



Macquarie-Castlereagh Draft Regional Water Strategy

What We Heard

Public Consultation
December 2021

Find out more: www.dpie.nsw.gov.au

First published: December 2021

Department reference number: PUB21/367

Photographic images: Images courtesy of Destination NSW

Acknowledgments: The NSW Government acknowledges First Nations/Aboriginal People as Australia's first people practicing the oldest living culture on earth and as the Traditional Owners and Custodians of the lands and waters. We acknowledge that the people of the Wailwan and Wiradjuri Nations hold a significant connection to the lands encompassed in the Macquarie-Castlereagh Regional Water Strategy.

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Introduction

The Department of Planning, Industry and Environment (the Department) is developing 12 regional water strategies to provide long-term tailored water management solutions for NSW’s regional communities.

Our vision for the Macquarie-Castlereagh Regional Water Strategy is to support the delivery of healthy, reliable and resilient water resources for a liveable and prosperous region. To achieve this, we need to position the region so there is the right amount of water of the right quality available to people, Aboriginal communities, towns, industries and the environment.

The draft Macquarie-Castlereagh Regional Water Strategy (the draft strategy) is one of six draft regional water strategies that were released for public exhibition during the second half of 2020.

An extensive engagement and consultation program with the general public and First Nations/Aboriginal People, accompanied the release of the draft strategy. This included several face-to-face meetings, online webinars and opportunities to have a one-on-one phone consultation with the Department’s regional water strategies team. Submissions were called for during the public exhibition period.

This report summarises the key issues we heard during the public exhibition and highlights how your feedback has informed the next steps in the development of the Macquarie-Castlereagh Regional Water Strategy.

Figure 1 illustrates the process for developing the regional water strategies.

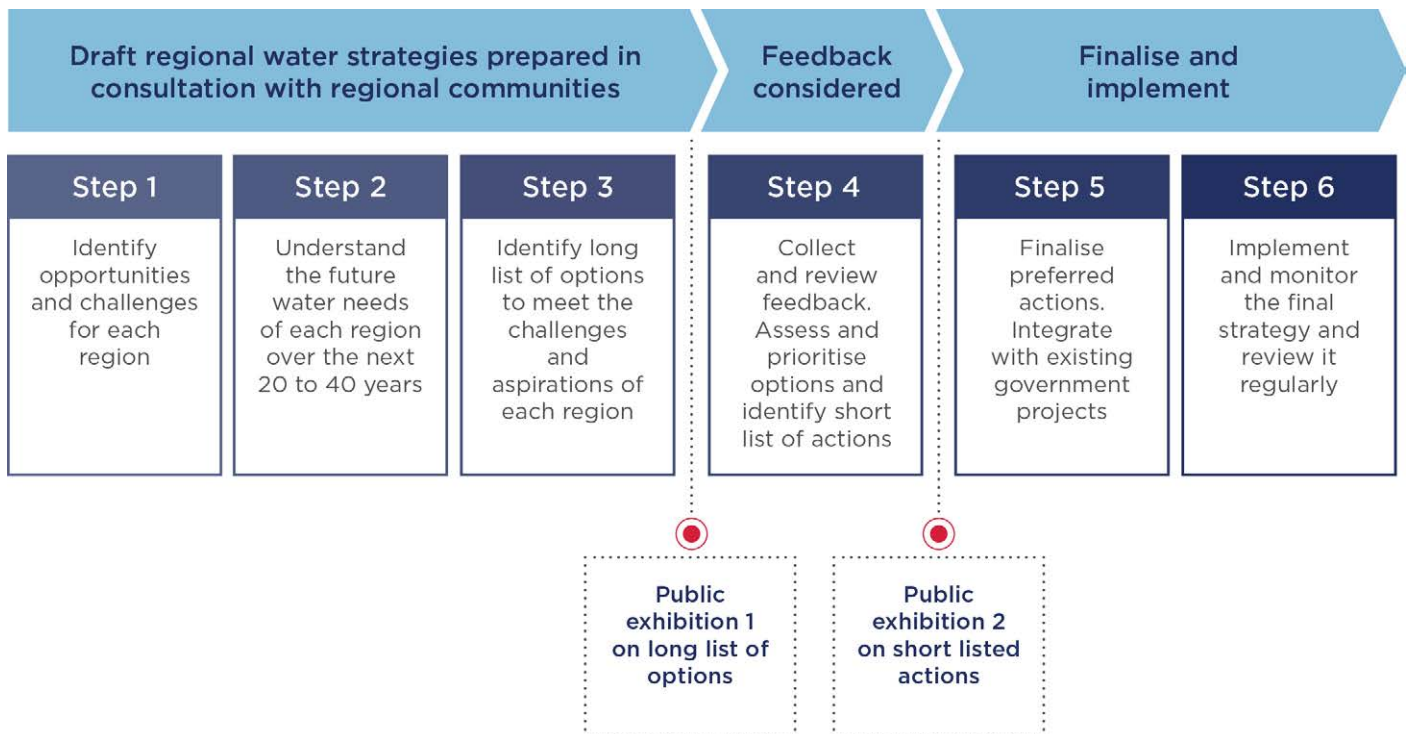


Figure 1: The Department’s approach to the development of the regional water strategies.

Engagement Approach

Our engagement approach for the regional water strategies program is to share information, gather feedback and collaborate with key stakeholders on the development of the Macquarie-Castlereagh Regional Water Strategy to ensure regional communities have influence in its development.

The Department is using a phased engagement approach, as illustrated in Figure 2. The timeline for engagement activities in Phase 2 (public exhibition) is shown in Figure 3.

How we engaged

The Department’s engagement program for the Macquarie-Castlereagh region involved:

- Consultation with councils in the Macquarie-Castlereagh region prior to the draft strategy being released
- A webinar for the general public on 16 October 2020
- A webinar for Aboriginal communities on 13 October 2020
- Community meetings in Dubbo and Blayney on 28-29 October 2020
- Aboriginal community meetings in Warren and Dubbo on 27-28 October 2020
- One-on-one phone consultations offered during this engagement period
- A formal submission process with over 50 submissions received.

These methods enabled the Department to share information about the regional water strategies program as well as seek feedback on the draft strategy and the long list of potential options.

Who we engaged

During the exhibition period from 25 September - 13 December 2020, the Department communicated and engaged with:

- Aboriginal community members and Aboriginal peak bodies
- Local government and joint organisations
- Business and industry stakeholders
- Landholders
- Peak representative organisations
- Individual members of the public.

Feedback was encouraged throughout the consultation period and was captured in each engagement activity as well as in the formal submissions.

