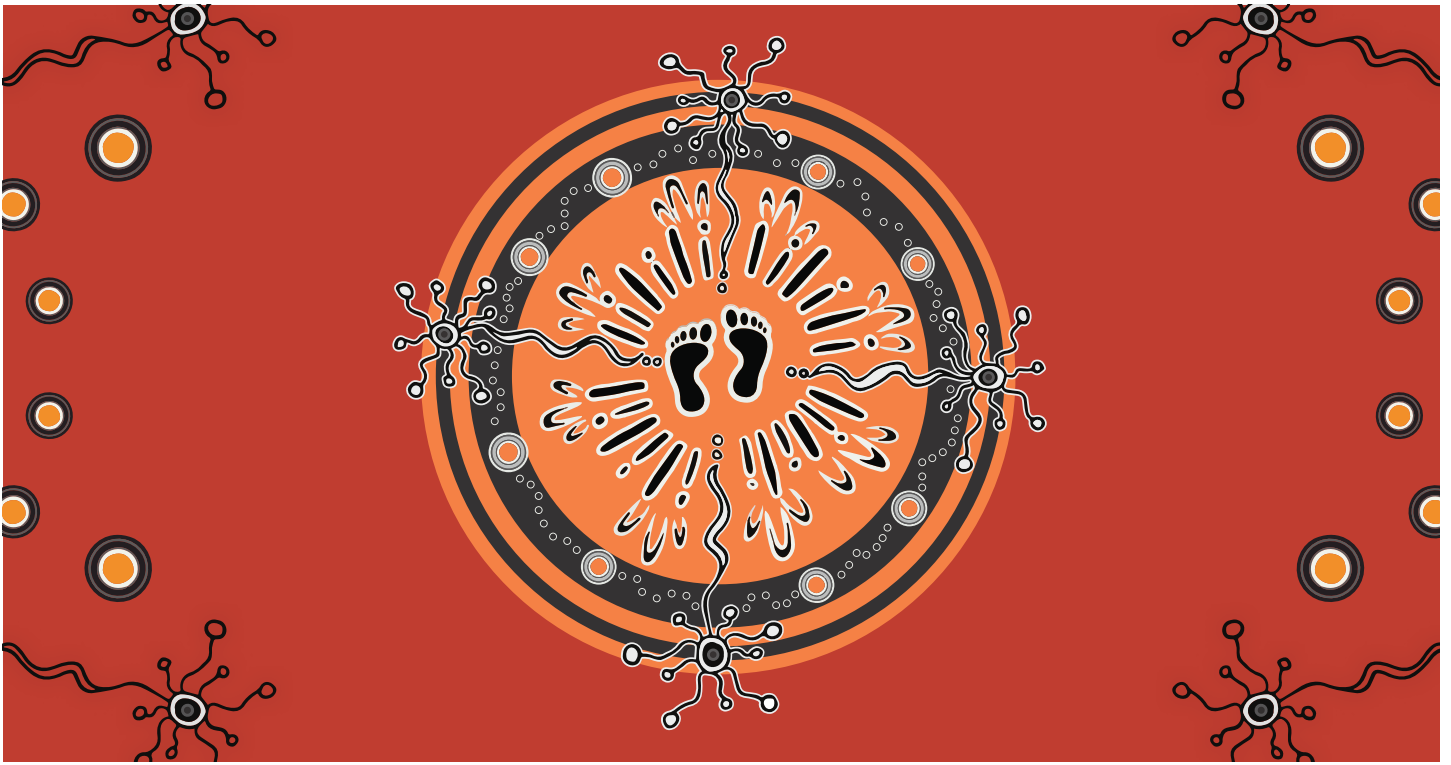
Cover image Image courtesy of Tim Haeusler, Department of Planning and Environment. Gulligal Lagoon, Namoi.

More information water.dpie.nsw.gov.au/plans-and-programs/regional-water-strategies

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Acknowledging First Nations people

The NSW Government acknowledges First Nations people as the 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 practise the oldest living culture on earth.

The NSW Government acknowledges the Gomeroi, Kamilaroi, Gamilaroi and Gamilaraay people as having an intrinsic connection with the lands and waters of the Namoi Regional Water Strategy area. The landscape and its waters provide the First Nations people with essential links to their history and help them maintain and practise their traditional culture and lifestyle.

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

Under this regional water 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 regional water strategy, we commit to helping support the health and wellbeing 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 this regional water strategy to inform how we care for Country and ensure First Nations people hold a strong voice in shaping the future for all communities.

Artwork by Nikita Ridgeway.

