

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

To whom it may concern,

Re: Lachlan Regional Water Strategy Consultation- September 2020

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 Lachlan Regional Water Strategy (the Strategy) and for the opportunity to meet face-to-face with our members in Blayney on the 29 October.

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.

Response:

This region is broadly very positive with regard to the overall approach and content of the Strategy and have welcomed the great engagement with DPIE in its development so far. We extend our thanks to [redacted] and team and in particular [redacted] for their work on this long overdue strategy.

Please note that the following advice is neither exclusive nor exhaustive with many of our member Councils providing separate submissions through the public consultation process.

In response to the draft Regional Water Strategy Guide and Lachlan Regional Water Strategy we make the following commentary:

Overall:

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

- ***the need for shared modelling***
 - we welcome option 37 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.
 - 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 options 32, 33, 34 and 35 that all seek to improve water security and reliability of supply for communities including industries through extreme events. The need for these options to be investigated has been no more apparent than through the recent drought.
 - again, we hope to see these options included in the short-list.
- ***the need to review all IWCMs in the region***
 - we welcome recognition in the Strategy of the role that Local Government plays in managing water for its communities and note reference to IWCMs on pages 74-75.
 - 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 third level of government representative of all people in regional communities at the grass-roots level.

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- 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.

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

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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 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 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.

We recommend the methodology be road tested 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.

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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 the Regional Town Water Supply Coordinator's suggestion as follows and hope to see this in the final strategy.

The strategic framework is slowly coming into place. In the interests of long-term town water security, we must continue to build on this and be in a position to partner with the State in delivering the solutions.

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

To date this committee has met once but the opportunity is for the Steering Committee 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.

¹ Lachlan Valley Regional Town Water Drought Response Steering Committee – Terms of Reference -June 2020
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Councils have raised the need for effective monitoring and review of the strategies.

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.

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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.

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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 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.

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 the methodology be road tested 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.

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

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- 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.
- 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

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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. As detailed above we recommend that the methodology be ground-truthed using the Macquarie Regional Water Strategy.
- 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.

LACHLAN REGIONAL WATER STRATEGY

Page 11- Figure 1. Map of the Lachlan region

CNSWJO Comment- the map needs to include Forbes

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Definitions - *Water security in the context of regional water strategies refers to the acceptable chance of not having town water supplies fail. This requires community and government to have a shared understanding of what is a 'fail event' (for example, no drinking water or unacceptable water quality) and the level of acceptability they will pay for.*

CNSWJO Comment: What is the definition of 'acceptable' in this context? Refer to the CNSWJO response to the Marsden Jacobs Report methodology.

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The final strategy will set out clear and accountable actions for the NSW Government, local councils and industries to tackle the challenges facing the Lachlan region and maximise opportunities arising from growing regional centres and industries, major transport improvements and developments such as the Parkes Special Activation Precinct.

The strategy will build on current and planned investments and commitments to deliver further critical actions that will help secure a strong and prosperous future for the region. To reinforce the significant water reform program undertaken by the NSW Government over the last three years, the final strategy will also help to improve the sequencing and integration of these reforms across the Lachlan region to ensure they are implemented effectively.

The department will develop an implementation plan that identifies actions and timeframes.

CNSWJO Comment: If there are going to be accountable actions for Local Government – they absolutely must have a seat at the decision-making table around options and be included in the Governance and implementation plan.

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Infrastructure options identified through the strategy could also benefit from the NSW Government's move to streamline the approvals process for drought-related projects. Other options, such as policy solutions, will be designed in partnership with communities.

CNSWJO Comment: How will the Government partner with communities? The CNSWJO seek the opportunity to co-design the partnership approach to ensure a fit-for-purpose process in 'partnering' on solutions with regional communities.

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The strategy will also consider how government and local water utilities can adopt a more integrated approach to managing surface water and groundwater.

CNSWJO Comment: This is welcomed. The region seeks to co-design this piece of work.

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CNSW Comments: Thank you for hearing our messages and including reference to them in the strategy, particularly:

- an implementation plan that includes a short-term priority action plan; details about the future governance arrangement for the regional water strategies and the establishment of a multi-agency government committee where Local Governments have a seat at the table.
- Councils, local water utilities and joint organisations need to have shared access to the regional water strategy modelling and data.
- The management of state-owned dams should ensure that human water needs can be met as the highest priority in the region.