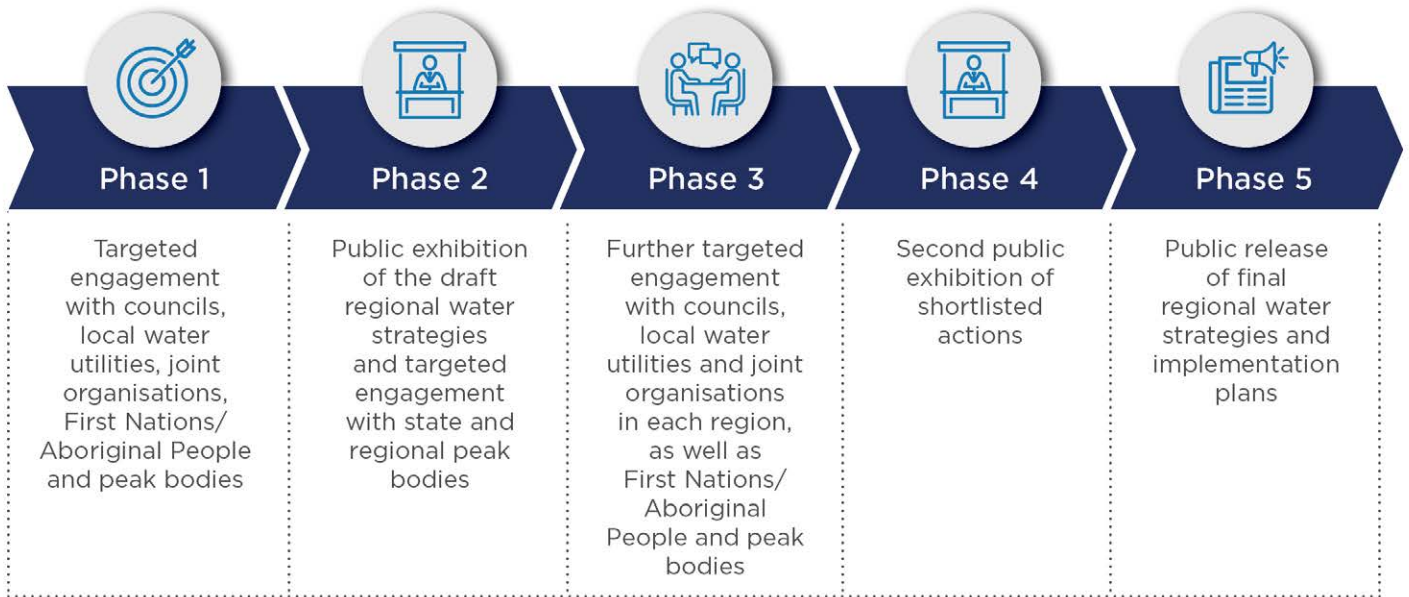


Figure 2: Phased approach to engagement for the regional water strategies engagement program.

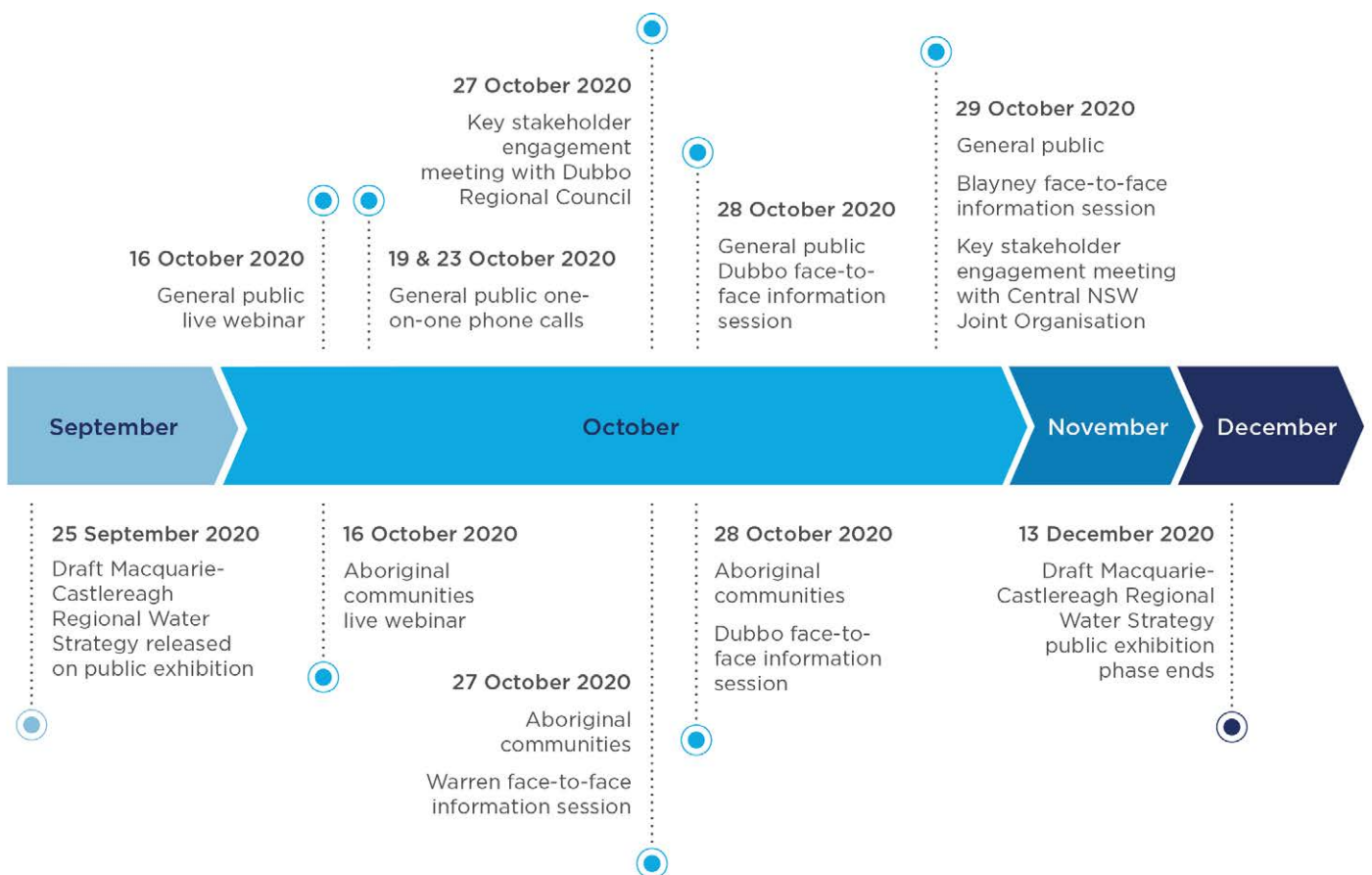
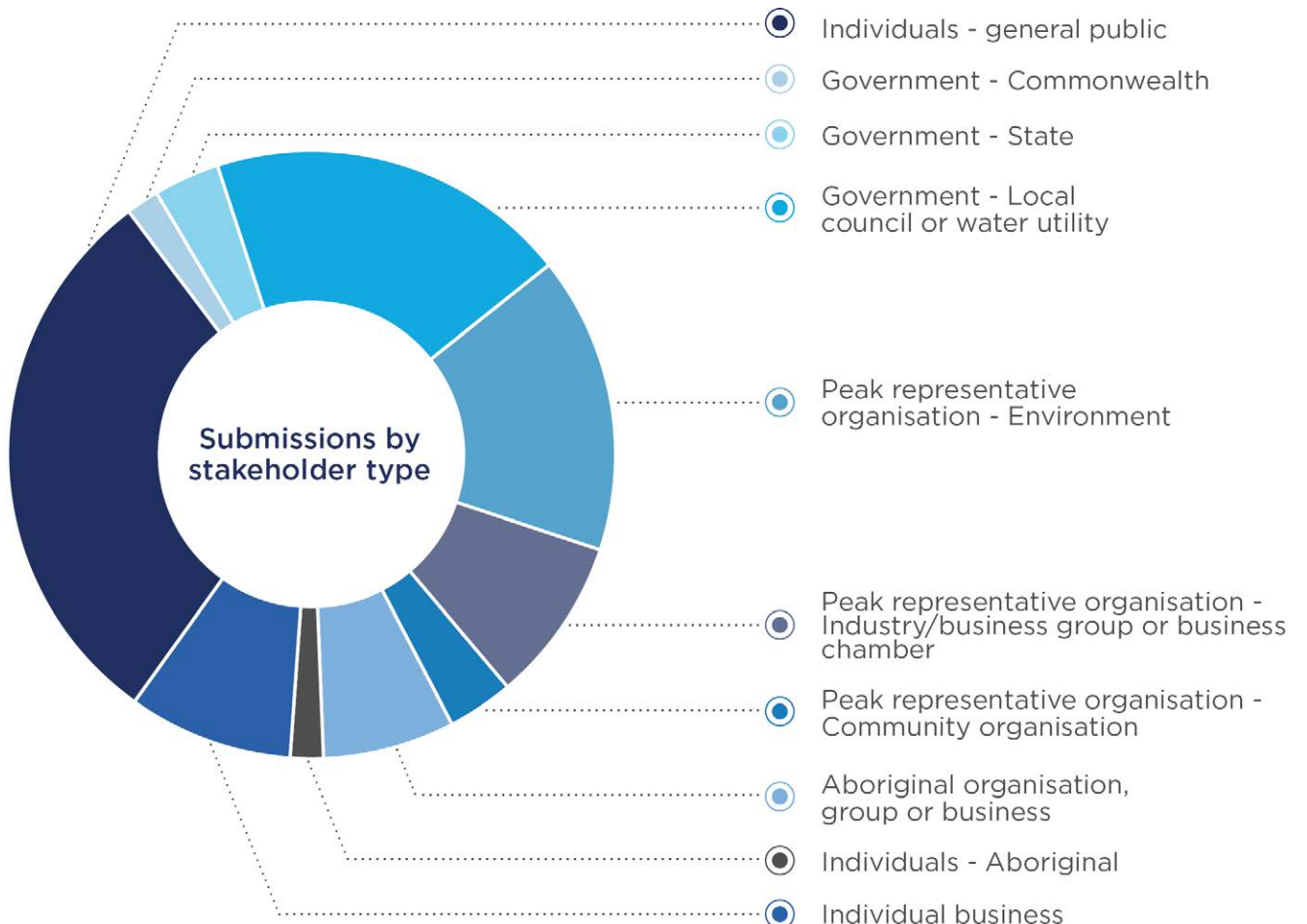