Water is our most precious resource. Having a long-term plan for water in the Namoi will support healthy rivers, healthy industries and healthy communities.

Water supports the essential needs of communities in the Namoi region and is vital for maintaining our aquatic environments and Aboriginal cultural heritage. It is central to liveability within the region and supports our industries and employment.

The NSW Government is committed to having healthy, reliable and resilient water resources. We want the Namoi region to remain a place where people want to live, work and play, both now and for future generations. This means doing more with the water we have and preparing for future uncertainties, such as a more variable and changing climate, changing industries, populations and water needs.

The Namoi region is in northern inland NSW, where the landscape changes from hills and mountains in the east to flat alluvial plains in the west. It is a part of the Murray–Darling Basin and lies within the traditional lands of the Gomeroi/Kamilaroi nation whose people have been caretakers of the Namoi region for over 60,000 years.

The region's main centre is Tamworth, which is the largest regional centre in north-west NSW and an important economic and cultural hub for services and employment. Gunnedah and Narrabri are other important strategic centres in the Namoi Valley.

The area is home to a range of locally and nationally significant ecological communities which support a high diversity of flora and fauna species. The region is home to ecologically and culturally significant lakes and lagoons, wetland complexes and floodplains.

The Namoi region relies heavily on surface water and is one of the most groundwater-dependent regions in the Murray–Darling Basin. These water sources support towns and recreation, cultural needs, environmental needs, agriculture, mining and industry use.

The Namoi region is one of the most productive agricultural areas in NSW, hosting extensive livestock, dryland and irrigated cropping operations, and an agribusiness cluster for chicken, meat and eggs around Tamworth. Mining is also important in the region.

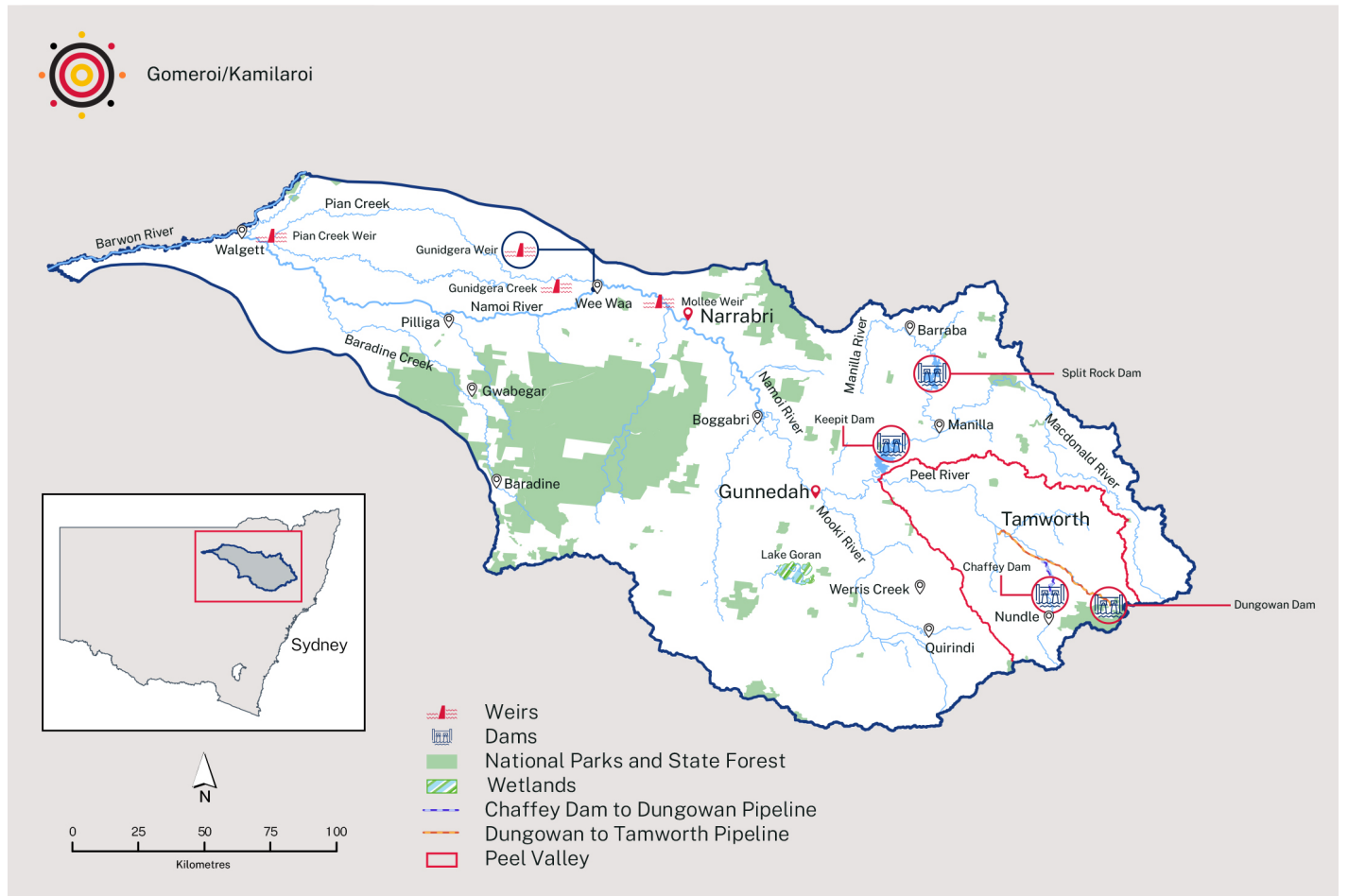
The region's environment, residents and businesses are tested during climate extremes. For example, between 2017 and early 2020, severe drought conditions resulted in:

