

Submission Questionnaire

Draft Macquarie-Castlereagh Regional Water Strategy - Submission Form



Regional Water Strategies Public Exhibition Submission Questionnaire

The NSW Government is taking action to improve the security, reliability, quality and resilience of the state's water resources. The Macquarie-Castlereagh Regional Water Strategy will deliver healthy and resilient water resources for a liveable and prosperous regional NSW.

This draft strategy is being developed by the Department of Planning, Industry and Environment and provides an opportunity to re-shape what we are doing in regional water management and chart a path forward.

We have been working with local water utilities, councils, communities, Aboriginal people and other stakeholders to ensure local and traditional knowledge informs the draft Macquarie-Castlereagh Regional Water Strategy and that it serves the regional community, including First Nations, the environment and industry.

Your Voice is important

We have prepared this draft strategy to continue our discussions with you. We would like to hear your views on the draft strategy as a whole including the process we used to develop the strategy and the evidence that supports it. We are also seeking your feedback on the options presented in the draft strategy and whether you have any further information that could help us to assess the benefits and disadvantages of any of the options.

Please provide your feedback in the submission form below and email your completed submission to regionalwater.strategies@dpi.nsw.gov.au or post to Regional Water Strategies, Department of Planning, Industry and Environment, Locked Bag 5022, Parramatta NSW 2124 by **13 November, 2020**.

The questionnaire includes general questions about the regional water strategy including objectives, vision, modelling, opportunities and challenges. It also includes questions regarding the draft options along with personal information questions.

The questionnaire will take approximately 15 minutes to complete and your response can remain anonymous if you wish (see question 3).

Questions marked with an asterisk (*) require an answer.

If you have any questions about the questionnaire, please email:
regionalwater.strategies@dpi.nsw.gov.au

Making your submission public

We collect information about you, which may include personal information, to assess submissions in response to the department's dealings and activities, and perform other functions required to complete the project. This information must be supplied. If you choose not to provide the requested information we may not be able to assess your submission.

To promote transparency and open government, we intend to make all submissions publicly available on our website, or in reports. Your name or your organisation's name may appear in these reports with your feedback attributed.

If you would like your submission and/or feedback to be kept confidential, please let us know when making your submission. You will be asked for your confidentiality preference at question 1.

If you request your submission be kept confidential, it will not be published on our website or included in any relevant reports, however it will still be subject to the *Government Information Public Access Act 2009*.

Your submission will be stored securely consistent with the department's Records Management Policy and you have the right to request access to, and correction of, your personal information held by the department.

Further details can be found in our privacy statement available on our website.
<https://www.industry.nsw.gov.au/privacy>

Information from this form is collected for the purpose of receiving your feedback on the draft regional water strategy. The supply of this information is voluntary. Your details will be stored in NSW Department of Planning, Industry and Environment records. Information will be stored and managed in accordance with provisions under the Privacy and Personal Information Protection Act 1998. It will not be used for any other purpose and will not be given to any other third party except where required by law. To access or correct your personal information, contact us using the information at [dpie.nsw.gov.au/contact](https://www.dpie.nsw.gov.au/contact)

1. Information on confidentiality and privacy *

I give my permission for my submission to be publicly available on the NSW Department of Planning, Industry and Environment website.

Yes No

I would like my personal details to be kept confidential.

Yes No

2. Your details

Email address *

Name *

Address *

Contact phone number *

Do you identify as an Aboriginal person?

Yes

No

Are you an individual or representing an organisation?

Individual

Organisation

3. Organisation or business details

Who do you represent?

Government:

Commonwealth

New South Wales

State other

Local

Local Water Utility

Peak representative organisation:

Environment

Industry

Business group or business chamber

Community organisation

Other

Joint Organisation of Councils

4. Draft regional water strategy objectives and vision

The draft Macquarie-Castlereagh Regional Water Strategy is one of 13 strategies (12 regional water strategies and a Greater Sydney Water Strategy) being developed by the department. All regional water strategies are being developed in line with the following objectives.

- **Deliver and manage water for local communities**
 - Improve water security, water quality and flood management for regional towns and communities.
- **Enable economic prosperity**
 - Improve water access reliability for regional industries.
- **Recognise and protect Aboriginal water rights, interests and access to water**
 - Including Aboriginal heritage assets.
- **Protect and enhance the environment**
 - Improve the health and integrity of environmental systems and assets, including by improving water quality.
- **Affordability**
 - Identify least cost policy and infrastructure options.

All draft regional water strategy options need to address at least one of the above objectives. Our vision for this strategy is to have healthy and resilient water resources (that withstand extreme events and adapt to these changes) for a liveable and prosperous Macquarie-Castlereagh region.

To achieve this, we need to position the region so there is the right amount of water of the right quality, delivered in the right way to meet the future needs of Aboriginal people, towns, communities, industries and the environment.

Do you support this vision for the Macquarie-Castlereagh Regional Water Strategy?

Yes

No

If no, please outline your vision for the long term management of water resources in this region?

The CNSWJO Board supports this long-term vision for strategic water management in regional NSW as well as a more collaborative whole-of-Government approach with Local Government at the table as a partner with the State and Federal Governments.

5. Information and modelling used to develop the Macquarie-Castlereagh Regional Water Strategy

The draft Macquarie-Castlereagh Regional Water Strategy packages the most up to date information and evidence with all the tools we have – policy, planning, behavioural, regulatory, technology and infrastructure solutions.

We have used the following information to develop the draft Macquarie-Castlereagh Regional Water Strategy.

- **New climate data:**
 - Observed historical climate data - recorded rainfall, temperature and evaporation data.
 - Paleoclimate data - scientific reconstructed data using sources such as tree rings.
 - Climate drivers – key drivers of wet and dry periods.
- **Review of existing studies**
 - to identify drivers and risks for water resource management.
- **Community engagement:**
 - Local councils and joint council organisations.
 - Aboriginal peak bodies and Aboriginal community groups.
 - Review of previous water management consultations.

A) Do you have any comments about the information used to develop this strategy?

Central NSW Councils welcome the development of the Macquarie-Castlereagh Regional Water Strategy in pulling together the latest in climate data, information from the many studies undertaken on the catchment including the Centroc Water Security Study and for engagement with the Central NSW Joint Organisation and its member Councils in its development.

B) Please provide details if there is additional information you think we should consider?

Further to advice provided in response to A) and our previous correspondence (provided as an attachment) on the methodology to be used to assess the regional water functions and estimate the value of these functions, additional information must be considered on the value of urban water and the social and economic impacts of long term water restrictions and 'day-zero' scenarios on regional communities.

6. Stochastic modelling method

We used a stochastic modelling method (based on the statistical characteristics of the new climate data) in order to get a dataset covering up to 10,000 years. This enables us to quantify the natural variability and extremes in the region with greater certainty.

A) Do you have any comments about the modelling method used to develop this strategy?

In response to the Millennium Drought, Central NSW Councils completed their national award winning Centroc Water Security Study which used stochastic modelling to forecast urban demand for the region's towns for a 50-year horizon through to 2059. The region continues to advocate for stochastic modelling using NARCLIM climate change data to provide advice on worse case scenarios.

B) Is there any additional information that you believe could help us assess the benefits and disadvantages of draft options?

Please refer to our response to 5B)

Where commentary is made in our supporting correspondence, Option 39 is seen as a high priority as without shared modelling there is little chance of defining any shortfall and prioritising other options for water security.

7. Opportunities and challenges for water management in the Macquarie-Castlereagh region

During the Macquarie-Castlereagh Regional Water Strategy drafting stage, the following opportunities, risks and challenges were identified.

- **Climate conditions combined with current operation assumptions are placing the region's water resources under stress**
 - Region has a naturally variable climate that needs to be planned for.
 - Decreased inflows to dams in the region.
 - Increased potential for droughts.
 - Challenges in delivering water to the end of the system.
- **Need to rethink how we manage water in the region**
 - Improved understanding of extreme events needs to be included in water allocations.
 - Greater transparency about water security risks.
 - New water infrastructure needs to support population growth centres.
 - New measures to reduce demand and improve water efficiency is needed.
 - Rethink the types of industries in the region to reduce water demand and use water more efficiently.
- **Water is essential for Aboriginal people's health, wellbeing and connection to Country:**
 - The health of the waterways impacts wellbeing.
 - Current cultural water entitlements do not meet the needs of Aboriginal people.
 - Opportunities to include Aboriginal people's involvement in water management.

- **Critical environmental assets need to be protected**
 - Healthy water sources support the region's environment.
 - River ecosystems are under stress.
 - Future actions should support environmental outcomes across the whole system including the Macquarie Marshes.
- **Better management of groundwater**
 - Groundwater sources are critical and need to be used more efficiently.
 - More knowledge is needed about groundwater recharge rates.

A) Do you have any comments on the opportunities, risks and challenges identified?

The greatest risk and challenge through the recent drought has been the lack of management of the unregulated Macquarie in the interest of town water supplies for the regional centres of Orange and Bathurst and the management of the Oberon Dam by WaterNSW for the township of Oberon. Long-term water security for these towns and the township of Molong and options to address it are critical and require a more targeted approach.