Figure 3: Timeline for the engagement activities in the Macquarie-Castlereagh region.

Engagement at a glance





Our vision for the Macquarie-Castlereagh Regional Water Strategy is to support the delivery of healthy, reliable and resilient water resources for a liveable and prosperous region. To achieve this, we need to position the region so there is the right amount of water, of the right quality, available to people, Aboriginal communities, towns, industries and the environment.

What we heard

During the public exhibition we received over 50 submissions on the draft Macquarie-Castlereagh Regional Water Strategy and the long list of proposed options.

There was general support for the regional water strategies program and the development of the Macquarie-Castlereagh Regional Water Strategy. Stakeholders urged the Department to progress the development of the NSW Water Strategy to provide an overarching framework and objectives that would guide the 12 regional water strategies and the associated implementation plans. Since that time, the NSW Water Strategy has been released for public consultation and finalised.

The long list of proposed options drew extensive feedback. Many included a preference for existing government commitments to be subject to the same rigorous assessment process as the other long listed options.

The Department also heard that the next phase of the Macquarie-Castlereagh Regional Water Strategy should be accompanied by an open, transparent and broad scale consultation process to ensure all stakeholder voices are being heard and a broad cross-section of the community is represented in the discussion. We will be undertaking a further round of public consultation on a shortlisted set of actions before the Macquarie-Castlereagh Regional Water Strategy is finalised.

We also heard that there is significant interest in the new climate datasets and updated modelling. Stakeholders urged the Department to publicly release the new datasets to allow communities to better prepare for future climate risks. We are currently working on a process to make this happen.



Many stakeholders appreciated the opportunity to provide feedback to the draft strategy documents and reinforced the need for clarification on how the regional water strategies align and integrate with existing instruments such as the Murray-Darling Basin Plan and the NSW Water Management Act, and with ongoing work programs such as the strategies for regional town water, drought relief and regional economic development.

There was support for collaboration amongst all levels of government, their agencies and water authorities, in the ongoing development of the regional water strategies.

The consultation and engagement program for the draft strategy highlighted a wide variety of views on a range of issues. These issues can be categorised under the following themes:



Climate and modelling



Aboriginal knowledge and cultural heritage



New and existing water infrastructure



Environmental and ecosystem health



Entitlement reliability and risk management



Groundwater



Water Security

The following section summarises the feedback received for each of these themes.

The draft strategy also included a long list of proposed options for the region. This long list is included on page 17. Feedback was received on each option and is summarised in the Options section.

A scenic landscape featuring a large, gnarled tree in the foreground, a body of water reflecting the scene, and a bridge in the background. The tree has thick, textured branches and dense green foliage. The water is calm, reflecting the sky and the surrounding greenery. In the background, a bridge with a lattice structure spans across the water. The overall scene is bright and clear, suggesting a sunny day.

Themes



1. Climate and modelling

Stakeholders expressed interest in the development of the new climate datasets and updated modelling but raised some concerns about how it would be used in future decision-making processes. Stakeholders requested the release of the final report prepared by the Office of the Chief Scientist and Engineer on the review of the regional water strategies climate risk methodology.