- lower parts of the Namoi River stopped flowing
- Tamworth's town water supply fell to critical levels
- gross domestic product in the New England-North West region fell 15% below average
- sharp declines in groundwater levels in some groundwater sources.

The drought was followed by floods and some of the wettest years on record. We know that extreme droughts and floods will happen again. We need to be prepared so that critical needs in the region are protected, the environment can recover, and regional industries and towns can grow sustainably.

The regional water strategy will help set the region up, so it is prepared for a more variable or changing climate. This will help keep the Namoi an attractive place to live, work and visit.

Figure 1. Map of the Namoi region



Mount Kaputar National Park.

Environmental significance of the Namoi region

Water is a significant feature of the Namoi region's landscape and environment, with its interconnected systems of rivers, creeks, aquifers and wetlands. The Lower Namoi River in particular is characterised by a network of anabranches, small tributaries, lagoons and wetlands across the floodplain, which need periodic flooding to maintain good condition. Connectivity plays a key role in supporting the environmental needs of the region as well as downstream sites. On average the Namoi region contributes 24% of the flows into the Barwon–Darling River and is a key contributor to water in the Menindee Lakes system.

Across the Namoi and Peel catchment systems, high value river reaches such as instream pools and low-flow channel refuges provide vital habitat supporting local and migratory species and threatened native fish such as the Eel-tailed Catfish and Southern Purple Spotted Gudgeon. Due to the natural wet dry cycles in the region, groundwater also plays an important role in sustaining plant and animal life by recharging waterholes, wetlands and streamflow, during long dry periods.

For communities across the Namoi region, environmental assets play a crucial role in the liveability of the region, as well as providing recreational opportunities and attracting tourism.

Addressing the environmental challenges facing the Namoi region

Changes in water use and land use across the region have impacted the health of native populations and their ecosystems. The changes to flow patterns and the construction of instream barriers have put many native fish species under pressure by reducing water quality and limiting their ability to carry out lifecycle migration.

The potential for longer and more severe droughts will increase the risk of ecosystem damage and decline in connectivity. Managing these risks will need coordinated and cooperative action across all parts of the community, as well as a better understanding of how potential future climate scenarios may impact on different parts of the environment.

A range of water reforms, including the dedication of water to the environment and connectivity improvement measures, have sought to stop further decline and improve the condition and resilience of these environmental assets. However, parts of the catchment are still in poor condition and climate change will increase the risk for many species and ecosystems.

Through strategic planning, the NSW Government aims to further build on these reforms and enhance the natural environment by:

- improving knowledge of the region's environment and its water needs
- introducing measures to support flows and water quality at a catchment level
- supporting better cultural involvement in water
- improving the long-term outcomes of water for the environment.

The Namoi Regional Water Strategy outlines a suite of actions that will be delivered by the NSW Government to advance water for the environment in the Namoi region.

More information and analysis of the Namoi region's ecological assets and challenges is available in the Namoi Regional Water Strategy Consultation Paper, which is available at www.dpie.nsw.gov.au/water/plans-and-programs/regional-water-strategies/public-exhibition/namoi-regional-water-strategy

Purpose of the Namoi Regional Water Strategy

Regional water strategies bring together the best and latest climate evidence with a wide range of tools and solutions to plan and manage each region's water needs over the next 20 years. With increased pressures on our valuable water resources, including a more variable and changing climate, we need to prepare now for the future and do more with the water we have.

The Namoi Regional Water Strategy identifies the critical strategic challenges that we need to tackle over the coming decades as well as the actions that will set us up to respond to these challenges.