B) Are there any additional opportunities, risks and challenges that we should consider and what options could address these?

All comments relate to options as they impact on the CNSWJO Councils in the unregulated Macquarie system. It is suggested that this system warrants separate handling and options given the specific challenges we have seen through the recent drought.

Further to 7 A) with reference to the Regional Water Strategy Guide page 44, the intention is for the

8. Draft Macquarie-Castlereagh Regional Water Strategy options

We have developed a long list of options that could be included in the final Macquarie-Castlereagh Regional Water Strategy. The options consider the opportunities and challenges facing the region and meet at least one regional water strategy objective.

The 49 options are grouped in different categories, being:

- maintaining and diversifying water supplies.
- protecting and enhancing natural ecosystems.
- Supporting water use efficiency and conservation.
- strengthening community preparedness for climate extremes.
- improving recognition of Aboriginal people's water rights, interests and access to water.

Only feasible options will be progressed to the final strategy stage – following a rigorous assessment process. We are seeking your feedback to inform the options assessment process.

Draft options for the Macquarie-Castlereagh Regional Water Strategy are outlined below.

Maintaining and diversifying water supplies

- | | |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1. A new mid system re-regulating weir on the Macquarie River | 7. Reuse, recycling and stormwater projects |
| 2. Access water from Burrendong Dam's deep storage | 8. Burrendong Dam to Nyngan pipeline |
| 3. Managed aquifer recharge investigations and policy | 9. Pipeline from the proposed new mid-system weir near Gin Gin to Nyngan |
| 4. Improving town water security in the upper Macquarie unregulated river system | 10. Gunningbar Creek pipeline |
| 5. Drought protocols for Bathurst and Oberon town water supply | 11. Increase Burrendong Dam's Full Supply Level |
| 6. Inter-regional connections project investigation | 12. Increase outlet valve capacity at Burrendong Dam |
| | 13. Reliable access to groundwater by towns |

Protecting and enhancing natural ecosystems

- | | |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 14. Address channel constraints to delivering environmental flows to the Macquarie Marshes | 23. Modification and/or removal of existing floodwork structures causing adverse impacts |
| 15. NSW Fish Passage Strategy | 24. Relieve flow constraints on the Cudgegong River at Rocky Waterhole Bridge |
| 16. Introduce flow variability in the distributary (effluent) creeks | 25. Improved understanding of groundwater processes |
| 17. Determine the feasibility of delivering water to the Talga Wetland/ Overflow of the lower Crooked Creek | 26. Sustainable access to groundwater |
| 18. Undertake channel works to reinstate natural channel profiles in selected streams in the southern Macquarie Marshes | 27. Improved clarity in managing groundwater resources sustainably |
| 19. Formalise channel sharing arrangements | 28. Investigation of water quality mitigation measures |
| 20. Implement a native fish restoration project | 29. River Ranger program |
| 21. Diversion screens to prevent fish extraction at pump offtakes | 30. Secure flows for Beemunnel Aboriginal Place |
| 22. Cold water pollution mitigation measures | 31. Connectivity with downstream systems |

Supporting water use and delivery efficiency

- | | |
|-----------------------------------------------------------------------|----------------------------------------------------------|
| 32. End of system efficient stock and domestic water delivery options | 34. Market measures to support Dubbo's town water supply |
| 33. Enterprise water use efficiency programs | |

Strengthening community preparedness for climate extremes

- | | |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 35. Investigation of licence conversions | 39. Capacity building program:
- new climate data/modelling
- managing groundwater resources sustainably |
| 36. New drought operational rules (Macquarie River) | |
| 37. Review of regulated river water accounting and allocation process | 40. Investigation to maintain amenity for regional towns during drought |
| 38. Improved data collection and information sharing | 41. Land use change impact on water resources |

Improving recognition of Aboriginal people's water rights, interests and access to water

- | | |
|----------------------------------------------------------------|--------------------------------------------------------------|
| 42. Culturally appropriate water knowledge program | 46. Water portfolio project for Aboriginal communities |
| 43. Water-dependent cultural practices and site identification | 47. Aboriginal cultural water access licences review |
| 44. Shared benefit project (environment and cultural outcomes) | 48. Co-management investigation of Travelling Stock Reserves |
| 45. Regional Aboriginal Water Advisory Committee | 49. Regional Cultural Water Officer employment program |

A) Which five (5) options do you think are most important?

Please list the option numbers in order of importance with the first option being most important

Option Number

Option Number

Option Number

Option Number

Option Number

B) Please comment on why you think these options are most important?

It is difficult to rank options in this way as it is likely to be a combination of options that will achieve the best results. This will become evident through the feasibility studies and more detailed analysis of options proposed. See correspondence suggesting a more targeted approach to options for the unregulated Macquarie system.

C) Which five (5) options do you think are least important (if any)?

Please list the option numbers in order of least importance with the first option being least important

Option Number

Option Number

Option Number

Option Number

Option Number

D) Please comment on why you think these options are least important?

These options are not so much, least important, but need to be expanded or recast.

Option 34- It is suggested that this is an emergency measure that should not be included in a regional strategy. This would be better addressed through other options like securing some of the Burrendong Dam's flood and dead water storage for High Security Town Water Supply and ensuring that management of Burrendong Dam

E) Do you have any comments on the draft options?

The key options that have implications for towns in the unregulated Macquarie - Bathurst, Orange, Oberon and Cabonne (options 4, 5 & 6) are very generic and high level given the level of town water security risk.

The CNSWJO would like to see specific options for the unregulated Macquarie system handled separately in the Strategy. This separation of the unregulated/unregulated downstream of Burrendong and unregulated

9. Option combinations

The option list provided in the draft strategy also identifies potential combinations of options. These combinations recognise that most options require associated works, further assessments and/or legislative, policy and planning changes to ensure they address the risks and challenges identified in the Macquarie-Castlereagh region and do not have unintended impacts.

A) Do you have any thoughts on how the options could be combined with other options?

In general, the CNSWJO Board support a multi-source approach to the supply of emergency water that enables options to be switched on or off as needed with these linked to State and local triggers.

As stated elsewhere option 39 informing option 4 is critical as without shared modelling there is little chance of

B) Are there additional options that we should consider?

See 9A. It is anticipated that with work to provide a better understanding of the risks to town water supplies, informed by regional water strategy modelling that other options for a network of pipelines to provide emergency water supplies to towns across the region may be picked up in subsequent versions of the Strategy.

10. Other comments

Do you have any other comments about the Macquarie-Castlereagh Regional Water Strategy?

Building on the great collaboratively between DPIE and the CNSWJO on the development of the Regional Water Strategies and recommendations by the NSW Auditor-General, the opportunity exists for DPIE and Joint Organisations to co-design a better approach to IWCM planning, procedures and instruments using new data and modelling (see Option 39).

11. How did you hear about the public exhibition of this strategy?

We are interested to know how you heard about the opportunity to make a submission. Please indicate the communication methods below:

- Newspaper
- Radio
- Department of Planning, Industry and Environment website
- Direct email
- Social media
- Have your say NSW Government website
- Communication from peak body
- Other

12. Additional Information and submission process

If you would like to provide any supporting documents to help us understand your view, please either, email these from the same email you provided in this form, or attach supporting documents to this form if you are returning your submission by mail.

All submissions on the draft Macquarie-Castlereagh Regional Water Strategy will be reviewed following the public exhibition period. Further targeted engagement will be undertaken along with the final phase of stakeholder engagement later in the year to review the final documents.



Please email your completed submission and supporting documents to regionalwater.strategies@dpie.nsw.gov.au



or post to Regional Water Strategies, Department of Planning, Industry and Environment, Locked Bag 5022, Parramatta NSW 2124 by 13 November, 2020.



Further details on all regional water strategies can be found on our website <https://www.dpie.nsw.gov.au/regional-water-strategies>

Thank you for your submission.

Extracted answers from fillable form above:

Question 7A.

The greatest risk and challenge through the recent drought has been the lack of management of the unregulated Macquarie in the interest of town water supplies for the regional centres of Orange and Bathurst and the management of the Oberon Dam by WaterNSW for the township of Oberon. Long-term water security for these towns and the township of Molong and options to address it are critical and require a more targeted approach.

The second greatest risk, challenge and opportunity for the Macquarie-Castlereagh Regional Water Strategy will be in its governance and implementation. The CNSWJO long-term vision for strategic water management in regional NSW is for a more collaborative whole-of-Government approach with Local Government at the table as a partner. This is particularly needed in the areas of planning, regulation and infrastructure prioritisation where management has historically been siloed across multiple State agencies and Councils and has led to some of the outcomes we have seen through the recent drought.

The CNSWJO welcomes advice in the Regional Water Strategies Guide about the inclusion in the final strategy of an implementation plan with clear timeframes, clearly defined roles, responsibilities and governance arrangements, well-defined opportunities for local and regional partnerships to deliver actions as well as a schedule for monitoring and reviewing each strategy and re-evaluating outcomes against any updates in available climate data. We seek early, meaningful, fit-for-purpose collaboration to co-design the implementation plan as partners to optimise outcomes in the strategic space.