See comments in response to how these message have been addressed in the Strategy as it stands earlier in this correspondence.

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We have also streamlined the approvals process for drought and major dam projects through the Water Supply (Critical Needs) Act 2019.

CNSWJO Comment: This process is not very streamlined. If the project is not in the Water Supply Act schedule a LG LWU needs to approach the Minister providing evidence of need. Approval is then required from two Ministers, the Minister for Water and the Minister for the Environment before it can be added to the schedule. A project included in the schedule has a life of 2 years and for this period is immune from a legal challenge. If it is not finished within a period of 2-years, it can be challenged in a court of law and work will cease pending the outcome of the ruling.

While the CNSWJO welcomes Government commitment for the Wyangala Dam wall project using the Water Supply Critical Needs Act and for emergency water for communities on the unregulated Macquarie, such as Orange and Bathurst, it is hoped that through options in the Strategy to improve the management of long-term water security and reliability particularly in the face of climate extremes, that an Act of parliament will not be needed to ensure critical water needs are met.

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Agricultural businesses have adapted to the region's highly variable climate through a conservative approach to water use and crop choices. However, the recent expansion in horticulture and mining developments is changing the region's water use and demand patterns and may create new challenges for all water resources in the region.

- *Stimulated by the Parkes Special Activation Precinct, the Inland Rail Project and other government investments, growth is expected in the region's major centres. Resilient water sources and access to water for new commercial uses will be needed to support growth.*

CNSWJO Comment: Water security and reliability challenges also presents opportunities to adopt world's best practice in new methods of agriculture e.g. protected agriculture (the Dutch model). The old style of irrigation where pivots run through the peak of the day (when solar systems can support energy use) may no longer be appropriate. Options 32, 33, 34 and 35 that all seek to improve water security and reliability of supply for communities including industries through extreme events are welcomed.

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Options that increase knowledge about groundwater sources and studies of groundwater recharge rates can help to better manage groundwater resources.

CNSWJO Comment: Agreed. We also need to have a better understanding of the relationship between surface and ground water.

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During the Millennium Drought, the NSW Government stopped the Lachlan River flowing at Condobolin to preserve water for critical human needs.

CNSWJO Comment: A critical moment in the millennium drought that has influenced policy around water security for Central NSW Councils was the suggestion that WaterNSW pulse the Lachlan River to get critical human needs water to Condobolin – communities must never be in this position again.

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In particular, providing more information to local councils can help them make well-informed decisions about which water sources they draw from at different times.

CNSWJO Comment: Yes - thank you. This should include the modelling.

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The existing infrastructure and their associated operation have also contributed to deteriorating conditions of the catchment's ecosystems.

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The existing infrastructure and regulation affect the ability to meet environmental outcomes and cause the overall ecological health of the Lachlan River to be poor. Also, the region's fish community remains in poor health and some species are under serious threat.

CNSWJO Comment: With respect to commentary in the Strategy relating to protecting the environment, the CNSWJO make the following points:

- Where the RWS Cites 2010 Sustainable River Audit, there is a need for better updated data and modelling on the environment.
- The environment in the Lachlan has been highly variable historically.
- Currently there is no real data about what the environment of the river was/is/or should be or what options are trying to achieve.
- Options to manage environmental water should not be seeking to achieve wetter than normal conditions.
- There is a need for some sort of picture of what the environment of the river should look like.
- Options about carp numbers should not be a water management strategy but should be done to improve the condition of the river.

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An initial release of 6000 ML of Australian Government-owned licenced water and 1500 ML of Wyangala Environmental Water Allowances was delivered via Booberoi Creek and other Mid-Lachlan anabranches (Island, Bumbergan, Wallaroi and Wallamundry creeks) and eventually into the Great Cumbung Swamp at the end of the regulated Lachlan River

CNSWJO Comment: Is there any advice on the connectivity of the Lachlan River system to the Murray Darling Basin? This is of interest given our work on productive water and the concept of the Lachlan as a 'sandpit' or closed system.

Page 66

Improved information can help water users, future investors and regions make more informed decisions about the industries that are most suited to each region.

CNSWJO Comment: Noted and welcomed.

Page 66

In addition, the Department of Primary Industries is undertaking a three-year program to identify and map important agricultural lands. Knowing where this land is situated and understanding its location, value and contribution will assist businesses in making decisions about current and future agricultural land uses. A comprehensive and consistent approach to collecting water statistics information will greatly help this process.