These actions provide a foundation for building resilience and realising the benefits of working together to support healthy rivers, healthy industries and healthy communities in reaching the vision for the region. Meaningful engagement and a collaborative approach to planning and decision making will achieve sustainable and equitable outcomes over the strategy's 20-year horizon and beyond.

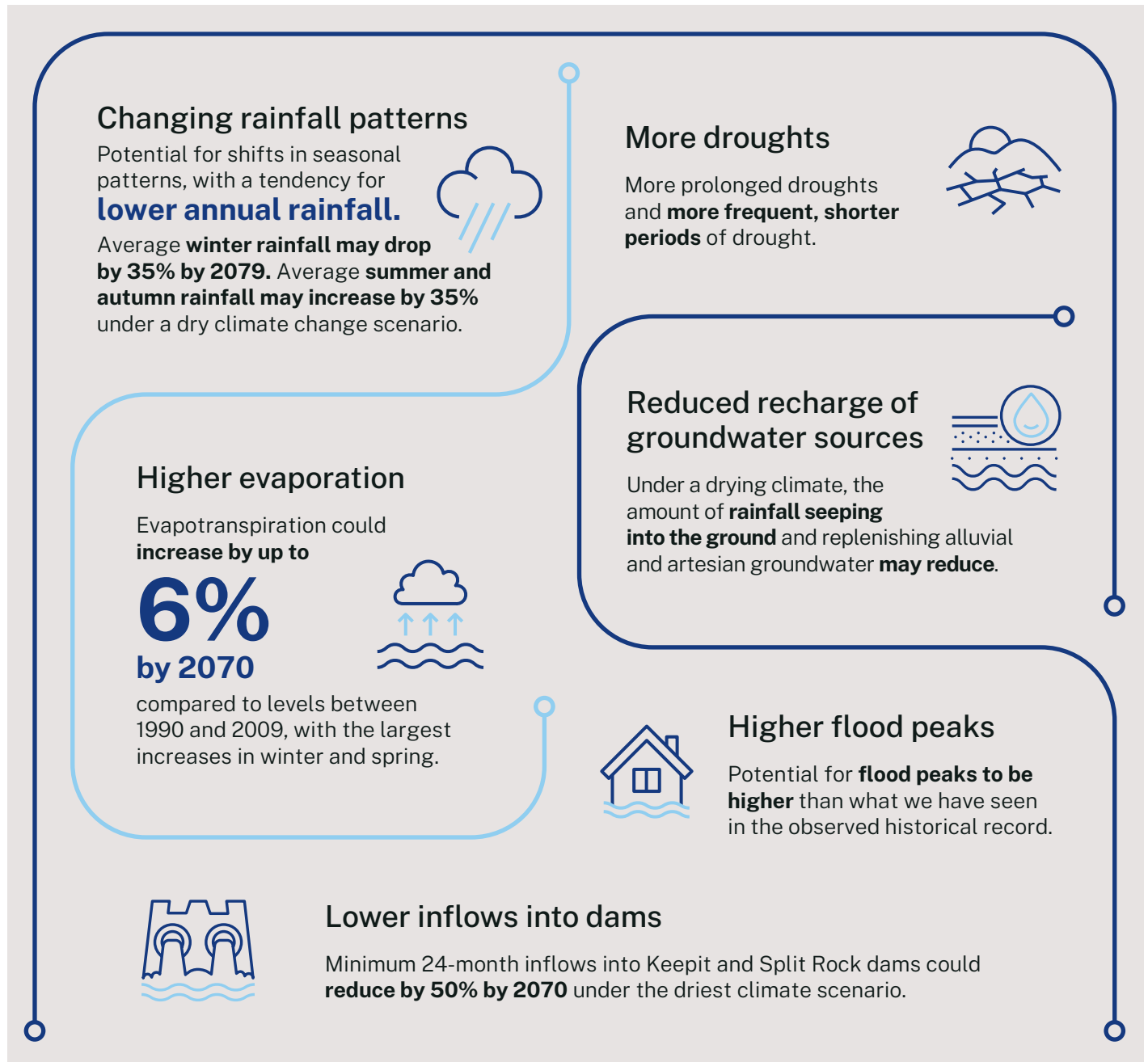


Image courtesy of Destination NSW. Farmer herding livestock, Barraba, NSW.

What the future climate could look like in the Namoi region

We don't know for certain what the future climate will be like. It may be similar to what we have experienced in the past, or it might be drier than what we have seen in our lifetimes. Our analysis of different climate projections tells us there could be more extreme wet and dry periods – droughts could become hotter and longer, there could be higher evaporation rates and more unpredictable rainfall and river flows. This long-term water strategy is helping to plan for this uncertainty and better understand the future risks we face.