The enabling of Joint Organisations within the strategic framework and solid engagement by DPIE on the development of the Regional Water Strategies presents the perfect opportunity to work collaboratively on sensible solutions and next steps on optimisation of a regional approach to IWCM, the Regional Town Water Strategies and the delivery of options from the Regional Water Strategies where there is potential for significant cost savings and other efficiencies. In addition is the opportunity of leveraging Joint Organisations in the prioritising of the long list of options. The risk of not doing this is missed opportunities from maximising the extensive knowledge and lived expertise of Council's in water management and in reflecting the priority of human consumption under the Water Act. Above all we cannot let our communities risk running out of water.

Question 7B.

All comments relate to options as they impact on the CNSWJO Councils in the unregulated Macquarie system. It is suggested that this system warrants separate handling and options given the specific challenges we have seen through the recent drought.

Further to 7 A) with reference to the Regional Water Strategies Guide page 11, the intention is for the development of Regional Town Water Strategies to be led by Joint Organisations. These are intended to assess and plan for regional solutions to town water supply and treatment across multiple local water utility boundaries and inform strategic urban water service planning in individual Local Water Utility IWCM Plans. Given this, it is critical that JOs have a seat at the table in the prioritisation of options and that there is a collaborative approach to the implementation of the RWS where the following options all have implications for the development of RTWS and require a better understanding of the risks to town water supply -informed by Regional Water Strategy modelling- See Options 4, 5 and 6.

Faced with 'day zero' our Council's expertise in multi-sourced water supply options and demand management initiatives have achieved some amazing results in reducing consumption in their communities. There is an opportunity to optimise these through a collaborative approach with Councils.

While water for human consumption is recognised as the highest priority for the WaterNSW dam network, there are challenges in delivering the water to towns and communities that we have seen through the recent drought. The next round of work needs to build on identified regional solutions and include access to the State-owned dams as well as inter-catchment connectivity for priority emergency water supplies.

Question 8B.

It is difficult to rank options in this way as it is likely to be a combination of options that will achieve the best results. This will become evident through the feasibility studies and more detailed analysis of options proposed. See correspondence suggesting a more targeted approach to options for the unregulated Macquarie system.

Option 39- without shared modelling there is little chance of defining any shortfall and prioritising other options for water security. Also as it may be used to delay funding specific projects.

Option 4 & 5- Improving Town Water Security informed by defining the shortfall from Option 39. This should also see permanent changes to operating licenses and approvals as we are stepping into High Level Water Restrictions rather than waiting till levels are near critical. Option 5 drought protocols - but this must be expanded to include Orange.

Option 35- but expanded to include a revision of regulatory rules for Town Water Supplies to temporarily transfer High Security Water Allocations to its diversified water sources.

Option 7- Recycling is a shortlisted project for both Orange and Bathurst and could become a viable alternative water supply in the short to medium term, providing the appropriate regulatory enabling. This cannot even be justified without the shared modelling in Option 39.

Projects not progressed (page 67) should be further reviewed under option 4.

Question 8D.

These options are not so much, least important, but need to be expanded or recast.

Option 34- It is suggested that this is an emergency measure that should not be included in a regional strategy. This would be better addressed through other options like securing some of the Burrendong Dam's flood and dead water storage for High Security Town Water Supply and ensuring that management of Burrendong Dam ensures water is reserved for Town Water Supply.

Option 5 drought protocols for Bathurst and Oberon should also be expanded to Orange and any other Water Utility that manages a Dam. To include permanent changes to operating licenses and approvals as we are stepping into High Level Water Restrictions rather than waiting till levels are near critical.

Option 6 - This should be expanded to include raising Lake Rowland's with a downstream Wall to 29GL to increase Central Tablelands Water's capacity as a bulk water supplier to support the region in the future.

Question 8E.

The key options that have implications for towns in the unregulated Macquarie - Bathurst, Orange, Oberon and Cabonne (options 4, 5 & 6) are very generic and high level given the level of town water security risk.

The CNSWJO would like to see specific options for the unregulated Macquarie system handled separately in the Strategy. This separation of the catchment (regulated downstream of Burrendong and un-regulated upstream of Burrendong) could also make the Strategy easier to manage in the options assessment and implementation phase and is important given that the unregulated part of the catchment has two major cities, Orange and Bathurst, that are growing.

Question 9A.

In general, the CNSWJO Board support a multi-source approach to the supply of emergency water that enables options to be switched on or off as needed with these linked to State and local triggers.

As stated elsewhere option 39 informing option 4 is critical as without shared modelling there is little chance of defining any shortfall and prioritising other options for water security. Also as it may be used to delay funding specific projects.

Question 10.

Building on the great collaboratively between DPIE and the CNSWJO on the development of the Regional Water Strategies and recommendations by the NSW Auditor-General, the opportunity exists for DPIE and Joint Organisations to co-design a better approach to IWCM planning, procedures and instruments using new data and modelling (see Option 39).

This proposal alleviates the need for DPIE to develop new internal procedures or establish new structures to guide and or support LWUs in the development and planning for Regional Town Water Supply Strategies and IWCMs.

Potentially financial savings and relationship value can be achieved by DPIE and Joint Organisations aligning strategic and integrated water planning. Such an approach would also develop a 'single bank of truth' for all parties in relation to the data and analysis.

Please see supporting correspondence from the Central NSW Joint Organisation providing detailed commentary on the consultation draft of the Strategy.

Regional Water Strategies
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

To whom it may concern,

Re: Macquarie-Castlereagh Regional Water Strategy Consultation-

The Central NSW Joint Organisation Board (CNSWJO) thank the Department of Primary Industry and Environment, Water (DPIE) for the opportunity to make comment on the consultation draft of the Macquarie-Castlereagh Regional Water Strategy (the Strategy) and for the opportunity to meet face-to-face with our members in Blayney on the

The region has welcomed the level of engagement by DPIE with Councils through-out the development of the Strategies. Where inter-government collaboration on regional water management has long been the missing piece, great inroads have been made to address this and to ensure that urban water is recognised in the strategic framework.

We still see great opportunities to maximise and align our region's extensive strategic thinking on water with the options outlined in the Strategy. To ensure this and the successful implementation of the Strategies, the governance and implementation plan must recognise Local Government as the voice of regional communities with considerable knowledge and lived expertise in managing water through extremely challenging 'day zero' scenarios.

Further to the work undertaken so far, the region consistently advocates for the opportunity to co-design consultations to ensure a fit-for-purpose process in collaborating on solutions with regional communities. With this said, we have completed the Regional Water Strategies Public Exhibition Submission Questionnaire and provide the following more detailed feedback.

In response to the draft Regional Water Strategy Guide and Macquarie-Castlereagh Regional Water Strategy we make the following commentary:

Overall:

We take this opportunity to re-visit our overriding priorities with respect to the Macquarie-Castlereagh Regional Water Strategy that have been included in our advocacy through-out the development of the Strategies for our region:

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

- ***the need for shared modelling***
 - we welcome option 39 in the long list of options which intends to provide greater transparency around water management and modelling and to inform councils in the development of their own integrated water cycle management strategies and Regional Town Water Strategies.
 - It is suggested that this option should be recast from a training and information sharing program on new modelling to a more collaborative approach.
 - The Urban Water Section of DPIE requires LWU's to use Guidelines developed in December 2013 which are still in "draft" ("*Assuring future urban water security, assessment and adaptation guidelines for NSW local water utilities*")
 - It is critical that option 39 informs options 4.
 - It is hoped that this option makes it through the optioneering process to the short-list of options.

- ***the need for implementation plan and collaborative structure to enable***
 - we still haven't seen the implementation plan and anticipate the provision of this in the final version of the Strategy. Again, the CNSWJO would like to work with DPIE to co-design this for our region to ensure the best possible outcomes.
 - we reiterate our key message, that Local Government is the voice of regional communities and, as detailed in response to the Questionnaire, well placed to inform decision-making about local issues as they impact on our communities.

- ***the need to address the big issues around water sharing and dam management***
 - in particular we welcome any options that seek to improve water security and reliability of supply for communities including industries in the unregulated Macquarie system through extreme events. The need for these options to be investigated with Local Government as a partner has been no more apparent than through the recent drought.

- ***the need to review all IWCMs in the region***
 - we welcome recognition in the Lachlan Strategy of the role that Local Government plays in managing water for its communities. This is not as well described in the Macquarie Strategy. We do, however, note reference to IWCMs on page 87.
 - It is evident in Option 7 that the Orange IWCM has not been considered.
 - the CNSWJO continues to advocate for greater alignment of IWCMs with the modelling undertaken for the Regional Water Strategies and the planned Regional Town Water Strategies. Commentary on this point and the great opportunity yet to be realised is made in response to the Questionnaire and in more detail below.