CNSWJO Comment- This work is of great interest to the CNSWJO and will also help inform the region's work on Productive water.

Page 67

Across the Lachlan region, there are opportunities to gather more information about:

- *the water requirements (when and how much) of communities, the environment and industries and what a reduction in water availability will mean for these users*
- *what the water is being used for, including crop types and yield values*
- *the interaction between groundwater and surface water in the Lachlan*
- *the quantity of water use and patterns of water use in the unregulated system and some groundwater systems*
- *the characteristics and movements of flood*
- *water quality.*

The Draft Lachlan Regional Water Strategy will explore opportunities to improve data collection, information, monitoring and storage around water use, including ways to harness water data collected by industry (see Option 36 in Table 3). Gathering and analysing this information will improve our understanding of the water risks in the region for the environment and all water users, and support future decisions about water sharing.

CNSWJO Comment: Options that seek to gather the information detailed are welcomed, particularly in light of the CNSWJO Board's resolve from its August 2020 meeting to develop a Productive Water Strategy.

Where the region's focus has historically been on urban water, the Regional Water Strategies, planned Regional Town Water Strategies and raising of Wyangala Dam wall presents an opportunity to develop a similar strategy and position paper as that done by the Riverina and Murray Joint Organisation of

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Council's (RAMJO) that takes into consideration, not just urban water but water for productive uses including manufacturing and business, agriculture and mining in a whole of catchment approach.

Where anecdotally the Central NSW region has been viewed as restricted by a deficit of water, particularly through the recent drought, the opportunity exists through the development of large scale regional water security infrastructure and options in the Regional Water Strategies to look at high value water uses and how a change in the water regime could be used to strategically grow the region's economy.

Pages 71-72

We need to find new and better ways to keep regional towns 'green' during dry periods, including through alternative water sources (see Option 38 in Table 3).

CNSWJO Comment: Refer to the CNSWJO response to the Marsden Jacobs Report that seeks the opportunity 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.

To realise the Government's policy for decentralisation and the potential for growth of regional communities off the back of the covid pandemic, there is a need to ensure that communities remain attractive and viable places to live.

Further there is a need to find ways to ensure water in recreational lakes that are important for community amenity and tourism such as Gumbend in the Lachlan Shire. Option 27 that proposes the division of Lake Cargelligo into three will curtail recreational opportunities that Lake Cargelligo rely on as an important part of their identity and economy. A separate submission will be made by Lachlan Shire Council addressing these matters.

Page 72

Over half of the population in the Lachlan region rely on water provided by a local government water utility.

CNSWJO Comment: As detailed elsewhere, this supports the need for appropriate regional representation by LG engaged at the decision-making table.

Page 74

It is the responsibility of local water utilities to plan and provide water and sewerage services to each of their respective communities in a way that balances costs and community expectations. This responsibility extends to planning and delivering secure water supplies. For towns and communities, the potential for more frequent and longer dry periods could mean less secure water supplies unless we act now to invest in diversified water sources— including climate-independent sources—and consider changes in water management arrangements.

CNSWJO Comment: All the more reason why it is critical that LG LWUs have a seat at the table in optioneering and at other decision-making forums.

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Page 75

In addition to these modelled risks for surface water entitlement reliability, we also have access to the water security access risk analysis undertaken by local water utilities (secure yield analysis as part of integrated water cycle management strategies).

This results in a water security access risk specific to each local water utility's town water supply system that is different to the modelled surface water entitlement reliability risk.

CNSWJO Comment: would be good to see more discussion or at least reference to the government's commitment to additional storage for the Lachlan with the raising of the Wyangala dam wall – this is not referenced at all in the section on water for people and towns.

2.3.3 Jobs and Industry**Page 76**

CNSWJO Comment: need to add that it is more than security but also reliability of supply that is critical to business investment and regional growth. It is there on page 77 but needs greater emphasis.

This is particularly needed where there has been a view publicly stated by the NSW Department of Planning over the recent drought that the Central West is closed for business due to a shortage of water. The strategy needs to make the point more strongly that while the Lachlan is a highly vulnerable catchment, 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.

Page 86

CNSWJO Comment: It would be good to add reference here to the economic cost from the closure of the Newell Highway due to 6 weeks of flooding in 2016.