Figure 2. What the future climate could look like in the Namoi region



The challenges facing the Namoi

There are 5 key challenges in the Namoi catchment which are the initial focus for the region. These include:

- Addressing Tamworth's long term water security risks
- Addressing water security risks of regional towns across the Namoi Valley
- Improving the health and resilience of the region's aquatic and floodplain ecosystems
- Addressing barriers to Aboriginal water rights
- Supporting a growing regional economy in a future of potentially reduced water availability.

Other water challenges, as described in the Draft Namoi Regional Water Strategy, will be revisited in future reviews of the strategy.



Addressing Tamworth's long term water security risks

Tamworth is an important regional employment and services hub that supports much of northern inland NSW. Over the next 20 years, Tamworth is anticipating significant economic and population growth which will need access to reliable supplies of water. Even without growth, there is a real and urgent risk that Tamworth could run out of water in a severe and prolonged drought, going from full dams to running out of water within 6 years. The townships of Manilla and Barraba, in the Tamworth local government area, are also at risk of running out of surface water in future extreme droughts.

Tamworth's water supply relies heavily on rainfall, making it vulnerable to droughts and climate change. The local groundwater source, the Peel Alluvium is a relatively small groundwater source and is unreliable during extended dry periods.

Without additional action to reduce demand and improve supply, the risks to Tamworth's water supplies increase as the city's demand on water sources grows in a changing climate. We need to start planning now for short-term and long-term projects that can support Tamworth as it grows. There is no single solution that will address this challenge. Multiple actions will be needed over the short, medium and long-term to support Tamworth's water security. While a new Dungowan Dam was previously being explored, there are alternative and more cost effective options that could help support Tamworth's water security.

The long-term water strategy for the Namoi will focus on doing more with the water we have, supporting sustainable growth and being prepared for the next drought to address this challenge.



Addressing water security risks of regional towns across the Namoi Valley

The Namoi Valley is one of the most groundwater-dependent regions in the Murray-Darling Basin. Most towns in the Namoi region rely on groundwater as their primary source of water. The long-term success of these communities is directly linked to the sustainability of the region's groundwater sources.

There is uncertainty about water security for the region's groundwater-dependent towns in severe drought. During dry periods, groundwater use increases as surface water becomes scarce, causing short term declines in groundwater levels. Some places are also experiencing long-term declining trends in groundwater levels, which are exacerbated during droughts.

Due to the complexity of the aquifer systems, our knowledge about how these aquifers will behave under climate change is limited. To improve our understanding and sustainable use of these water sources, we need further data, modelling and investigations.



Improving the health and resilience of the region’s aquatic and floodplain ecosystems

The Namoi region supports a rich and diverse range of water-dependent plants, animals and ecosystems. This includes over 40 waterbird species and 20 native fish species (including 5 threatened species), as well as floodplains, wetlands and endangered ecological communities. The region is home to a range of groundwater-dependent ecosystems, such as river red gums, which have been in decline in the Murray–Darling Basin and the wetlands surrounding Lake Goran.

The Namoi River system is also an important contributor to flows into the Barwon–Darling and supplies around 24% of the water that reaches the Menindee Lakes over the long-term.

Development has changed river flows, resulting in less water in rivers and wetlands. On average, there is less water flowing to the end of the Namoi River system and cease-to-flow periods have increased in the middle and end of the system.

Physical structures, such as dams and weirs, restrict the ability of native fish to move. Coupled with changes to water quality and drying of drought refuges during dry periods, this limits the ability of native fish and birds to survive and bounce back after periods of drought.

The potential onset of a drier climate may mean fewer opportunities to use water allocated for the environment to replenish river reaches and floodplains and limit the drying up of flowing water habitats. We will support the resilience of the region’s ecosystems, improve overall waterway health and look at the best ways to protect water-dependent species, communities and habitats.



Addressing barriers to Aboriginal water rights

Aboriginal people in the Namoi have always been closely linked to rivers and wetlands, and this relationship is essential to culture, community, and connection to Country.

The historical dispossession of land continues to impact Aboriginal people’s access to water. Fences and locked gates on public land prevent Aboriginal people from accessing water, carrying out cultural practices, and using traditional knowledge to care for and manage waterways.

To date, government consultation processes have not always complemented Aboriginal governance, and there is limited involvement of Aboriginal people in water consultation processes or water management decisions. We are investing \$15 million over 3 years to 2025 to develop an Aboriginal Water Strategy that will identify a program of measures to deliver on First Nations’ water rights and interests in water management. It is being informed by direct engagement and co-design with Aboriginal people and communities.