- ***the need for Local Water Utilities to have a seat at the table in the Options Assessment Process as described in the Guide***
 - Again, we continue to advocate for this and reiterate our key message, that Local Government is the voice of regional communities and, as detailed in response to the Questionnaire, well placed to inform decision-making about local issues as they impact on our communities.
 - This region has extensive knowledge and expertise in lived experiences through the millennium and more recent drought. This experience needs to be recognised and used to best advantage in the Options Assessment Process.
 - Commentary about managing risks from subjectivity in the Guide (page 64) are noted and we refute this with advice from the Productivity Commission and others including the Minister that water management requires a whole-of-government approach. Local Government is just that,

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

- the third level of government representative of all people in regional communities at the grass-roots level.
- While Council's have a core responsibility for providing town water supplies and have had to fight hard to have urban water integrated into the strategic framework for water management, their areas of operation cover the health and well-being of all members of their community including their Aboriginal population and the region's precious natural resources and its industries. This point must not be lost in any discussion about subjectivity or representation by Local Government in planning and decision-making processes at the regional level. We continue to advocate for the seat at the table in the Options Assessment Process.
- **clarity around the fit between the RWS and the proposed Regional Town Water Strategies and the role of the RTWS in the planning framework.**
 - we continue to see much overlap with tasks associated with a number of the options in the long list with the proposed Regional Town Water Strategies. Further commentary is provided in response to the Questionnaire and in commentary below.
 - Again, there is a great opportunity for collaboration with DPIE and the CNSWJO to align work required for the development of Regional Town Water Strategies and individual Council's IWCM Plans with options in the Regional Water Strategies that will avoid duplication, unnecessary costs and achieve better outcomes for both the State and Local Government , but most importantly our communities.
 - As detailed above, it is suggested that a RTWS for the unregulated Macquarie system is required as a sub-set of the overarching Macquarie-Castlereagh RTWS. This requires more thought and discussion between DPIE, the CNSWJO and Councils that includes WaterNSW.

General comments by page with relevant excerpts from the Strategy Guide and the draft Macquarie-Castlereagh Strategy are summarised below.

REGIONAL WATER STRATEGIES GUIDE

Guide Page 11

In addition, the NSW Government is supporting the development of Regional Town Water Strategies. Regional Town Water Strategies are led by Joint Organisations. They are intended to assess and plan for regional solutions to town water supply and treatment across multiple local water utility boundaries and inform strategic urban water service planning in individual Local Water Utility Integrated Water Cycle Management Plans. There are currently no Regional Town Water Strategies in NSW in place, however, Department of Planning, Industry and Environment—Water is working with a number of Joint Organisations on the development of and funding for regional town water supply strategies.

CNSWJO Comment: The opportunity exists to align modelling with the RWS and individual LWUs IWCMs where there are huge time/resourcing /costs associated. There is a bit of a 'cart & horse' issue here – why not get it right now?

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Regional water strategies will build on these reforms and help to identify and address any outstanding gaps. The strategies will play a key role in the ordering, sequencing and integration of these reforms within each region. Regional water strategies also provide an opportunity to coordinate the state-wide implementation of these

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reforms (where possible) and to explore how we can better integrate and shape them to improve water supply, security and quality

CNSWJO Comment: This supports the concept of regional IWCM and Regional Town Water Strategies using RWS modelling rather than racing ahead to do them now. Why not have a project that sequences these now providing better outcomes for government and communities and huge cost savings?

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Regional water strategies will match-up with the following NSW Government strategies to make sure that policy and investment decisions are aligned

This will ensure that regional water strategies use the same set of planning assumptions as other strategies focused on regional NSW, and do not incorporate options that run counter to these strategies or undermine their effectiveness. In the future, when these other strategies are updated, they will also take into account the objectives and options included in the regional water strategies.

CNSWJO Comment: Again, this has implications for Regional IWCM and RTWS development. Why when these will cost so much to develop would you not seek to sequence them – all for the sake of another 12 months until we understand the modelling may be made available to LWUs. An example here is Parkes Shire Council who have been advised by INSW that they need to use RWS modelling to complete a business case for an infrastructure project and that this will not be available for another 12 months.

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re Government Commitments it says:

These commitments and investments will not be screened out during the options assessment shortlisting process conducted for each regional water strategy (section 3.4). They will be considered as part of the options that are recommended in the final strategy. New evidence and data that we are gathering to develop regional water strategies will be available to inform these commitments and investments as well.

CNSWJO Comment: Noted.

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Regional water strategies will be underpinned by new climate data and modelling that improves our understanding of past climate conditions and plausible climate futures, and provides a more accurate picture of the frequency, duration and magnitude of extreme climate events such as extended droughts (Figure 12).

This improved climate data will be used in our river system models to gain a better understanding of the water security and reliability risks faced by water users and the environment within each region, and to investigate the potential benefits and impacts of options identified through the regional water strategy process.

CNSWJO Comment: The inter-relationship between the RWS and an individual utilities' IWCM means that there should be consistency of modelling approaches used.

While there does not appear to be any reference to shared modelling for councils IWCMs in the Guide, this is referenced in the Long List of Options in both the Macquarie and Lachlan Strategies (Lachlan Strategy – option 37) and Macquarie (option 39). Advocacy is suggested to recast this from a training and information sharing program on new modelling to a more collaborative approach. Councils are

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currently under pressure from DPIE to complete IWCM Plans at great expense using existing modelling. While the need for IWCM Plans is recognised by our members for the responsible management of a LWU, given the timeframes and costs associated and reflecting on the Auditor- General's recommendations, it would seem counter-intuitive to not collaborate to get this right.

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3. further targeted engagement with Aboriginal peak bodies, councils, local water utilities and joint organisations and Aboriginal communities in each region

CNSWJO Comment: It is understood that following the public exhibition phase the 'Expert Advisory Panel' will short-list options and then a further round of consultation on the short list will be undertaken.

See commentary made above regarding representation by Local Government in the short-listing phase. Where this could be someone from the Office of Regional NSW or OLG, concerns are to capture on-the-ground operational knowledge of LG LWUs in the short-listing of options phase. This is particularly needed where work to date on the Marsden Jacobs methodology has shown a lack of understanding of the real value of urban water to the region, the state and the nation.

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We have developed a decision-making process for the strategies to help assess the options and then combine them in a way that maximises the value of the region's water resources, now and for the future. This process will use the best and latest evidence, and a range of assessment tools to identify risks and opportunities associated with each option and assess individual options and packages of options in a transparent and consistent way.

The process is consistent with the NSW Government's policies for evidence-based decision-making and economic analysis. It is also consistent with the objectives of the NSW Water Management Act 2000 and with other policy obligations, including the Murray-Darling Basin Plan.

The decision-making process has four broad stages:

- 1. Filter the options.*
- 2. Understand risks and challenges and shortlist options.*
- 3. Create portfolios of options.*
- 4. Recommend a final portfolio of options.*

CNSWJO Comment: See comment above where there are concerns around how the Marsden Jacobs methodology will be applied – and its final form – which we are not privy to. Despite providing two submissions on this methodology, the extent to which we have been able to influence this is not known. As detailed above, appropriate representation from Local Government from the region is sought.

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We will also continue to meet with local councils, local water utilities, Aboriginal communities and other stakeholders to design a strategy that builds on their knowledge and capacity, is feasible in terms of implementation and links to relevant initiatives, plans and strategies.

CNSWJO Comment: Again – this is critical in terms of the inter-relationship with Councils IWCM Plans.

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The objectives, challenges, opportunities and options identified in the draft regional water strategies will be tested, evaluated and refined based on these inputs.

The final strategy for each region will include:

- *a final portfolio of actions approved by the NSW Government*
- *a plan for implementing the strategy within clear timeframes that includes existing commitments*
 - *clearly defined roles, responsibilities and governance arrangements for delivering each action or combination of actions*
- *well-defined opportunities for local and regional partnerships to deliver actions*
- *a schedule and plan for monitoring and reviewing each strategy. Critically, the monitoring and review program will identify if any key underlying assumptions in the strategy are no longer valid, and when a revision is required. This process will require regular re-evaluation of the strategy outcomes against any updates in the available climate data.*

CNSWJO Comment: We continue to advocate for a multi-agency approach as per James Mc Tavish's suggestion for the Lachlan Catchment (see below) that was replicated for the communities of Orange and Bathurst during the drought emergency and that included various State agencies and other Councils in Macquarie catchment - Central Tablelands Water, Cabonne, Blayney and Oberon. We hope to see this type of multi-agency and stakeholder approach in the final strategy.

In the Lachlan catchment, the Lachlan Valley Regional Town Water Drought Response Steering Committee has been established to facilitate and guide collaboration between NSW government agencies, Lachlan Valley Councils, and water reliant industries to:

- *Oversee the development, alignment and execution of plans and strategies to best utilise available water in Lachlan Valley LGAs and across the region in current drought conditions. This is to include the development of plans and strategies for recovery and recommencement of normal river and groundwater operations;*
- *Ensure plans and strategies consider the challenges and interests of relevant stakeholders, including commercial and industrial users;*
- *Ensure these plans and strategies are completed and executed in a timely fashion;*
- *Reconcile differences of opinion between stakeholders, and resolve issues as may arise;*
- *Align planning and response activities with longer term strategies in line with the Government's strategic objectives; and*
- *Inform and support activities supporting other communities in the region.*¹

The opportunity is for a Steering Committee along the lines of those formed by the Regional Town Water Supply Coordinator to also support the longer-term development of town water security and quality solutions across the region through the Regional Water Strategy not just to respond to the current drought emergency. The challenge is maintaining the continuity for groups such as this- where the JO is willing to take on a governance and facilitation role.