Page 89

Not all the regional water strategies objectives can be quantified. When the outcome is difficult to assess in a financial context, options will be assessed on how effective they are in terms of achieving objectives, rather than on a cost basis.

CNSWJO Comment: How will this be done? Refer to commentary on the CNSWJO response to the Marsden Jacob Report methodology.

Page 93

CNSWJO Comment: As stated elsewhere the formal options assessment will be of great interest to us and we seek engagement in how this will be undertaken and who and how LG will be represented in this process.

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Other important considerations when we arrive at shortlisted options will be who owns and maintains infrastructure options, who benefits from the option, what the impacts are and how to pay for the option: for example, should the cost be recovered from water users and what will the Australian Government pay for and what will the NSW Government pay for?

CNSWJO Comment: Again, we draw your attention to our response to the Marden Jacob Report and methodology and feedback on this process. This is of critical importance to Local Government. Broadly the CNSWJO Board endorsed policy is:

- The CNSWJO Board support investment in emergency infrastructure (and non-infrastructure) projects identified by its members (including through the Centroc Water Security Study) to meet critical human water needs and want to work with all levels of Government on implementing these solutions.
- The CNSWJO Board support (and has experience in) arrangements for the sharing of water for critical human water needs between towns across the region where the burden of providing infrastructure for critical human water transfers is borne equitably by the region (for example through the development of instruments and agreements not structures). Outside times of emergency Councils manage their own water supplies.
- The CNSWJO Board support Local Government ownership and management of any infrastructure built to transfer emergency water between towns across the region for critical urban needs.
- 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 to be linked to State and local based triggers.

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:

- The Wyangala Dam augmentation project is about improving security and reliability and allowing usage to reach the Plan Limit not increasing usage above the Plan Limit.
- 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.
- The replacement and upgrade of pipelines and other water infrastructure (option 5) is critical to the water security of the towns and villages. While the option correctly notes that the responsibility for asset replacement is the asset owner, this is not always practical for small rural Councils. Recognition must be given for the economic contribution of rural areas to state revenue. While the revenue is mostly generated by agriculture, it is the small towns

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and villages that support the agriculture industry.

Many of these small rural communities have relatively low socio-economic populations with a higher percentage of indigenous residents. In order to provide treated water to these communities, extensive reticulation networks are required for relative few connections. Therefore, the cost per connection is much higher in small towns and villages than it is in larger population centres. For this reason water charges are often high and usually only just cover the operational cost of producing treated water, without building sufficient revenue reserves for asset replacement.

Without recognition that the “user pays” principle does not work in small rural councils/communities, and that the state economic benefit produced by these areas justifies state subsidisation for infrastructure, we will likely experience ongoing population decline as residents leave these centres to access basic services. This results in the further loss of services in rural towns, e.g. medical, education, policing, sporting and entertainment which further reduces the liveability of the areas in general.

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.

DRAFT LONG LIST OF OPTIONS

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

In summary, the CNSWJO is generally positive about the long-list of options. In particular we welcome the following:

Government Commitment 1- Water transfer pipeline between Laker Rowlands and Carcoar Dam

Government Commitment 2- Wyangala Dam raising project

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Government Commitment 3- Lake Rowlands augmentation

- Option 4. Expansion of piped town water supply system – although connection to Wyangala is missing
- Option 5. Replacement and upgrade of existing pipelines
- Option 6. Inter -regional connections project investigation – connection to Wyangala is missing.
- Option 7. Water Quality Treatment works
- Option 8. Managed aquifer recharge investigation and policy
- Option 9. Reuse, recycle and stormwater project
- Option 10. Reliable access to groundwater by towns
- Option 21. improved understanding of groundwater processes
- Option 22. sustainable access to groundwater
- Option 23. Improved clarity in managing groundwater sustainably
- Option 24. Water efficiency projects (towns and industries)
- Option 28. Review of water trade in the Lachlan region
- Option 30. urban water restriction policy
- Option 32. Efficiency for drought security program
- Option 33. Drought Operation ruled
- Option 35. Investigation of licence conversions
- Option 37. Training and Information sharing programs
- Option 38. Investigation to maintain amenity for regional towns during drought

We note that the Improvement to the storage effectiveness of Lake Cargelligo (option 27) requires significant further investigation including extensive community consultation and is likely to be strongly opposed by the Lachlan Shire community.