Key support

- There was support for the modelling, and the transparency and consistency that it has brought to the Strategy.
- Climate data and modelling should be made available to assist communities and councils in their planning, including in such activities as the Integrated Water Cycle Management development.
- Public release of the report prepared by the Office of the Chief Scientist and Engineer on climate change was well supported.
- Encouragement to update the drought of record for the purpose of developing the Strategy.

Key concerns

- The impact of future water management decisions if the worst-case scenario in the new climate modelling, versus a likely or other scenario, is adopted.
- That the new data should be shared with local water utilities, communities and agencies to ensure a consistent basis for future climate risk planning.
- Concern that the drought of record currently being used in water management decision-making is not representative of current conditions.
- Limited information about the link between the new modelling, groundwater sources and the impacts on water quality.
- Questions of accuracy and the role of stochastic modelling in the statistical analysis used in the development of the draft strategy.
- Clarifications sought on specific data modelling inclusions, source data and parameters used in the modelling that supported the Strategy development.



2. Aboriginal knowledge and cultural heritage

There was broad support around improving the recognition of First Nations/ Aboriginal People's water rights, interests and access to water, as well as for the proposed options that integrate Aboriginal water management knowledge, protection of cultural heritage and creation of employment for First Nations/ Aboriginal People. Suggestions were made for further consultation and improvements to education and support on complex water policy and processes.

Key support

- Acknowledgement that genuine consultation with First Nations/Aboriginal People through this process can provide an important step in addressing past disparities and resetting the water agenda with these communities.
- Recognition of the significance of Aboriginal cultural knowledge, protection of cultural heritage and improvement of cultural outcomes was welcomed.
- General support for Aboriginal community options that support people on Country looking after Country – particularly the establishment of a Regional Aboriginal Water Advisory Committee and the River Ranger Program.
- Support to develop and implement mechanisms to support Aboriginal water rights in partnership with First Nations.
- Options that advance employment opportunities and improve outcomes for First Nations/Aboriginal People were supported.
- Involvement of local First Nations/ Aboriginal People in the design and implementation of proposed programs in the draft strategy.
- Simplifying the application process around applying for Aboriginal cultural water licences and providing clear and transparent information on their use.
- Opportunities to integrate Aboriginal knowledge in the development of other options, including environmental, groundwater and land use options, as well as to assist in their implementation.
- Education in water management, through the proposed River Ranger Program, as well as through traineeships or curriculum for older secondary school students, was encouraged.

Key concerns

- Concern that options relating to programs involving First Nations/ Aboriginal People were not detailed enough to provide feedback.
- Complexity of water policy and laws, and the process for water licences, was highlighted, along with the need to develop tailored resources to help empower Aboriginal communities.
- The need for protection of cultural heritage sites in the region, in particular the carved trees.
- The tension between mapping culturally significant sites for the purpose of protection, versus retaining confidentiality of culturally significant information, was raised.
- The essential need for access to Country, including waterways, was raised as a concern in the region.



3. New and existing water infrastructure

There were mixed views on some of the proposed new infrastructure options. Some stakeholders expressed the view that infrastructure development should only be undertaken after rigorous assessment and consultation.

Key support

- Acknowledgment that a balance is required in the appropriate application of pipelines, dams and weirs, to meet the needs of the environment and community and water users.
- Strong support for initiatives that would reduce demand instead of increasing supply.
- Removal of built barriers to enable natural flows was supported by some stakeholders.
- Cost-effective infrastructure options that provide water security and improved reliability to communities.
- Inclusion of local Council-owned water infrastructure in the considerations of the Strategy.
- Review of operational protocols for infrastructure to ensure they are meeting their objectives, for example regarding fishways, regulators and cold-water pollution mitigation measures.
- Building of the planned fishways was supported.
- Support for options that helped improve the efficiency of water delivery- this included some support for the Macquarie re-regulating weir.
- Support for options that helped diversify and link town water supply through grid networks.

Key concerns

- Concern for construction of anything that would interfere with natural water flows.
- Polarised views on some infrastructure options including the Macquarie re-regulating weir and the proposed Burrendong Dam to Nyngan pipeline. Some stakeholders supported these actions because they could help improve the delivery to the lower end of the system, other stakeholders opposed it because of concerns about impacts on the environment and cultural needs.
- The current condition and ongoing maintenance programs of existing infrastructure that are having negative impacts, such as silting.
- Too much focus on water-related infrastructure instead of sustainable resource management and use.
- Impacts on communities affected by construction of new infrastructure, during and following construction.
- Clarification was sought regarding the ownership of, and funding for, new and existing water infrastructure.
- Clear policy needed to support intra- and inter-regional water transfers via pipelines.
- Concern was raised for potential negative environmental outcomes following construction of new infrastructure, including impacts on native fish populations, threatened species under stress, impeding natural flows to downstream ecosystems and overall river health.



4. Environmental and ecosystem health

There was focus in the feedback on the preservation and restoration of the Macquarie Marshes, along with the overall ecosystem of the river, through restoration of unhindered natural flows. Feedback encouraged exploration of land management options, maintaining water quality and prioritising the environment in decision making.

Key support

- Sustainable water use should be the focus of the strategy with options that protect the environment, ecosystems and water sources, as well as enable connectivity.
- Preservation and conservation of the Macquarie Marshes and the enabling of natural flows to reach them.
- Ongoing health of the river, its flora and fauna, should be encouraged through natural unhindered river flows.
- Strong support for improving native fish populations, including the construction of outstanding fish passage infrastructure.
- Focus on resilient water resources and sustainable water use, downstream connectivity and natural flows to improve the conditions of natural habitats.
- There was considerable support for the options that enable connectivity of the Macquarie-Castlereagh to the Barwon-Darling.

Key concerns

- The strategy leans towards fostering growth of water-dependent industries instead of focusing on sustainable use of water.
- Connectivity of the river systems should be reflected in the regional water strategies with consideration for the impact that each river has on others, within and across the regions.
- Potential environmental impacts if large scale infrastructure projects are progressed.
- The drying out of the Macquarie Marshes is threatening the environment.
- That silting and sedimentation of the Macquarie Marshes is resolved through restoration of natural flows.
- The concerns expressed regarding proposed infrastructure options were mainly with regard to the restoration and preservation of the environmental and ecosystem health in the Macquarie-Castlereagh region.



5. Entitlement reliability and risk management

Stakeholders expressed concern for the over-allocation of water licences given the challenges on water supply in the region during recent drought conditions. Compliance, policing and prosecution for breaches of allocations and licence conditions were raised as an issue in the region. Education and information were supported to enable risk management and improved preparedness.