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Councils have raised the need for effective monitoring and review of the strategies.

¹ Lachlan Valley Regional Town Water Drought Response Steering Committee – Terms of Reference -June 2020
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CNSWJO Comment: As detailed above, we seek appropriate representation by Local Government from the region in any review and evaluation process. The CNSWJO seek input to the governance and implementation plans that the region has sought but which have not been addressed as yet.

COMMENTS ON GUIDE ATTACHMENTS

Guides Pages 42 – 53

CNSWJO Comment: the CNSWJO welcomes the great modelling work that is being done to inform the RWS and appreciate that this is on-going.

The question is at what point is this data and modelling available for application to the development of utilities' IWCMs? Particularly given the Government funding commitment for the development of IWCMs through the Safe and Secure Water Program stream 2. See comments above.

Surely it would be better to hold off until there is a new package of data and modelling that can be provided to Councils. With reference to the Auditor-General's recommendations on IWCM Plan management by DPIE, Councils in this region have previously been in the situation of spending \$100ks on IWCMs only to be told that they need to be done again as they aren't in line with subsequently updated guidelines- why not take the time and get it right now?

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CNSWJO Comment: We welcome the use of a stochastic approach as used in the 2009 Centroc Water Security Study.

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An Expert Advisory Panel was commissioned to provide advice on a consistent, objective and transparent methodology to assess the long list of options.

CNSWJO Comment: Did the Expert Advisory Panel include representation from Local Government?

When everyone from the Minister, senior water bureaucrats, the Productivity Commission to the NSW Auditor-General is calling for a more collaborative whole-of-government approach to water management, Local Government who is responsible for the provision of water to communities throughout regional NSW needs to be represented on these types of expert advisory panels. See commentary above.

Local Government needs to be represented by someone with on-the-ground working knowledge of the risks and challenges faced by regional NSW utilities to ensure ground truthing of methodologies that are being developed.

The CNSWJO welcomed the opportunity to have input to the review of the Marsden Jacobs Report but it is hard to influence this so late in the piece. Further, we have no idea whether our feedback has been taken into account as we are not privy to the final version of this methodology. Nor has our most recent submission made on 14 September been acknowledged. The region paid a premium price to obtain

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regional consulting advice at short notice to provide informed input from the region. Again, it's about meaningful fit-for-purpose engagement and a cultural change in the attitudes of the state government towards their local government brethren that sees value in the local knowledge and expertise and the contribution that LG can make.

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The Expert Advisory Panel recommended:

- *CBA to evaluate options that relate to industry use of water, the reliability of water supply to towns and communities, and food management and mitigation, and*
- *undertaking an ecological likelihood and consequence risk assessment to quantify the influence of an option on environmental outcomes.*

CNSWJO Comment: Refer to our response to the Marsden Jacobs Methodology provided as an attachment.

In summary, while appreciating the challenges for the model developed by Marsden Jacobs, that it does not recognise the economic impacts of higher-level restrictions and 'day zero' is seen by this region as under-representing the value of urban water.

Through their lived experience over the recent drought, Bathurst have concluded that instead of talking about 'day zero', the goal should be no worse than level 4 water restrictions. Once past level 4 restrictions, businesses need to close with the risk being that, in the case of manufacturing businesses for example, they will relocate overseas never to return.

The methodology in the Marsden Jacobs Report based on a willingness to pay approach without recognising the impacts of industry closure and 'day zero', in our view, is a retrograde step where the challenge for the BCA approach is to factor into analysis local scenario modelling, particularly the social and economic impact on local communities of long-term water restrictions and 'day zero' scenarios. It is understood that there may be opportunities for this type of economic impact to be recognised later in the optioneering process, however this region is not party to the methodology going forward or to the optioneering process and the concern is that projects that will protect regional communities from 'day zero' may be excluded from further consideration.

It is for this reason we recommend that the Marsden Jacobs Report methodology be ground-truthed using the Macquarie Regional Water Strategy given the challenges for it's the urban communities of Orange and Bathurst. This would provide a level of confidence for all levels of Government and the Minister in the application of this methodology across the state.

It is imperative that ongoing collaboration continues between Councils and those State agencies with responsibility in the water space. Ideally this would be enabled by better time frames and governance arrangements that offer all levels of government confidence when making investment and other decisions.

In addition, we would be keen to work with DPIE on a project that identifies the value of street trees and green spaces in determining the willingness of people to pay to ensure these survive in times of prolonged drought.

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In addition to the CNSWJO response to the Marden Jacobs Methodology we support the following points made in the response provided from the Namoi JO:

- The Marsden report aims to assess the regional water functions and estimate the value of these functions. This is intended to put a value on the changes in water availability or reliability to different users in the region. The NSW CBA approach uses the concept of present value – and any future costs and benefits will be discounted. In a system where the resource is not finite, sustainable management and measurement relies on the ability of users to value every drop, and in the case of Councils look to a push to develop safe recycled water uses, a discounted future value does not reflect this intent.

The base case is also defined as the 'status quo' for water management arrangements in each region, with experience of the worst drought on record and continued uncertainty about the weather patterns of the future, status quo needs to be defined.

Where the steps are defined for the CBA, without assessing the system in its entirety, specifically in communities where a mix of surface and ground water is used, or in a community where there is no ground water, or only ground water it is likely that this is not going to be equitable.

In addition to the present value application of a BCA, we are also concerned that the health and social benefits of water will not be included as part of this assessment.

The application of growth in the region will also not be assessed for example; the development of intensive agriculture is not reflected in the economic value tables. The application of growth into the future will also not be assessed in the present values. How will this value be captured in the BCA approach? Can the BCA approach attach a value to planned or applied for development expansions with Councils or the NSW Government.

- It would appear from the approach that primary user which are consumptive users such as irrigators, mining, utilities and town water will be treated the same.
- Understanding that the approach is to focus on key water user groups, not individual users is intended to be an equitable approach, however without recognising that this function does not recognise ground water is part of the water value system causes conflict and disadvantage even within these key water users. Similarly, the application of water restrictions on a community for 12 months doesn't appear to measure the lost benefit of ongoing water restrictions on economic development and growth for a community.
- Reflecting how users make decisions in this process, would seem to be arduous for the Government, requiring the government through this process to understand the application of water use in crops would seem an unrealistic function for a government water application.
- So too is reflecting values over the longer term for producers, and that values will reflect average conditions over the long term. We would like clarification over what is assumed to be the values over average conditions and over the long term. After the worst drought in history and in parts of our region, water storages have not been replenished.

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- Utilising economic values not financial values for final decisions on the regional water strategies and whilst it is suggested that a financial analysis in the detailed business study will be conducted, the use of financial values will not reflect the cost or impact on the end user of the water.
- The economic value of improved water availability or reliability on water users (excluding mining) is based on estimates of producer surplus, does the modelling take into account the impact of global demand, pricing and relationships.
- In the estimated values for user categories, the first response is the imposition of water restrictions, this assumes that all Councils have the same definitions of water restrictions and how they are applied. The application of any level of restrictions is the decision of the Council. JOs in regional NSW are in a position to assist with the development of consistent restrictions in NSW.
- Concerned about how this can be applied for the life of the Regional Water Strategies without review. We imagine as the strategies are reviewed so too is the value methodology to be applied. Not all of the objectives of the Regional Water Strategies are captured in this application of value, i.e. the environment again creating inequity.
- There are also ongoing concerns that ground water is not being included in this assessment. In our region the ongoing omission of ground water information and data is a concern, and a significant concern for communities reliant on ground water for town water supplies.

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Managing risks from subjectivity

The method of options assessment being used for the regional water strategies has a subjective and qualitative element. An independent Review Committee will be constituted to evaluate the quantitative and qualitative assessments of the different portfolio of options and recommend a preferred portfolio for consideration by the NSW Government. Given the broad range of the regional water strategies objectives, this committee will include people with economic and eco-hydrology expertise, along with members with extensive experience in regional areas to bring regional perspectives, and a member to bring Aboriginal perspectives to the assessment. This will help to ensure that the preferred portfolios of options recommended in each final strategy are robust, address the region's challenges and maximise opportunities.

CNSWJO Comment: As above- there is an opportunity to leverage JOs in this process where the JOs represent their members Councils. In the past the OLG has been used on these committees though we have been unable to find out who this has been. OLG are about the regulatory framework not the operational on-the-ground issues that confront Councils in the water space.

COMMENTS ON THE DRAFT MACQUARIE-CASTLEREAGH REGIONAL WATER STRATEGY

Overall Response:

The region has welcomed the engagement with DPIE in the development of the Strategy so far. We thank the DPIE team for their great work and collaborative approach to working with Councils and the CNSWJO.

We do, however, have concerns about the handling of the unregulated Macquarie system in the Strategy. This maybe partly due to the retro fit that had to be done early on to knit the unregulated Macquarie into the process, a lack of interest in Council-owned dams and also the regional focus of the strategy as opposed to individual towns.

Noting that there are only a few options that directly relate to the needs of the unregulated Macquarie system, the CNSWJO would like to work further with DPIE to address these in the Strategy.

In general, the options relevant to the unregulated Macquarie are very high level given the urgency to secure town water supplies as evident through the drought and detailed in the Strategy (see pages 33,34, 60).