Lake Cargelligo is not just a water storage facility but supports other activities which provide an important economic benefit to Lake Cargelligo and Lachlan. For the residents of Lake Cargelligo and Lachlan Shire it supports a growing tourist industry which includes recreational fishing, boating and birdwatching. It is anticipated that the separation of the Lake into 3 small water bodies will adversely impact on these Shire. Further Lake Cargelligo is home to a vast number of native birds. The impact of separating the Lake could adversely impact on this habitat and generate undesirable environmental outcomes.

Similarly, the “Sheet of Water” storage and Curlew Water option (option 31) will be strongly opposed by the Lachlan Shire community.

“Sheet of Water” and Curlew Water are natural water bodies that support significant aquatic and bird communities. By removing these water bodies from the river system there is likely to be detrimental environment outcomes and broader negative outcomes.

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 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 Lachlan Regional Water Strategy.

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

Yours sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Central NSW Joint Organisation

[REDACTED]

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- September 2020

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 29 October.

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:

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- ***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,

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- 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?

Guide Page 16

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?

Guide Page 22

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.

Guide Page 24

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.

Guide Page 27

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.

Guide Page 32

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.

Guide Page 34

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.

Guide Page 36

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 [REDACTED] 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.

Guide Page 37

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?

Page 45

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

Page 54

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.

Page 28

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.

Page 34

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

Page 51

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

Page 60

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.

Page 62

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).

Page 77

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

Page 85

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.

Page 85

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.

Page 93

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

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.

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] on [REDACTED] or [REDACTED] on [REDACTED].

Yours sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Central NSW Joint Organisation

Submission Questionnaire

Draft Lachlan 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 Lachlan 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 Lachlan Regional Water Strategy and that it serves the regional community, including Aboriginal people, 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@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**.

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 1).

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

If you have any questions about the questionnaire, please email:
regionalwater.strategies@dpie.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

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

4. Draft regional water strategy objectives and vision

The draft Lachlan 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 Lachlan 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 Lachlan Regional Water Strategy?

Yes

No

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

5. Information and modelling used to develop the Lachlan Regional Water Strategy

The draft Lachlan 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 Lachlan 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?

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

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?

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

7. Opportunities and challenges for water management in the Lachlan region

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

- **Climate conditions place considerable stress on towns, communities, industries and ecosystems:**
 - Region has a naturally variable climate and modelling suggests periods between droughts could shorten.
 - Low inflows to Wyangala Dam.
 - Cowra and Forbes at a low risk of experiencing supply shortfalls.
 - Water security for towns and villages with single supply sources will be more challenging.
 - General security users could experience a decrease in average water availability.
 - Delivering water along the entire length of the Lachlan River will remain a challenge.
- **Review how we manage, use and deliver water to meet future challenges:**
 - Use new climate modelling to review water allocations and river operations.
 - Expansion in horticulture and mining developments is changing water use and demand patterns.
 - Growth is expected in the region's major centres.
 - Water reliability is critical to attract business and jobs.
- **Water is essential for Aboriginal people's health, wellbeing and connection to Country:**
 - Health of waterways impacts the wellbeing of the Traditional Owners and Custodians.
 - Provisions for accessing water for cultural purposes.
 - Improve Aboriginal people's involvement in water management.

- **Protecting critical environmental assets:**
 - Healthy water sources support the region’s environment.
 - The Lachlan catchment has significant wetlands and environmental assets.
 - The fish community is in poor health and some species are under threat.
 - Coordinated action and planning across the region should support environmental outcomes.
- **Better management of groundwater:**
 - Groundwater sources are critical for towns industries and ecosystems.
 - Groundwater levels in areas of concentrated use are in decline.
 - Sustainable access to groundwater resources by all water users.
 - More knowledge is needed about groundwater recharge rates.

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

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

8. Draft Lachlan Regional Water Strategy options

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

The 48 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 Lachlan Regional Water Strategy are outlined below.