Key support

- A more efficient regulatory and administrative framework to support water users and to be more adaptable and responsive to changing circumstances, future climate and rainfall patterns.
- Preference expressed for the focus of the draft strategy to be on reducing and managing water demand versus increasing water supply; to use available water in a sustainable way.
- Promote measures to reduce water use to be less dependent on the river systems and groundwater sources.
- A review of the impact being realised now in the system, from water licences issued in the past, was supported.
- There was mixed feedback on buy back of licences. Some stakeholders supported more licence buy backs, either because they felt water management changes may mean their businesses are not viable or because they felt licences in the water source were over allocated, while other stakeholders expressed concerns about an over recovery of water for the environment in the region.
- The importance of ensuring a high level of water security for towns without compromising reliability for other licence holders was acknowledged.
- Stakeholders were interested in gaining access to new datasets, models and modelling results, to support individuals to better manage their own risks.
- Education on water allocations and general water literacy was welcomed.

Key concerns

- Compliance issues and the policing and prosecution of breaches need to be improved.
- Concern that the water licences in the Macquarie-Castlereagh region are over-allocated and that this needs to be acknowledged and managed in the Strategy for the region.
- The reliability of some entitlements is low and could decline further with climate change and implementation of some of the proposed options.
- The suggestion was made for an impact assessment to be undertaken on relevant proposed options to assess the effects on entitlement reliability.



6. Groundwater

There was strong support for increasing knowledge of groundwater sources and the relationship between groundwater and surface water. There was concern that groundwater sources are already permanently damaged from recent periods of drought and could be under further stress during future extreme weather events.

Key support

- Protection of groundwater sources, with an emphasis on sustainable use, was supported.
- Interest was shown in how the climate and data modelling could be used to support sustainable groundwater use.
- The need for research into the connection between surface and groundwater, and the health and sustainable use of groundwater sources, was recognised. This was especially noted in regard to the increased dependence on groundwater sources during times of drought.
- The protection of high ecological value aquatic ecosystems (HEVAE) and groundwater dependent ecosystems (GDE), as groundwater is increasingly being used as a water source.
- Ongoing research, understanding and monitoring of groundwater sources; with consideration of managed aquifer recharge once this is investigated and understood further, was supported.

Key concerns

- Reported permanent reduction in groundwater levels in the region was raised.
- Clarity was sought on how the groundwater related options proposed in the draft strategy would be used for town water supply.
- Concern that there was ongoing damage to aquifers, as a result of over-reliance on groundwater, especially in times of drought.
- Concerns about future availability of groundwater given existing pressures.
- Aquifer recharge times were noted as an area of concern.
- Contamination of groundwater was a growing concern as groundwater use increased.
- There was a particular concern expressed for the impact of coal seam gas on groundwater quality.



7. Water Security

Recent extreme drought conditions in the region were at the forefront of feedback regarding water security. There was acknowledgement of the importance of town water for human consumption and the support of economic growth and prosperity. Support was strong for the exploration of innovative alternate water supplies.

Key support

- Reducing the demand for water and focusing on demand management rather than increasing supply, was strongly represented in the feedback.
- Collaboration with local government, water authorities and agencies, to share data and to develop and promote water efficiency programs, was encouraged and supported.
- Management of drought during the event, but also proactively planning to maintain water supplies during drought, was supported.
- Development of innovative alternative water supplies that reduce demand (including approaches like stormwater harvesting and recycling water) were supported. This was with respect to all major water users, including towns, mines, irrigators and farmers.
- Acknowledgement of the role of town water in supporting industry and thereby the economy, growth and prosperity of the region.
- Acknowledging the need for maintenance or replacement of aging water infrastructure in the region.
- Widespread re-use, reduce, recycle options including stormwater harvesting, as well as promotion of rainwater tanks in towns and communities, were encouraged.
- The need to establish an enduring governance framework for the regional water strategy development and implementation with local councils at the table.

Key concerns

- Reliability and security of the town water supply for Orange and Bathurst, as well as for vulnerable townships and communities such as Collie, drew strong concern. Feedback indicated that stakeholders felt the strategy may not adequately consider the risks for these towns.
- Submissions raised the need for a review and update of the drought of record used in the resource assessment process for water allocation in the region.
- Lack of proposed options specific to the Castlereagh River and catchment.
- Clarity was sought on where accountability sits for water management decision making during drought and other extreme weather events.
- Consideration be given to smaller communities outside of the major regional towns.
- Need for a clear definition of what critical human needs are in the context of the regional water strategies.

Options



Long list of proposed options in the draft Macquarie-Castlereagh Regional Water Strategy

Maintaining and diversifying water supplies	18. Undertake channel works to reinstate natural channel profiles in selected streams in the southern Macquarie Marshes	Strengthening community preparedness for climate extremes
1. Government commitment: A new mid system re-regulating weir on the Macquarie River	19. Formalise channel sharing arrangements	35. Investigation of licence conversions
2. Government commitment: Access water from Burrendong Dam's deep storage	20. Implement native fish restoration program	36. New drought operational rules (Macquarie River)
3. Managed aquifer recharge investigations and policy	21. Diversion screens to prevent fish extraction at pump offtakes	37. Review of regulated river water accounting and allocation process
4. Improving town water security in the upper Macquarie unregulated river system	22. Cold water pollution mitigation measures	38. Improved data collection and information sharing
5. Drought protocols for Bathurst and Oberon town water supply	23. Modification and/ or removal of existing flood work structures causing adverse impacts	39. Capacity building program: <ul style="list-style-type: none"> • new climate data/ modelling • managing groundwater resources sustainably
6. Inter-regional connections project investigation	24. Relieve flow constraints on the Cudgegong River at Rocky Waterhole Bridge	40. Investigation to maintain amenity for regional towns during drought
7. Reuse, recycling and storm water projects	25. Improved understanding of groundwater processes	41. Land use change impact on water resources
8. Burrendong Dam to Nyngan pipeline	26. Sustainable access to groundwater	Improving the recognition of with Aboriginal People's water rights, interests and access to water
9. Pipeline from the proposed new mid-system weir near Gin Gin to Nyngan	27. Improved clarity in managing groundwater resources sustainably	42. Culturally appropriate water knowledge program
10. Gunningbar Creek pipeline	28. Investigation of water quality mitigation measures	43. Water-dependent cultural practices and site identification
11. Increase Burrendong Dam's Full Supply Level	29. River Ranger Program	44. Shared benefit project (environment and cultural outcomes)
12. Increase outlet valve capacity at Burrendong Dam	30. Secure flows for Beemunnel Aboriginal Place	45. Regional Aboriginal Water Advisory Committee
13. Reliable access to groundwater by towns	31. Connectivity with downstream systems	46. Water portfolio project for Aboriginal communities
Protecting and enhancing natural systems	Supporting water use efficiency and conservation	47. Aboriginal cultural water access licences review
14. Address channel constraints to delivering environmental flows to the Macquarie Marshes	32. End of system efficient stock and domestic water delivery options	48. Co-management investigation of Travelling Stock Reserves
15. NSW Fish Passage Strategy	33. Enterprise water use efficiency programs	49. Regional Cultural Water Officer employment program
16. Introduce flow variability in the distributary (effluent) creeks	34. Market measures to support Dubbo's town water supply	
17. Determine the feasibility of delivering water to the Talga Wetland/ Overflow of the Lower Crooked Creek		

Table 1: Long list of proposed options for the Macquarie-Castlereagh region

Existing government commitments 1-2 and options 3-13: Maintaining and diversifying water supplies

There was broad support for infrastructure and policy/planning options to address water security of towns and potential groundwater benefits. Concerns were raised about the impacts of infrastructure on natural flows, ecosystems and habitats.