Supporting a growing regional economy in a future of potentially reduced water availability

The Namoi region is one of the most productive agricultural and mining areas in NSW. Together, these industries provide employment for over 16% of the region’s workforce and account for around 29% of its economic output. The productivity of these primary industries is closely linked to the availability of water.

In the coming decades, the local economy is expected to grow and diversify with increasing intensive agriculture, renewable energy, and gas-dependent businesses. This will be stimulated by initiatives such as the Inland Rail project, the Narrabri Gas Project and the New England Renewable Energy Zone. Reliable water is essential for attracting new high-value industries to the region and for sustaining and expanding existing industries, such as the intensive agricultural industry.

There is a possibility there could be consecutive years of low or no water availability for general security licences in future droughts even without a dry climate change scenario. We need to identify innovative ways to support existing industries during periods of low water availability, while also making sure that future industries that enter the region can operate in times when water is scarce.

A plan to secure water for the Namoi

To address the key challenges facing the Namoi region, we need to prepare now for a future where water may come under even greater stress. By using the knowledge, we have gained during drought, we can find smarter and better ways of making our water resources go further so that our communities, industries, and environmental and cultural assets can thrive.

There are limits on how much water can be taken from rivers and groundwater sources without causing short-term and long-term impacts – such as depriving other users of reasonable access to water and permanently damaging ecosystems. Surface water resources in the Namoi and Peel valleys are fully committed and there is a risk of reduced water availability in the long term. This means that any new infrastructure or policy change that results in additional water or improved security for one group of water users may lead to changes in the timing of water availability for another group.

Getting the balance right means understanding the stresses on the region's water resources and natural environment and recognising the limits and trade-offs. While we may have to make some difficult choices, there are also opportunities for the region. These include delivering on the water rights of Aboriginal people, enhancing town and farm water efficiency, using water more effectively, restoring aquatic and floodplain habitats, and developing alternative water supplies.

This strategy sets out 27 actions to ensure the Namoi region is well-placed to meet future challenges. These actions aim to:

- **Support the long-term water needs of towns across the region**

The long-term strategy for the Namoi will continue to invest in training and skills programs so we can attract and retain skilled staff in the region to operate water treatment plants and support town water security and town water quality. Supporting towns to improve water quality and have secure water supplies will be a priority.

We know that there is no single solution to addressing Tamworth's water security and a range of actions are needed to secure water for Tamworth, both now and as Tamworth grows. It is important that these options are cost effective. NSW will continue to work with Tamworth Regional Council to consider a business case for an Advanced Water Treatment Facility for industrial use in Tamworth, invest in water efficiency and demand management measures to do more with the water we have.

The strategy also considers a range of infrastructure and policy options that could improve Tamworth's water security including:

- changes in dam reserves – which could be progressed in the short term while longer term initiatives are being investigated
- pipelines east of Tamworth (linked to dams from the Namoi Valley) or west of Tamworth (linked to the Manning catchment)
- water treatment facilities
- off-river storages.

Each of these options will have benefits, costs and impacts. A combination may help mitigate impacts. Any changes that significantly reduce water availability for licence holders may trigger compensation requirements under the *Water Management Act 2000*.

Planning now for the next long-term augmentation will make sure the water needs of Tamworth are secure over the coming decades. We will confirm the level of water security needed to support large regional towns and whether we need to move towards planning for an 'enduring level of supply' approach – i.e. delivering a level of demand that we can be confident of supplying indefinitely, irrespective of the intensity and duration of drought.

Groundwater is an important source of water for Gunnedah, Narrabri and will become increasingly important for many other towns in the region such as Walgett. Continuing to invest in groundwater science and better understand the water that has been under our feet for millions of years will support sustainable access to groundwater and allow communities to endure extreme climates.

These actions will help towns in the region to make the best use of the available water, and better respond to the needs of a growing population and the risks associated with climate change.

- **Support regional communities under a more variable and uncertain future climate**

We will focus on strengthening the resilience of the regional economy and its ability to adapt to a drier, more severe future climate by:

- providing a better understanding of our groundwater resources and their sustainability, and transparently managing them
- investigating managed aquifer recharge as innovative new options to store and manage water
- publishing information in easily accessible formats to allow businesses to make the best decisions at critical times
- progress the development of an Aboriginal Water Strategy and actions to support better involvement of Aboriginal people in water management
- investing in research and innovation so agricultural industries continue to be at the forefront of adapting to climate change
- taking the final steps to implement the NSW Floodplain Harvesting Policy in a way that protects downstream critical needs which is expected to deliver more water across the floodplains and reduce floodplain harvesting take. This should improve the environmental condition of the Namoi Valley floodplain and outcomes for waterbirds, native vegetation and fish.