Maintaining and diversifying water supplies

1. Water transfer pipeline between Lake Rowlands and Carcoar Dam	6. Inter-regional connections project investigation
2. Wyangala Dam raising project	7. Water quality treatment works
3. Lake Rowlands augmentation	8. Managed aquifer recharge investigations and policy
4. Expansion to the piped town water supply system	9. Reuse, recycle and stormwater projects
5. Replacement and upgrade of existing pipelines	10. Reliable access to groundwater by towns

Protecting and enhancing natural ecosystems

11. Cold water pollution mitigation measures	19. River Ranger Program
12. Environmental restoration works	20. Secure flows for water-dependent cultural sites
13. Improved management of wetlands on private land	21. Improved understanding of groundwater processes
14. NSW Fish Passage Strategy	22. Sustainable access to groundwater
15. Active management of flows	23. Improved clarity in managing groundwater resources sustainably
16. Water quality restoration works	
17. Floodplain management works	
18. Diversion screens to prevent fish extraction at pump offtakes	

Supporting water use and delivery efficiency

24. Water efficiency projects (towns and industries)	28. Review of water trade in the Lachlan region
25. Lower Lachlan efficiency measures	29. Water pricing pilot study
26. Mid-Lachlan efficiency measures	30. Urban water restriction policy
27. Improvements to the storage effectiveness of Lake Cargelligo	31. The 'Sheet of Water' storage

Strengthening community preparedness for climate extremes

32. Efficiency for drought security program	37. Training and information sharing programs: - new climate data / modelling - managing groundwater resources sustainably
33. Drought operation rules	
34. Review of water accounting and allocation process	38. Investigation to maintain amenity for regional towns during drought
35. Investigation of licence conversions	39. In-stream storage for the lower Lachlan
36. Improved data collection and storage	40. Land use change impact on water resources

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

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

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?

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

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 Lachlan region and do not have unintended impacts.

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

B) Are there additional options that we should consider?

10. Other comments

Do you have any other comments about the Lachlan Regional Water Strategy?

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 Lachlan 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@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.



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.

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@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**.

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).

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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

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?

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:**
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 - 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?

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

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?

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

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?

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

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 |
| 36. New drought operational rules (Macquarie River) | - managing groundwater resources sustainably |
| 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?

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?

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

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?

B) Are there additional options that we should consider?

10. Other comments

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

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, challenge and opportunity for the Lachlan 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 with the State and Federal Governments. 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 on page 36 of the Regional Water Strategies Guide that talks 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.

Ensuring effective collaboration on water management at the regional level between multiple government agencies, Councils and Joint Organisations, Local Water Utilities and local and regional stakeholders, including water reliant industries requires a willingness of Governments to engage in meaningful fit-for-purpose collaboration with processes co-designed to optimise outcomes in the strategic space. We seek to co-design the implementation plan as partners rather than having it imposed on us.

The enabling of Joint Organisations within the strategic framework and the solid engagement between DPIE and the CNSWJO on the development of the Lachlan and Macquarie 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.

Further to our response in 7 A) and with reference to the Regional Water Strategies Guide page 11, the intention of the NSW Government 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 Integrated Water Cycle Management 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.

Option 4, Option 5, Option 6 and Government Commitment 3.

Further, the following options similarly provide could be optimised through collaboration with Local Government:

Option 8: the opportunity exists to undertake a pilot project in the Lachlan in partnership with the CSIRO where recent discussions between the CSIRO and the JO have indicated some significant water banking potential in and around the irrigation areas along the Lachlan river worthy of further investigation.

Option 9: presents the opportunity to optimise work on reuse, recycling and stormwater projects with our member councils under a regional IWCM proposal that has been put to DPIE a number of times but which so far has failed to gain traction with the urban water management team.

Option 24 - 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.

The options above are unranked noting that the CNSWJO supports commitments by the NSW Government. 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. For town water supplies to benefit from the augmentation of Lake Rowlands, for example, requires a bi-directional pipeline between Lake Rowlands and Carcoar Dam as well as greater clarity about the management of the water. These projects are not an either or, but rather complementary.

As the failure of urban water supplies is socially unacceptable and economically enormously costly, the CNSWJO supports options that offer substantive improvements in security and reliability of water for town, agricultural, industrial and mining needs. The options identified above have been endorsed by the CNSWJO Board. Further investigation of preferred options is welcomed with the expectation that the outcomes will ensure evidence-based decision making on options and greater clarity about the management of water to the benefit of the region.

As a priority, the development of business cases for the Lake Rowlands to Carcoar Pipeline and the raising of the Wyangala Dam wall, and investigations into the augmentation of Lake Rowlands or any other options, need to be informed by in depth consultation with key stakeholders that is respectful, transparent and fully accountable.

It is critical that further investment in additional storage is augmented with improvements in distribution networks for town water supplies. 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.