Options	Summary of feedback received
<p>1. A new mid system re-regulating weir on the Macquarie River</p>	<ul style="list-style-type: none"> • There was mixed feedback on this proposal. Support focused on how this option could improve efficiency. Objections included concerns that this could restrict flows to the Macquarie Marshes and reduce connectivity to the Darling River, impacting on the health of the river system, habitats and ecosystems. • Affordability of this option was also raised as a concern. • This option was considered a potential benefit to groundwater recharge of the Great Artesian Basin.
<p>2. Access water from Burrendong Dam’s deep storage</p> <p>11. Increase Burrendong Dam’s Full Supply Level</p> <p>12. Increase outlet valve capacity at Burrendong Dam</p>	<ul style="list-style-type: none"> • Potential negative impacts on the flow of water to the Macquarie Marshes was cited in objections to any enhancement of the Burrendong Dam. • There was support for accessing water from deep storage, however a concern for potential contamination at the deeper levels was raised. • Some comments suggested that these options favoured industry and irrigation over the environment and would increase issues such as evaporation. • Impacts to water volumes were suggested to be assessed against the sustainable diversion limits and the Murray-Darling Basin Plan.
<p>3. Managed aquifer recharge investigations and policy</p> <p>13. Reliable access to groundwater by towns</p>	<ul style="list-style-type: none"> • There was considerable support for researching and gaining more information to support the long-term management and sustainable use of groundwater. • Concern was expressed for the increasing dependency on groundwater for town water supply and suggestions were made to implement ongoing water saving and efficiency measures to reduce this reliance.
<p>4. Improving town water security in the upper Macquarie unregulated river system</p> <p>5. Drought protocols for Bathurst and Oberon town water supply</p>	<ul style="list-style-type: none"> • There was support for all the options aimed at securing town water in the region. • Drought protocols were largely supported with suggestions to extend them to Orange, with high level water restrictions in place well before critical need triggers are met; some stakeholders did not support these protocols for Bathurst due to upstream water supply impacts.

Options	Summary of feedback received
<p>6. Inter-regional connections project investigation</p> <p>8. Burrendong Dam to Nyngan pipeline</p> <p>9. Pipeline from the proposed new mid-system weir near Gin Gin to Nyngan</p> <p>10. Gunningbar Creek pipeline</p>	<ul style="list-style-type: none"> Feedback on the pipeline options was mostly negative with opposition to interrupting natural flows and potential damage to creeks and habitats. There was support expressed for pipelines for emergency use for critical need, as well as to reduce water loss from seepage and evaporation. Piping the Albert Priest Channel was suggested as an alternative to the proposed Gunningbar Creek pipeline, to reduce water loss. The need for clear policy and governance to oversee the transfer of water between regions was highlighted. There was acknowledgement that pipelines could assist in emergency situations, with comments on environmental impacts to be considered.
<p>7. Reuse, recycling and storm water projects</p>	<ul style="list-style-type: none"> There was broad support for this option with an acknowledgement that re-use, recycling and storm water projects have not yet been undertaken on a large scale. Feedback suggested that planning and regulations would need to be reviewed and revised with a collaborative, state-wide policy, to encourage and support widespread implementation.

Options 14-31: Protecting and enhancing natural systems

The feedback supported the protection and maintenance of natural flows in the river system with a key focus on the conservation of the Macquarie Marshes. The proposed options in this category was supported for their focus on preservation or restoration of the natural characteristics of the river system.

Options	Summary of feedback received
<p>15. NSW Fish Passage Strategy</p> <p>20. Implement native fish restoration program</p> <p>21. Diversion screens to prevent fish extraction at pump offtakes</p> <p>22. Cold water pollution mitigation measures</p>	<ul style="list-style-type: none"> Addressing barriers to fish passage in the Macquarie catchment, improving the ability to achieve outcomes for native fish from environmental water deliveries and other flows, was strongly supported. In-stream rehabilitation activities were seen to improve the recovery of native fish species as well complement the use of environmental water. There was support for effective and reliable mitigation and measurement technologies for cold water pollution, in conjunction with appropriate operational protocols to be implemented.
<p>14. Address channel constraints to delivering environmental flows to the Macquarie Marshes</p> <p>18. Undertake channel works to reinstate natural channel profiles in selected streams in the southern Macquarie Marshes</p> <p>19. Formalise channel sharing arrangements</p>	<ul style="list-style-type: none"> Undertaking channel works and addressing channel constraints was supported for the positive impact these actions could have on the Macquarie Marshes and the overall health of the river ecosystem. Certainty for users was cited in support for the formalising of channel sharing arrangements, although any inference that natural streams and irrigation channels are synonymous was opposed.
<p>16. Introduce flow variability in the distributary (effluent) creeks</p> <p>17. Determine the feasibility of delivering water to the Talga Wetland/ Overflow of the Lower Crooked Creek</p>	<ul style="list-style-type: none"> Increased variability may improve aquatic ecology in these streams and depending on use (domestic or stock) additional water could be required. Concern was expressed for how flow variability would marry with the Water Sharing Plan.
<p>23. Modification and/ or removal of existing flood work structures causing adverse impacts</p>	<ul style="list-style-type: none"> Support for removal of barriers and outdated or decommissioned infrastructure throughout the Macquarie-Castlereagh catchment, was strongly supported.