- **Improve the health and resilience of water dependent ecosystems.**

This will need coordinated and cooperative action across all parts of the community, as well as a better understanding of how potential future climate scenarios might impact on different parts of the environment. The long-term plan to support the resilience of ecosystems in the Namoi includes:

- remediating fish barriers to allow fish unimpeded access across riverways and begin remediating unapproved floodplain structures
- improve catchment management and the condition of riparian land which will help improve water quality and the health of rivers
- build knowledge and understanding of the region’s water-dependent ecosystems and the impacts of climate change on their health and resilience
- investigate ways to improve connectivity with the Barwon–Darling River on a multi-valley scale.

These actions aim to ensure that our water systems can respond to growth, while also being resilient to future climatic extremes.

A range of robust economic, hydrological, environmental and qualitative assessments were used to prioritise the actions in the regional water strategy.¹



Image courtesy of Destination NSW. Harvesting cotton in the Namoi Valley.

1. See analysis contained in the *Draft Regional Water Strategy Namoi: Shortlisted Actions – Consultation Paper*, available at water.dpie.nsw.gov.au/plans-and-programs/regional-water-strategies/what-we-heard

Figure 3. Summary of Namoi Regional Water Strategy actions

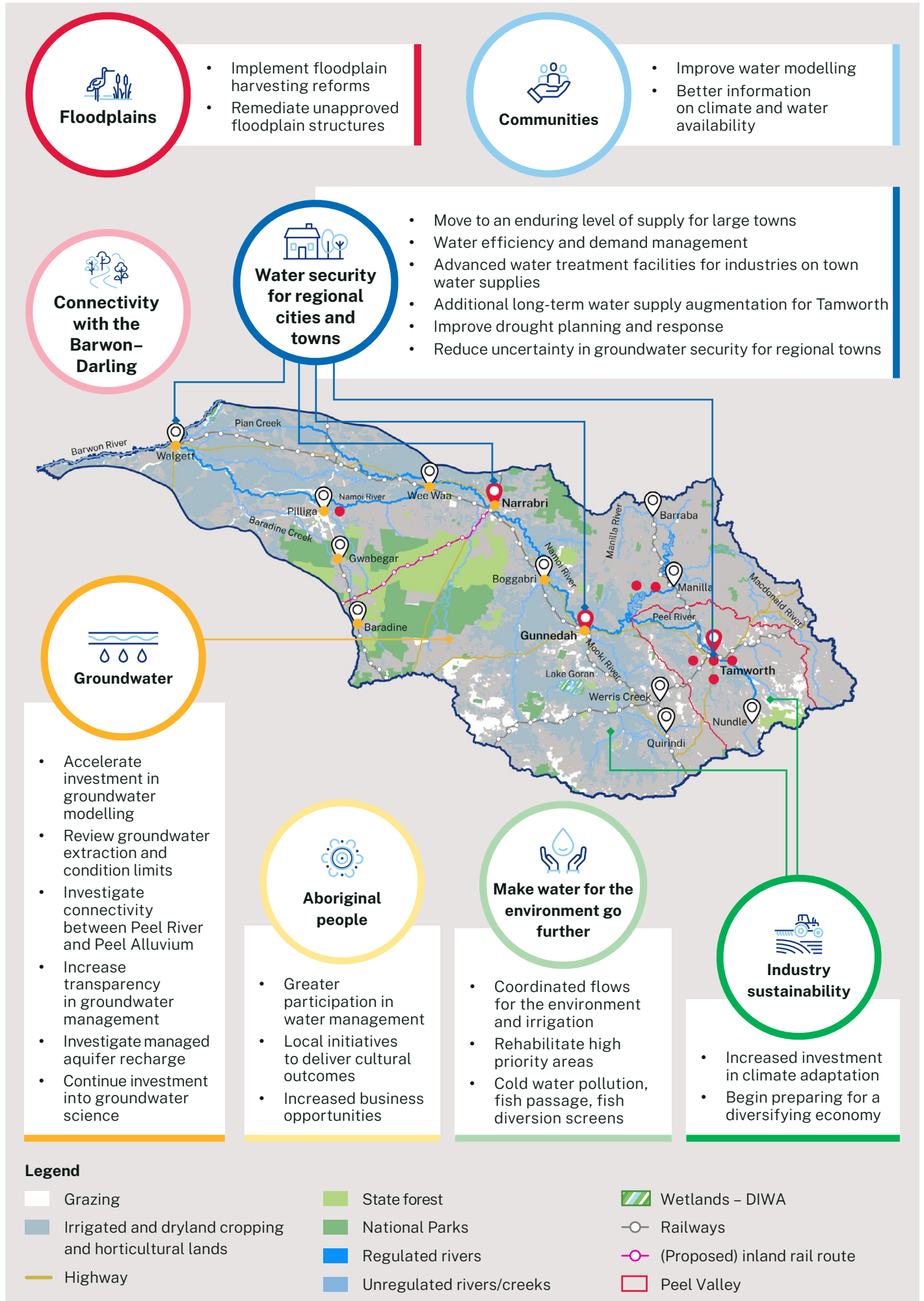













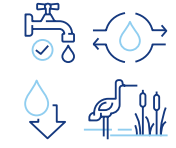





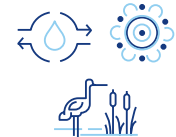
























Figure 4. Priorities and actions identified to address the key regional challenges

Legend				
				
Addressing Tamworth's long term water security risks	Addressing water security risks of regional towns across the Namoi Valley	Improving the health and resilience of the region's aquatic and floodplain ecosystems	Addressing barriers to Aboriginal water rights	Supporting a growing regional economy in a future of potentially reduced water availability

Priority	Actions	Challenges addressed
Priority 1: Supporting the long-term water needs of towns across the region	Action 1.1: Move towards an enduring level of supply to support water security for regional cities and large towns	
	Action 1.2: Improve drought management planning for towns	
	Action 1.3: Adopt a stronger focus on water efficiency and demand management for towns	
	Action 1.4: Progress advanced water treatment facilities for industries reliant on town water supplies	
	Action 1.5: Reduce uncertainty in groundwater security for regional towns	
	Action 1.6: Plan for long term water supply augmentation as Tamworth grows	
	Action 1.7: Addressing water related skills shortages in small councils	

Priority	Actions	Challenges addressed