Where a whole of government approach to water management is needed, the CNSWJO strongly advocates for Local Government to be represented on the Expert Advisory Panel for the prioritisation of options and has a seat at the table in the implementation of the 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.

Question 8D.

Please refer to 8 A) for comments on ranking. Broadly, the CNSWJO Board does not have policy on the least important options but as detailed elsewhere seeks a seat at the table in the optioneering process and in any decision making around the screening of options.

Representation has been made to the CNSWJO by Lachlan Shire Council regarding option 27 that proposes the separation of the main lake at Lake Cargelligo into three lakes. The township of Lake Cargelligo relies heavily on tourism from recreational use of the lake. The division of the lake into three would limit this usage and have implications for the local economy.

Question 8E.

Generally, the long-list of option in the Lachlan Regional Water Strategy is positive. In particular the CNSWJO welcomes the Government's commitments 1, 2 and 3 as well as options 6 and 7.

Other options that are welcomed include, Options - 21, 24, 32, 33, 35, 37 and 38.

The CNSWJO thanks DPIE for its engagement with Councils in the development of the long-list of options, noting that the Strategy will be reviewed as new information becomes available and short-listed options are explored.

Question 9A.

Generally, the long-list of option in the Lachlan Regional Water Strategy is positive. In particular the CNSWJO welcomes the Government's commitments 1, 2 and 3 as well as options 6 and 7.

Other options that are welcomed include, Options - 21, 24, 32, 33, 35, 37 and 38.

The CNSWJO thanks DPIE for its engagement with Councils in the development of the long-list of options, noting that the Strategy will be reviewed as new information becomes available and short-listed options are explored.

Question 9B.

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.

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.

Marsden Jacob report on Regional water value functions Valuing different hydrological outcomes under Regional Water Strategies – Revised Draft dated 12 August 2020

September 2020



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. 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 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 the methodology be road tested using the Macquarie Regional Water Strategy given the challenges for its urban communities.

This region welcomed acknowledgement by NSW Treasury of previous advocacy by this region on the funding framework for critical water infrastructure reflected in a risk-based approach to funding in the Safe and Secure Water Program version 2. This approach recognised that Benefit Cost Ratio is a blunt instrument and “lived scenarios” a critical component to any assessment that values hydrological outcomes for urban water needs.

In the case of the Restart NSW Safe and Secure Water program, the NSW Department of Industry recognised that the strict criteria the funding source has had around the cost benefit ratio means that they could not always fund water infrastructure projects with high community value, especially those that benefited small communities.¹ The funding mechanism was changed in version 2 of the program so that funding is no longer contingent on restrictive Cost-Benefit Ratios allowing projects to be funded based on risk assessments.²

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.

Finally, we welcome the passing commentary on the value of street trees and suggest that further work needs to be done in this area.

Summary of Consultants Findings

The following summarises key points from our consultant’s review of the revised Draft Marsden Jacobs Report (the Report). Detailed advice is provided in consultant reports provided as appendices.

Western Research Institute

- The Report assumes that in a region experiencing water shortage, water restrictions would last 12 months before an alternative supply option would be put in place. Water restrictions can last longer than 12 months as evidenced in the most recent drought responses across NSW councils. Some communities have existing levels of water restrictions in place in an ongoing attempt to conserve consumption.
- The willingness to pay model for businesses in the Report suggests that the impact of water restrictions on businesses would be similar to that for households. This differs to research

¹ NSW Government Safe and Secure Water Program - Fact Sheet- PUB18/674 issued October 2018

² ibid

undertaken by WRI. WRI conducted interviews with businesses in Bathurst asking them what impact water restrictions which would limit the amount of water they had for industrial and commercial purposes would have on their output, employment and planned investment. The general theme of these interviews was that any reduction in available water would have a corresponding reduction in output, i.e. a 50% reduction in water available would lead to a 50% reduction in business output.