Options	Summary of feedback received
24. Relieve flow constraints on the Cudgegong River at Rocky Waterhole Bridge	<ul style="list-style-type: none"> Support for these options was positive for their encouragement of natural flows and river connectivity. Raising of the bridge will allow for higher rates of release of environmental allowance thus providing improved ecological outcomes.
30. Secure flows for Beemunnel Aboriginal Place	<ul style="list-style-type: none"> Overall environment outcomes achieved through these options were supported, including improved riverine productivity, water quality, native fish and other aquatic animal populations.
31. Connectivity with downstream systems	
25. Improved understanding of groundwater processes	<ul style="list-style-type: none"> Feedback acknowledged that understanding groundwater processes, the interaction with surface water, and the recharge rate, are all fundamental to planning for our lower rainfall and hotter future.
26. Sustainable access to groundwater	<ul style="list-style-type: none"> There were objections to extraction above the sustainable diversion limits.
27. Improved clarity in managing groundwater resources sustainably	<ul style="list-style-type: none"> Information and research were recognised as being key to sustainable management of groundwater sources now and into the future.
28. Investigation of water quality mitigation measures	<ul style="list-style-type: none"> There was support for water quality mitigation measures, particularly in view of human critical needs.
29. River Ranger Program	<ul style="list-style-type: none"> There was strong support for this program with a particular focus on local First Nations/Aboriginal People using, learning and sharing knowledge of indigenous water management.

Options 32-34: Supporting water use efficiency and conservation

There was strong support for the investigation and implementation of water efficiency programs, in particular through the use of innovation and new technologies.

Options	Summary of feedback received
32. End of system efficient stock and domestic water delivery options	<ul style="list-style-type: none"> There were concerns regarding the potential environmental consequences of this option outweighing the possible benefit.
33. Enterprise water use efficiency programs	<ul style="list-style-type: none"> Support was strong for this option, with a view to possible standardised state-wide protocols for water restrictions, smart metering, water loss mitigation and community water efficiency programs.
34. Market measures to support Dubbo's town water supply	<ul style="list-style-type: none"> There were mixed reactions to this option. Support was expressed for exploring the option as an emergency measure only, and once the proposed research into groundwater sources was better understood. Opposition to this option was to subsidisation of the Dubbo town water supply through potentially buying up licences.

Options 35-41: Strengthening community preparedness for climate extremes

The proposed options in this category were generally supported with an overall caveat to support the ongoing health of the river and prepare to manage the system effectively during extreme conditions.

Options	Summary of feedback received
35. Investigation of licence conversions	<ul style="list-style-type: none"> Feedback was supportive of this option. Suggestion was made for a revision of regulatory rules for town water supplies to temporarily transfer high security water allocations to the diverse water sources. Consideration of the Basin Plan was raised in regard to this option.
36. New drought operational rules (Macquarie River)	<ul style="list-style-type: none"> Support for this option was in regard to having transparent and timely management and sharing of water during extended dry periods. Consideration of the Basin Plan, water sharing and water resource action plans, was raised in regard to this option.
37. Review of regulated river water accounting and allocation process	<ul style="list-style-type: none"> Given the changing climate and environmental needs, this option was supported.
38. Improved data collection and information sharing	<ul style="list-style-type: none"> This option would provide improved data and knowledge for the beneficial management and operation of the river and environmental water management.
39. Capacity building program: new climate data/modelling and managing groundwater resources sustainably	<ul style="list-style-type: none"> This action was seen as a high priority, with collaboration between the Department, local government and their agencies, to integrate the climate data and modelling into ongoing water management programs.
40. Investigation to maintain amenity for regional towns during drought	<ul style="list-style-type: none"> The concept of water sensitive cities was raised in the feedback, with support for communities to identify the amenities that are critical to be maintained during drought conditions.
41. Land use change impact on water resources	<ul style="list-style-type: none"> As land use change can have a significant impact on water resources, a strategic approach to land use planning and changes was supported.

Options 42-49: Improving the recognition of Aboriginal people’s water rights, interests and access to water

Options to protect and strengthen cultural landscapes, practices, knowledge and traditions, as well as to support empowerment, self-determination and economic advancement of First Nations/Aboriginal People and communities, were well supported in the feedback.

Options	Summary of feedback received
42. Culturally appropriate water knowledge program	<ul style="list-style-type: none"> • There was strong support for all options that improve First Nations peoples’ capacity, engagement and employment in water management; which recognise the significance of cultural knowledge; and that improve cultural outcomes.
43. Water-dependent cultural practices and site identification	<ul style="list-style-type: none"> • Understanding the water systems from a cultural perspective gives insight into how the water systems provide for communities, and these options were acknowledged in the feedback to support these outcomes.
44. Shared benefit project (environment and cultural outcomes)	<ul style="list-style-type: none"> • The water-dependent cultural practices and site identification option was suggested to be linked with the option to secure flows to water-dependent cultural sites.
45. Regional Aboriginal Water Advisory Committee	<ul style="list-style-type: none"> • Feedback encouraged involvement of local First Nations/Aboriginal People in the proposed programs for the Macquarie-Castlereagh region.
46. Water portfolio project for Aboriginal communities	<ul style="list-style-type: none"> • Options that deliver positive cultural, environmental and economic outcomes for First Nations/Aboriginal People were supported.
47. Aboriginal cultural water access licences review	<ul style="list-style-type: none"> • Simplified access to cultural water licences was supported.
48. Co-management investigation of Travelling Stock Reserves	
49. Regional Cultural Water Officer employment program	

Suggested additional options

Respondents provided suggestions for additional potential options. There were many suggestions that related to existing proposed options, offering enhancements or further detail, and these are being considered. The following table provides a summary of suggestions by stakeholders during the consultation processes. These ideas will be considered in the options assessment process which will form part of the next stage of the development of the Macquarie-Castlereagh Regional Water Strategy.

Topics	Summary of additional suggestions received
Technologies	<ul style="list-style-type: none"> • Consideration for off-grid containerised water treatment systems. • Invest in hydro-panels to provide stand-alone drinking water supplies for remote communities, replacing proposed pipelines. • Options for on-farm water saving initiatives.
Infrastructure	<ul style="list-style-type: none"> • Consider re-introducing the proposed Ulmurray Dam to the proposed list of options under this draft strategy. • Repair the existing Gin Gin weir with the fishway to offset the proposed augmentation of Burrendong Dam. • Consider removal of the Gin Gin weir. • Raise the Burrendong Dam wall by 6 metres. • Consider building dams behind the Burrendong Dam wall. • Consider construction of a dam on the Bell River. • Consider other pipeline connections, such as Warren Weir to Nyngan, Warren Bore field to Nyngan or Dubbo Weir to Nyngan. • Increase the capacity of Chifley Dam. • Consider upgrade of Nyngan to Cobar pipeline.
Development projects	<ul style="list-style-type: none"> • Invest in a research facility especially for agricultural water security, focused on developing science and technologies for drought resilience. • Investigate options similar to the Cultural Billabong Restoration project linking broader social and economic development and providing culturally appropriate employment with cultural and environmental outcomes. • Improving town water security in the Castlereagh and Talbragar unregulated system.
Operational and policy changes	<ul style="list-style-type: none"> • Consider option of a return flow policy. • Consider option around water order debiting for Burrendong Dam. • Review of urban water restrictions policy. • Consider streamlining the administration of the regulatory framework. • Consider a new cost sharing framework based on ‘user pays’ rather than ‘impactor pays’ principle that could account for and facilitate cost recovery of public interest/benefit items. • Consider changes to the release rules for Upper Macquarie town dams. • Consider changes to the cease to pump thresholds for towns. • Investigate provisions to allow greater access of water in the Fish River for towns.
Catchment Management	<ul style="list-style-type: none"> • Undertake riparian rehabilitation in the lower Macquarie River.