Priority 2: Supporting regional communities under a more variable and uncertain future climate	Action 2.1: Invest in continuous improvement to surface water system modelling in the Namoi region	
	Action 2.2: Accelerate investment in groundwater modelling in the Namoi region	
	Action 2.3: Improve the participation of Aboriginal people in water management in the Namoi region	
	Action 2.4: Improve public access to climate information and water availability forecasts	
	Action 2.5: Undertake research to inform reviews of groundwater extraction and condition limits	
	Action 2.6: Investigate the level of connectivity between the Peel Alluvium and Peel River to inform allocation and access rules	
	Action 2.7: Support the development of new water-related Aboriginal business opportunities in the Namoi region	
	Action 2.8: Improve outcomes for Aboriginal people through place-based initiatives	
	Action 2.9: Support increased investment and research into industry climate adaptation	
	Action 2.10: Increase transparency in the management of groundwater resources in the Namoi region	
	Action 2.11: Investigate managed aquifer recharge in the Namoi region	
	Action 2.12: Ensure the water management framework can support sustainable economic diversification and transitioning economies	
	Action 2.13: Fully implement the NSW Floodplain Harvesting Program	

Priority	Actions	Challenges addressed
Priority 3: Improving the health and resilience of water dependant ecosystems	Action 3.1: Assess gaps in the flow regime and identify cooperative actions to improve ecological outcomes	 
	Action 3.2: Identify regionally significant riparian, wetland and floodplain areas to protect or rehabilitate	 
	Action 3.3: Mitigate the impact of water infrastructure on native fish	 
	Action 3.4: Remediate unapproved floodplain structures	  
	Action 3.5: Improve understanding of water use and water quality at priority locations in the Namoi region	 
	Action 3.6: Investigate ways to improve connectivity with the Barwon–Darling River on a multi-valley scale	 
	Action 3.7: Continue investment in groundwater science in the Namoi region	   



Pelicans, Lake Keepit.

Implementing the strategy

The strategy has a separate implementation plan that prioritises the delivery of actions throughout the life of the strategy. The implementation plan also outlines responsibilities and time frames for delivery, so that we can monitor the progress of the actions, assess the effectiveness of the strategy and identify areas where we need to adapt.

Not all actions will be commenced at once, and funding will be a key consideration in planning when and how the actions will be implemented. The Namoi Regional Water Strategy will be a key tool in seeking funding as future opportunities arise.



Image courtesy of Jessica Stokes, Department of Planning and Environment. Rocky hills, Mount Kaputar summit.