As detailed in our response to the Questionnaire, given the very specific challenges in water management confronted by the large regional centres of Bathurst and Orange through the recent drought and also by the townships of Oberon and Molong, we are of the view that the unregulated Macquarie would benefit from a separate and more specific approach. This has been highlighted by the need for a Water Supply (Critical Needs) Act to attempt to address some of these challenges.

This separation of the catchment (regulated downstream of Burrendong and un-regulated upstream of Burrendong) could also make the Strategy easier to manage in the options assessment and implementation phase and is important given that the unregulated part of the catchment has two major cities, Orange and Bathurst, that are growing (see Strategy page 11).

With consideration to the above and the NSW Government's intention for the development of JO led Regional Town Water Strategies (RTWS), it is suggested that there is also a need for a separate sub-set to the proposed RTWS for the unregulated Macquarie system.

Please note that the following advice on the Strategy is neither exclusive nor exhaustive with our member Councils in the Macquarie-Castlereagh catchment providing separate submissions through the public consultation process. Comments are made with specific consideration to the needs of the towns and communities in the unregulated Macquarie system.

Comments are made by page with relevant excerpts from the Strategy.

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In the Macquarie- Castlereagh region projects include:

- *Cowra to Central Tablelands Water Emergency connection*

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CNSWJO Comment: where this project has regional town water supply implications – should this be referenced as a Government Commitment in the long-list? Just noting a different treatment of Government commitments that have a regional water supply implication in the Lachlan RWS.

Page 33

Under conservative climate change scenarios

- *drought risks emerging for water users in the upper catchment (above Burrendong Dam) where record low inflows have highlighted the vulnerability of Orange, Bathurst and Oberon water supplies. However, the estimated increase in risk of shortfalls for Lithgow and Oberon under long-term climate change scenarios are not as high as for other regional towns*

CNSWJO Comment: A greater explanation is sought regarding the idea that *the estimated increase in risk of shortfalls for Lithgow and Oberon under long-term climate change scenarios are not as high as for other regional towns*. This is particularly sought for Oberon who have experienced water security issues through the recent drought and have been unable to obtain secure yield data from WaterNSW who manage Oberon Dam. Advice about Oberon’s water security throughout the Strategy is a bit confusing. (See page 85 Table 4 on page 87). Added to this has been on-going concerns about town water security for Oberon through the recent drought.

While water for human consumption is recognised as the highest priority for the WaterNSW dam network, there are challenges in delivering the water to towns and communities that we have seen through the recent drought. The next round of work needs to build on identified regional solutions and include access to the State-owned dams as well as inter-catchment connectivity for priority emergency water supplies with Oberon being a case in point.

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Few cities and towns have adequate water security (including larger centres) and some towns are at significant risk of water shortages during increasingly severe droughts. Water security for these populations is a high priority for the NSW Government.

CNSWJO Comment: With this in mind and the dire situation that Orange and Bathurst, in particular, have found themselves through the recent drought, town water security in the upper Macquarie unregulated river system is a major concern. See advice below in response to the long list of Options.

Pages 38 - 43- Table 2 & Figure 11

CNSWJO Comment: We welcome the climate change modelling using the NARClIM datasets and note that the most conservative results have been used. Advice on page 41 where the frequency of 10-year droughts increases from 1% to 10-15% in the upper Macquarie under projected climate change scenarios only serves to highlight the level of urgency to implement options that will have a direct impact on the security of supply for two of the region’s major towns. This is particularly the case where options to cart water, for example, to a combined population of around 80,000 is not economically or practically feasible. We draw your attention to the response provided to the Marsden Jacobs report that discusses this in more detail.

*Please check the spelling of Chifley Dam and Bathurst through the Strategy.

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Page 49 Figure 13

CNSWJO Comment: Please note Molong Creek Dam, while small is significant in supplying water to the township of Molong. Orange also has Spring Creek Dam.

Details for Molong Creek Dam are as follows:

- Concrete gravity dam – constructed 1987
- Capacity 1GL
- Wall height 16m crest length 100m Crest Width 2m, Base width 13m
- 80m wide overflow spillway
- 23 Km South East of Molong on Molong Creek
- Catchment Area 70 sq km whole of catchment within Cabonne Shire
- Surface Area – FSL 30Ha
- Max water depth 16m
- Probable Maximum Flood Discharge 1500m³/s
- Probable Maximum Flood Surcharge 4m
- Ave Annual Rainfall – 700mm
- Outlet Works - - Tri level selective draw off through a 300mm inlet pipe
- Connected to Molong via a duplicated main

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There are also several major town water supply dams in the region, including:

- *Chifley Dam supplying Bathurst*
- *Fish River scheme supplying water to the Lithgow Local Government Area and the upper Blue Mountains*
- *Oberon Dam supplying Oberon and the Fish River scheme*
- *Rylstone Dam supplying Kandos and Rylstone.*

CNSWJO Comment: Please note this listing seems to be missing reference to Suma Park Dam and Spring Creek Dam supplying Orange and Molong Creek Dam supplying Molong.

Also given that figure 13 does not allow for it, we suggest that reference should be made here to the Cowra to Central Tablelands Water Emergency Connection (see page 28). This is an important project in providing drought security to Orange in the unregulated Macquarie system.

Pages 59- 63 Unregulated rivers and streams**Page 59**

The main unregulated river systems in the Macquarie-Castlereagh region are:

- *unregulated Macquarie and Cudgegong rivers upstream of Burrendong Dam and Windamere Dam.*

Water is supplied to the growing regional centres of Bathurst and Orange. These large upstream townships manage their own water supplies

The town of Oberon is part of the Fish River Scheme, which provides water for:

- *energy producers near Lithgow*
- *primary or back-up water supplies to communities in the Lithgow City Council area*

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- communities in some areas of the Blue Mountains (Sydney Water customers) when required during periods of drought

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Growth in town water use in the upper unregulated systems may impact inflows into Burrendong Dam, with implications for reliability of supply to downstream regulated water users. Similarly, proposals to capture more tributary and unregulated flows in the upper and mid-catchment may have implications for unregulated users, end of system connectivity and flow-dependent environmental assets and values downstream.

Securing water for users of unregulated rivers will become increasingly difficult in a future with even greater climate variability.

We have modelled the timing and volume of inflows to Chifley and Oberon dams in the upper Macquarie catchment. For Chifley Dam, which services Bathurst: (Figure 17):

- *Under observed historical data, Chifley Dam's storage volume has not fallen below 5% capacity.*
- *In the longer-term data beyond the observed records (stochastic data), Chifley Dam is simulated as falling below 5% capacity 12 times in 10,000 years, with the longest duration below 5% being nearly 400 days.*
- *In the climate change projection scenario, Chifley Dam is simulated to fall below 5% capacity 175 times over the 10,000-year simulation period. In the worst of these simulated periods, the dam remains below this level for multiple years.*

CNSWJO Comment: These comments are made following discussion with Orange, Bathurst and Oberon Councils. See advice provided above where generally there is a concern that given future predictions the options provided in the Strategy are too 'light a touch' and do not seem to take the level of risk faced by two of the region's largest cities seriously.

This is particularly the case where, as mentioned earlier, it is not feasible or economically viable to cart water into these centres. While Orange and Bathurst continue to investigate and implement innovative multi-source options such as stormwater harvesting and emergency pipelines, they can't just turn on the de-salination plant. Again, we point to our response to the Marsden Jacobs report and comments regarding the need for separate handling of the unregulated Macquarie system in the Strategy.

Further commentary is made in response to the long list of options under Option 4.

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Under the climate change projections Oberon Dam could be expected to operate at generally lower levels than previously experienced and understood as 'normal', with associated risks as the sole water source for Oberon (Figure 18):

- *Under historical and long-term climate scenarios, there is an estimated 0.5-1% probability that Oberon Dam storage volume falls below 6.5 GL (representing approximately 2-year supply for Lithgow and Oberon). This risk increases to an estimated 8-9% under a climate change scenario.*
- *The median length of time that Oberon Dam could be below 5% capacity is around 8 months.*

CNSWJO Comment: This seems to be in conflict with advice provided on page 33 and is of serious concern to the township of Oberon and the industry supported through the town supply particularly where, as noted, Oberon Dam is currently its sole water source. This is further exacerbated by issues associated with the management of Oberon Dam by WaterNSW for water for human consumption. This

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and the water security concerns for the unregulated Macquarie system overall raises question about the provision of water from the Fish River scheme into the Sydney Water network to drought proof Katoomba and Mt Victoria.

The CNSWJO argue that the Fish River scheme needs to be rebuilt and no water should be transferred out of the catchment to support Sydney Water's system. Certainly not when towns in the unregulated Macquarie are challenged by a lack of town water security.

Further commentary is made in response to the long list of options under Option 4 including a pipeline from Duckmaloi Weir back to Oberon.

Pages 76 -79 Setting priorities for water sharing

Page 76

Setting priorities for water sharing The Water Management Act 2000 sets out how we prioritise water sharing during normal operations, with the highest priority being for the environment, followed by basic landholder rights.