A scenic photograph of a river flowing through a forest. The sun is shining brightly from the upper right, creating a lens flare effect over the water. The river is surrounded by lush green trees and vegetation. A large, dark blue rectangular box is overlaid on the center of the image, containing the word "Response" in white, bold, sans-serif font. A thin red horizontal line is positioned directly below the text.

Response

Response to feedback

Since the publication of the draft Macquarie-Castlereagh Regional Water Strategy, the NSW Water Strategy had been developed. Some of the issues highlighted in the Macquarie-Castlereagh Regional Water Strategy and from communities in the Macquarie-Castlereagh region are consistent challenges across the State. These state-wide issues have been included as priority focus areas in the NSW Water Strategy and are outlined below.

Your feedback has been used to refine the key challenges that we need to focus on in the final Macquarie-Castlereagh Regional Water Strategy, and the options that will be shortlisted for further investigation.

Further consultation

We have heard and accepted your feedback requesting more consultation on the regional water strategies, and a greater say in how options are shortlisted and prioritised.

As a result, we will be undertaking public consultation on shortlisted actions before the Macquarie-Castlereagh Regional Water Strategy is finalised.

New climate data

The new climate datasets and updated modelling that underpin the draft Macquarie-Castlereagh Regional Water Strategy are an important advance on previous climate work. We can now better assess the likelihood of a range of drought conditions, and the impacts on surface water security and reliability over a much wider range of climate conditions. This is a major improvement from our previous reliance on the observed historical records only.

The key next step is to work with the community to detail how this climate data should be used. This may include establishing the risk appetite of the community and identifying which historical droughts should be used as the basis for water management.

A priority action in the NSW Water Strategy is for the NSW Government to review water allocation frameworks and water sharing plan provisions in response to new extremes in water availability. This will include exploring risk management approaches for a more adaptive water allocation and accounting framework, and understanding how the new climate data can inform this work. Progressing this requires detailed and focused engagement with the community. It cannot happen overnight. It also depends on communities having a workable understanding of these risks, and conversations with communities about the level of risk they are willing to accept.

The new climate data is already being used in business cases to assess the impacts and benefits of proposed major state water infrastructure. This information will be useful for local water utilities and other stakeholders in assessing the long-term water security of individual towns. Making this data available in a useable format is a priority under the Town Water Risk Reduction Program.

As with all types of science, we need to continually improve the data. The next steps in continuing to improve the climate data and modelling method will be to apply it to assess climate impacts on groundwater and associated risks. This is being progressed through the Groundwater Strategy.

Aboriginal water rights

One of the primary objectives of the draft Macquarie-Castlereagh Regional Water Strategy is to recognise and protect Aboriginal water rights, interests and access to water. It is also priority number 2 in the NSW Water Strategy.

The Department remains committed to engaging with First Nations/Aboriginal People in the region as we progress through the options assessment process, and the development of the final Macquarie-Castlereagh Regional Water Strategy and the Aboriginal Water Strategy.

Unlike many other challenges in the region, the fundamental water rights of First Nations/Aboriginal People is still a major gap in water management across NSW and the Basin. Addressing this issue will be progressed through a State Aboriginal Water Strategy. Opportunities to progress region-specific Aboriginal community options, in parallel with this state-level action, will be explored in the final Macquarie-Castlereagh Regional Water Strategy.

Environmental health and connectivity across basins

The feedback on the draft Macquarie-Castlereagh Regional Water Strategy was supportive of the options to improve environmental health and connectivity across the Northern Basin.

It reinforced that there is no agreed definition or understanding of ‘connectivity’, or what an acceptable level of connectivity is across the community. The issue of connectivity will impact multiple connected catchments across the Northern Basin and will be progressed through the Western regional water strategy. This is also addressed by action 3.7 of the NSW Water Strategy which commits the government to working with communities to better understand and improve system connectivity.

Integrating land-use and water management

There is an important link between land use and water management. How land is used determines water management needs – whether water is servicing urban developments or being provided to other uses (including industry, environmental, cultural or recreational needs). Land use planning decisions and development control also have a key role to play in protecting water sources for supply, on the health and stability of waterbodies, and on receiving water quality.

Future water reliability and security in a changing climate will be critical to land use, urban development planning decisions and industry development initiatives in regional NSW. In particular, there is an opportunity to consider water availability and impacts much earlier and more strategically through the planning system. We have begun this work by using the evidence in the regional water strategies to inform the next generation of regional plans being considered throughout regional NSW.

The NSW Water Strategy has committed to better integrate land use planning, development approvals and water management (NSW Water Strategy Action 4.4) across the state. In addition, the NSW Water Strategy commits to adopting a more intense, state-wide focus on improving water quality (NSW Water Strategy Action 3.5) through the definition of clear roles, accountabilities and frameworks for monitoring, assessing and addressing water quality risks across the state.

The Department of Primary Industries – Agriculture is undertaking a three-year program to identify and map important agricultural land. Knowing where this land is situated and understanding value and contribution to the state’s economy and food security will assist in making decisions about current and future land uses and their water needs. A comprehensive and consistent approach to collecting water statistics and related information will greatly help this process.

Water reliability and infrastructure

Individual infrastructure options will be assessed as part of the rapid cost benefit analysis when shortlisting the options. Each infrastructure option has separate benefits, costs and impacts localised to the area and the catchment.

Next steps

Your feedback during the public exhibition will help us to refine the key challenges that the strategy needs to focus on improving, and which of the 49 proposed options listed in the draft Macquarie-Castlereagh Regional Water Strategy should be shortlisted to help address these challenges. Your feedback has also identified a number of new options that will be assessed.

The next steps in our engagement will be to seek your views on the shortlisted

actions before the Macquarie-Castlereagh Regional Water Strategy is finalised. Your ongoing engagement is important to ensure we are identifying solutions for the Macquarie-Castlereagh region that meet the vision and needs of communities, industries and the environment.

A final package of actions will be presented as part of the final Macquarie-Castlereagh Regional Water Strategy and associated implementation plan. This is scheduled for release in 2022.

More information:

www.dpie.nsw.gov.au/regional-water-strategies