During extreme events, such as prolonged droughts, the priority changes. Basic landholder rights and essential town water services (authorised by an access licence) become the highest priority, followed by the environment.

This change in priorities is triggered when a water sharing plan (or part of a plan) is suspended. The aim is to operate within the plan rules for as long as possible because the plan provides certainty for all users of these water sources. The regional water strategy process provides an opportunity to consider whether the trigger needs to be reviewed (Table 3).

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The Macquarie-Castlereagh region has several unregulated water courses where streamflow gauges are not installed and water extraction is not measured. This means there is limited data on water extraction and flow patterns from these rivers and streams, making it difficult to manage equitable sharing during dry conditions. This lack of data will be addressed through the implementation of the new nonurban metering framework announced by the NSW Government as part of its 2017 Water Reform Action Plan.

CNSWJO Comment: The CNSWJO welcomes options that will review the triggers points and provide better data on water extraction from the unregulated Macquarie system. This has been a huge challenge for Bathurst, in particular, through the recent drought where there have been 100% allocations for irrigators upstream of Chifley Dam when the city of Bathurst is facing 'day zero'. This should not be allowed to happen. Trigger points must recognise the priority of critical human need in times of prolonged drought.

Bathurst are very eager to look at Option 5 with respect to temporary pumping by irrigators upstream of Chifley Dam.

See also response from Orange City Council on their challenges.

Page 84- 89 Section 2.3.2 People and Towns

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Secure water supports a growing population and contributes to the amenity, liveability and wellbeing of residents and visitors. Water in regional towns and communities also provides broader social benefits.

CNSWJO Comment: While industry is dealt with later (page 90) it is suggested that there needs to be more commentary on the significance of town water supplies in supporting industry in this section. See our response to the Marsden Jacobs Report where the value of urban water supplies in supporting industry is not well recognised and is yet a significant contributor to the economy.

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Many regional centres and towns in the region, especially those within the unregulated areas (such as Bathurst and Orange), can access water from multiple sources including stormwater, recycled water and re-used mine water (Figure 24). A number of regional centres and towns can also be supplied water from, or can supply water to, other valleys: for example, Orange City Council is linked to the Central Tablelands water supply system in the Lachlan region. Despite this, very few towns have adequate water security in light of the current severe drought (see Table 6). This includes larger centres like Dubbo, Bathurst and Orange and smaller towns like Oberon, Nyngan and Cobar.

CNSWJO Comment: Please check reference to Table 6. Is there a Table missing or is this a typo?

Page 86 & 87 - Table 4.

CNSWJO Comment: The information on page 86 and Table 4 on page 87 is very confusing and potentially misleading. The CNSWJO provided feedback on Table 4 in our previous input to drafts of this Strategy seeking clarification of how the water security risks are determined. It is apparent that we have very different understanding of what constitutes risk – please see our response to the Marsden Jacobs Report. This again points to the need for one-source of truth in terms of modelling and data.

How can Oberon have a known very high water security risk when it has an allocation by Oberon Dam? And then Orange only have a high one. Mudgee seems to have a very high risk when the advice from the hydrologist on 14 February 2020 was that it was very secure due to the drought reserve (false floor by any other name). It is implausible based on previous advice based on stochastic modelling that Mudgee is less secure than Orange.

Our feedback at the time was that to publish this while the Orange street trees are dying and there are low level water restrictions in Oberon is very counter intuitive.

Again, we seek explanation on how you determine the level of risk in Table 4 and also whether there is a Table 6 that might contribute to this.

Page 90- Jobs and Industry

The Macquarie-Castlereagh region contributes over \$13.5 billion to NSW's total Gross Regional Product and employs almost 90,000 workers.

CNSWJO Comment: Please clarify the source of these figures. Also as outlined above, commentary from our response to the Marsden Jacobs Report on industry supported by town water supplies is needed in this section.

Please note also, that Oberon township has a significant timber processing industry and tourism is an important part of its economy. Reference to this would be good.

In general, there needs to be greater acknowledgment of the value of town water in both the Lachlan and Macquarie Strategies.

Page 92 - 93 -Mining, Resources and Energy and Mining Water Use

The mining industry is a significant contributor to the local economy and employment. Located outside the region, but dependent on water delivered from the Macquarie River (less than 1% of Burrendong's storage) are Hera, Peak Gold, CSA Mine and Endeavor metallic mines, which produce copper, gold, lead, silver and zinc. 68 Tomingley Gold Operations and Tritton Copper Operations are major metallic mining operations within the region, producing copper and gold.

CNSWJO Comment: Reference is made elsewhere in the Strategy but please add in here reference to the water provided by Orange to Cadia Valley Operations .

Further, the proposed Regis mine at Kings Plain and associated piping presents an opportunity for the regional water grid. This has been raised in previous advice from the CNSWJO.

*this is referenced in the Lachlan RWS on page 83- see below

Some operations located in the Lachlan region access water from neighbouring regional water sources. Conversely, some operations located in neighbouring regions access water from the Lachlan region's water resources. For example, Cadia Valley Operations in the Belubula system use treated effluent from the Orange sewage treatment plant.

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There are opportunities for mines to adopt measures to reduce demand and improve water efficiency. In addition, mining does not need high quality water for its production. There is an opportunity to explore options about whether water can be used more efficiently by supplying different levels of water quality for different water uses.

Until recently, the Macquarie-Castlereagh region was home to the Wallerawang power station near Lithgow, owned by Energy Australia. The power station played an important role in Lithgow's community for five decades but has now been permanently closed due to ongoing reduced energy demand, operating costs and coal prices. The closure of the power station provides an opportunity to consider how its water entitlements could be used

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to support a changing industry landscape in a more variable future climate. Energy Australia's other power station, Mt Piper, has an operating life to 2042.

CNSWJO Comment: It is suggested that the closure of the Mt Piper power station present an opportunity for water entitlements to support greater security for towns in the unregulated Macquarie system, notably Oberon. Further assessment of this in option 4 is needed.

Further, the proposed Regis mine at Kings Plain and associated piping presents an opportunity for the regional water grid. This has been raised in previous advice from the CNSWJO.

Page 94 - Tourism

CNSWJO Comment: This section does not do justice to the unregulated Macquarie towns such as Oberon on the edge of the world heritage area that hosts visitors to Jenolan Caves and Mayfield Gardens; Orange which has a thriving and growing tourism industry and most significantly Bathurst that hosts an internationally renowned car racing event annually. This event alone injects a huge amount of money into the local, regional and national economy. The CNSWJO can provide further information on tourism in the Central NSW area. It's a significant and growing industry that is impacted by perceptions that the region has a water security problem. Failure to note Mt Panorama and the Bathurst motor racing events in any summary of tourism in the region is an oversight. This has been raised in previous advice from the CNSWJO.

COMMENT ON THE LONG-LIST OF OPTIONS

As detailed above, the CNSWJO would like to see specific options for the unregulated Macquarie system handled separately in the Strategy. This separation of the catchment (regulated downstream of Burrendong and un-regulated upstream of Burrendong) could also make the Strategy easier to manage in the options assessment and implementation phase and is important given that the unregulated part of the catchment has two major cities, Orange and Bathurst, that are growing

Feedback on the long list of options is provided in response to the Questionnaire. Refer to response to questions 8 and 9.

It is difficult to rank options as it is likely to be a combination of options that will achieve the best results. This will become evident through the feasibility studies and more detailed analysis of options proposed.

The reality is that with the right storage and pipe network there is plenty of water for town water supplies for Central NSW communities and to enable substantive growth in high value agriculture- it's just a matter of getting it to the right place, at the right time and for the right price.

The key options that have implications for towns in the unregulated Macquarie - Bathurst, Orange, Oberon and Cabonne (options 4, 5 & 6) are very generic and high level given the level of town water security risk.

Option 3:

- This is welcomed and it is suggested based on recent discussion with the CSIRO a pilot MAR for Orange may be worth investigation.
- Orange City Council has undertaken a substantial body of work in this space, with MAR being included in the current IWCM. The shortlisted option in the IWCM was to undertake a pilot MAR for Orange. Given this work, Council would like to see this infrastructure option included in the Strategy.

Option 4:

Overall, we are concerned that the key option that relates to town water supplies in the unregulated Macquarie system is Option 4.

- The CNSWJO welcomes Option 4- a feasibility study to identify water security deficiencies, potential water sources, delivery mechanisms and preferred options for further development as a significant step in informing the next version of the Strategy. We make the following points:
- Given that this response is high level, the feasibility study must happen as a matter of urgency along the lines of the Lachlan Valley Water Security Investigations undertaken by the State Government some years ago that has informed current Government commitment to fund critical water security projects in the current version of the Lachlan Strategy. It must be noted that this took several years to complete and the infrastructure solutions recommended still subject to formal feasibility and business case development which will also take several years and may not result in a shovel in the ground.
- We are interested to know how this option will be assessed using the Marsden Jacobs Methodology.
- Further to discussion at the stakeholder session held in Blayney on 22 October, it is suggested that Option 4 needs to be more explicit to include for example:
 - the need for secure yield modelling for Oberon Dam
 - reference to the Duckmaloi Weir project and pipeline to Oberon Dam
 - a potential rebuild of the Fish River Scheme
 - detail on Molong Dam for Cabonne; and
 - if highlighting pipeline projects – needs to include a heads of consideration with the words “including but not limited to”.
- There is no reference to the Duckmaloi Weir Project as an option even though it was in the WaterNSW 20 Year Rural Valley Options Study. While recognising that this is a regional strategy and that individual council projects may not be considered, given Oberon’s reliance on the WaterNSW managed Oberon Dam and its reference in previous studies it is critical that this project be considered in Option 4.
It is noted that Lachlan RWS seems to have picked up on state identified strategies such as the dividing of Lake Cargelligo into three.

- Where the CNSWJO Board supports additional storage and a pipeline grid for the region to ensure security and reliability of supplies into the future, options to increase storage such as the construction of Ulmarrah Dam need to be considered through Option 4.
- This option duplicates the Regional Town Water Strategy proposed by the State Government to be led by the JO. Also, it is understood from our member Councils that WaterNSW has likewise undertaken work on a Macquarie Valley Drought Strategy in the unregulated Macquarie. The CNSWJO seeks to co-design a partnership, multi-agency /stakeholder approach to any investigations undertaken through option 4.
- It is essential that Option 4 is informed by defining the shortfall from Option 39. This should also see permanent changes to operating licenses and approvals as we are stepping into High Level Water Restrictions rather than waiting till levels are near critical.

Option 5:

- not entirely sure what the intent is here – there seems to be some sub-text that isn't clear and will need greater explanation.
- Bathurst and Oberon are obviously keen to engage in any work on this option with explanation on the Oberon situation needed in the description of this option.
- Also, not sure why Orange is not included in this option, particularly given the need for the inclusion of Orange in the Water Supply (Critical Needs) Act.
- drought protocols for Bathurst and Oberon should also be expanded to Orange and any other Water Utility that manages a Dam. To include permanent changes to operating licenses and approvals as we are stepping into High Level Water Restrictions rather than waiting till levels are near critical.

Option 6:

- Inter-regional connections project investigation – this option is welcomed and in line with CNSWJO policy.
- This should be expanded to include raising Lake Rowland's with a downstream Wall to 29GL to increase Central Tablelands Water's capacity as a bulk water supplier to support the region in the future.
- A consideration is the NSW Government's intention for the development of Regional Town Water Strategies to be led by JOs. This option and option 4 have implications for the development of a RTWS and points to the need for collaboration and alignment of these tasks.

Option 7:

- This is welcomed but is a localised solution to be picked up in individual Council's IWCMs.
- Recycling is a shortlisted project for Orange under the IWCM for post 2030 due to the current Section 60 approved effluent reuse scheme taking the first 10ML/day. However with partnering

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with Cadia Mine, Orange City Council have already negotiated temporary sharing of that water for other uses during the peak of the most recent drought. As such this could become a viable alternative water supply in the short to medium term. However, cannot even be justified without the shared modelling in Option 39.

- The bigger issue is in the regulatory space and section 60 approvals. It is noted in the considerations that a review of state-wide policy and regulations and the creation of clear guidelines are required to support water recycling and reuse in urban centres for the needs identified. It is suggested that this option should be recast with this being a challenge that needs to be addressed.

Options 13, 25, 26 and 27

- There is a clear need to understand groundwater and its relationship to surface. These options are welcomed.

Option 34:

- It is suggested that this is an emergency measure that should not be included in a regional strategy. This would be better addressed through other options like securing some of the Burrendong Dam's flood and dead water storage for High Security Town Water Supply and ensuring that management of Burrendong Dam ensures water is reserved for Town Water Supply.

Option 35:

- needs to be expanded to include a revision of regulatory rules for Town Water Supplies to temporarily transfer High Security Water Allocations to its diversified water sources (Example: Orange has a High Security Allocation from Summer Hill Creek but in times of low or no flow should be able to transfer temporarily the water allocation to other sources such as Bores, Stormwater Harvesting or Macquarie River offtake. Then in Business As Usual (BAU) times transfer the High Security Water Allocation back to the Summer Hill Creek. This would allow Orange to secure Water without having to buy up production licenses and not lose the High Security Water Allocation for BAU in the top of its catchment.

Option 39:

- The CNSWJO is very pleased to see acknowledgment of the need for shared data and modelling (options-39) and the implication of this for Councils' IWCM plans. Though we will definitely be seeking a more collaborative discussion as opposed to 'training' on this.
- without shared modelling there is little chance of defining any shortfall and prioritising other options for water security. Also it may be used to delay funding specific projects.

OTHER OPTIONS NOT INCLUDED

- The Macquarie -Castlereagh Strategy needs to include similar reference to water restrictions and water efficiency. This is included in the Lachlan Strategy but not the Macquarie.
 - See page 83 Option 24- (Lachlan RWS)- Water efficiency project (towns and industries)
 - See page 84- Option 30- (Lachlan RWS) Urban water restriction policy

- It suggested that consistency of some of the over-arching policy type options between the Strategies is needed.

OTHER MATTERS

The CNSWJO broadly agree with the principle of maintaining integrity of entitlements – if pipelines for inter-regional connectivity are pursued, noting the following:

- Where the circumstance arises that water is to be transferred between the Lachlan and Macquarie catchment – to Orange for example- a new licence would not be issued but the allocation would pass through someone else's existing licence.
- the transfer of water between towns across the region would be for emergency critical urban needs.

WATER USER BEHAVIOUR

- CNSWJO member Councils support a multi-sourced supply and demand management and continue to implement initiatives aimed at reducing consumption in their communities.
- Advice from the State, which is regularly updated, informs communities on when they need to trigger water restrictions.
- Demand management should not be a one-size-fits all approach and should be responsive to water availability
- Demand management should not be based around a government imposed pricing mechanism
- Councils as responsible managers should be able to determine pricing in consultation with their communities. Demand management is about responsible management of the available resource.
- Needs to be a broader discussion about demand management including education on how water is used wisely- across all sectors
- Demand management can signal that there is no water which can have implications for regional growth and investment.

With reference to our response to the Questionnaire, in summary with regard to the Draft Macquarie-Castlereagh Regional Water Strategy the CNSWJO recommends:

- Given the very specific challenges in water management confronted by the large regional centres of Bathurst and Orange through the recent drought and also by the townships of Oberon and Molong, that the unregulated Macquarie would benefit from a separate and more specific approach.
- Noting that there are only a few options that directly relate to the needs of the unregulated Macquarie system, the CNSWJO would like to work further with DPIE to address these in the Strategy.
- It is suggested that there is also a need for a separate sub-set to the proposed RTWS for the unregulated Macquarie system.

- There needs to be recognition of the economic impacts of higher-level restrictions and 'day zero', where currently the Strategy under-represents the value of urban water.
- We request that the Marden Jacobs Report methodology be ground-truthed using the Macquarie Regional Water Strategy given the challenges for it's the urban communities of Orange and Bathurst. This would provide a level of confidence for all levels of Government and the Minister in the application of this methodology across the state.
- We advocate that without shared modelling there is little chance of defining any shortfall in water supplies in the unregulated Macquarie system and of prioritising other options for water security. Also it may be used to delay funding specific projects. As such option 39 is a critical step and must be recast to ensure greater alignment with other modelling required for urban water management by Local Water Utilities.
- As detailed in our response to the Questionnaire, while the CNSWJO supports options that offer substantive improvements in security and reliability of water for towns and regional prosperity, we support a multi-source approach. It is likely to be a combination of options that will achieve the best results. This will become evident through the feasibility studies and more detailed analysis of options proposed.
- The next round of work needs to build on identified regional solutions and include access to the State-owned dams as well as inter-catchment connectivity for priority emergency water supplies with Oberon being a case in point.
- Further explanation and alignment of risk prioritisation is needed in relation to water supply.
- With respect to prioritising on top 5 and bottom 5 options –it's not about supporting individual options as a combination of options are likely to produce the best outcomes.
- Should be a qualitative assessment process with those closest to the region- best able to make the decisions about the best options/combinations of options.
- The Macquarie -Castlereagh Strategy needs to include similar reference to water restrictions and water efficiency. This is included in the Lachlan Strategy but not the Macquarie.
 - See page 83 Option 24- (Lachlan RWS)- Water efficiency project (towns and industries)
 - See page 84- Option 30- (Lachlan RWS) Urban water restriction policy
- It suggested that consistency of some of the over-arching policy type options between the Strategies is needed.
- Need for regionally based DPIE staff with the capacity to deliver the right solutions in collaboration with stakeholders.

The key message is that where a whole-of-government approach to water management is needed, that there is regional representation of Local Government on the Expert Advisory Panel for the prioritisation of options and in decision-making about the implementation of the Regional Water Strategies.

Local Government is the voice of regional communities and its interests extend to all facets of the region including the health and wellbeing of its Aboriginal community and the environment. The CNSWJO supports local decision-making by those best informed to make those decisions.

Again, we thank you for the level of engagement with the region's Councils both individually and through the CNSWJO. We look forward to building on this collaboration in realising the potential of the Macquarie-Castlereagh Regional Water Strategy.

If you require further information or clarification on comments, please do not hesitate to contact [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Central NSW Joint Organisation