- The Report lists water carting as an alternative supply option for towns with less than 1,000 population but measures only the economic costs of water carting not the financial costs. Future modelling of regional impacts should contemplate the financial implications of water carting given that the costs of water are so critical to local water utilities who are forced from a legislative position to manage the service on a cost recovery basis.
- The Report assumes that water carting for towns may be sourced from a nearby catchment, but in periods of drought this may not necessarily be an option as neighbouring regions may be experiencing water shortages simultaneously.
- It would be beneficial for a wider range of alternative supply options be considered and for the options to be analysed in greater, region specific detail. The report identifies that the regional issues will be contemplated at the benefit cost or business case phase. As this analysis could be a critical issue in determining the merit of capital water infrastructure funding, the Water Strategies must be properly informed by all the relevant local issues to ensure the allocation of priority rankings for projects is equitable and meets the community's needs.
- The valuation of output per ML of water in the Report has been calculated using profit margins and mining royalties. WRI has estimated the value of water based on the output from industry sectors to enable a ranking of how the value of water can be differently interpreted. This information should be considered in the BCA/business case analysis to fully understand the value of water would impact on heavily water reliant sectors, particularly manufacturing.
- The Report does not consider the event of a total water supply failure leading to total industry shut down and evacuation of towns in a region. WRI assumes that this analysis would be undertaken in the benefit cost analysis phase of assessment.
- The impact of water shortages on a region's future growth, economic development, and reputation are also not considered by the Report. WRI therefore expects that these considerations would be components of the benefit cost analysis and business case phases of assessment.

- The estimated range of costs for development of alternative/additional water supplies, i.e. between \$8000-\$16,000/ML, should be included in section 1.3.1 of the Report. This would provide the full range of estimated costs associated with long term provision of urban water, particularly recognising how the value of urban water increases significantly over an extended drought period, when much greater levels of intervention beyond imposition of water restrictions, are needed to sustain town water supplies over 2-3 years of drought.
- The methodology used in the report for valuing water carting does not fully reflect the actual impacts during drought. The cost of water carting is very much influenced by location, and so any

assessment of the valuation of water carting needs to adequately address this, clearly identifying the alternative source of water and its level of reliability.

- The costs utilised in the Report are regarded as a reasonable estimate of the cost of providing emergency water supplies for regional water utilities. However, the specific circumstances and costs associated with each option must be fully identified and recognised in evaluating their value.
- The process of valuing town water during drought needs to give proper consideration to the extended time period over which the impacts of water shortages are felt by communities. The costs associated with water restrictions cannot realistically be confined to a 12-month period, particularly because it cannot be assumed that alternative water supplies will be implemented within 12 months.
- While it is acknowledged that the Report seeks to provide a very general approach to valuing water across NSW and that every individual case will be different, when specific projects identified in the Regional Water Strategies are being evaluated the different circumstances relevant to the water utilities involved must be properly recognised and accounted for in the whole-of-life costings of these projects.
- The definition of economic costs does not include the cost of water, as this is seen as a transfer between 2 parties in NSW and therefore no net cost at a State level. This seems to infer that the value of water is equal between the two parties. This fails to recognise that Local Water Utilities (LWUs) operate as independent authorities, required by the NSW Government to operate under a full cost recovery model as part of Best Practice Principles.
- Water security is often used as a point of difference between LGAs to promote and attract economic development and population growth. LWUs which invest heavily in their long term water security, or who work hard with their community to drive down per capita water usage, place a much higher value on water per kl compared to communities who are relatively relaxed about water use, or where water usage is heavily subsidised via general rates.
- The individual circumstance of each LWU varies significantly with regard to the cost of water. In some instances, water can simply be pumped out of shallow wells close to town and disinfected to make it suitable for potable use, a very inexpensive system in terms of water storage and treatment. By comparison other centres have to capture and store water in large Council-owned water supply dams, then pump this water long distances prior to extensive water treatment before distribution to urban users, resulting in a much more expensive water supply system from an asset value as well as daily operational cost perspective.
- In times of water shortage there are limitations on the capacity of LWUs to both purchase and provide water. In addition to the physical distance, the willingness or capacity of an adjacent LWU to supply water is driven by many factors including the production cost of water, issues associated with equity of supply and scarcity concerns from the community, who argue that a higher price should be imposed to act as a deterrent to excessive demand from struggling LWUs

- With respect to the McNair Ward Willingness to Pay Report:
 - The overall findings of this report are that there is little value placed on the impact of level 1 and 2 water restrictions and so a lack of willingness to pay for the outcomes these restrictions deliver.
 - The impact of more stringent water restrictions should be shared by all residents. The option of allowing residents to pay a higher price to face fewer water restrictions is not generally supported within the community. Water is regarded as an essential service which should be equally available to everyone, so actual or perceived waste by an individual, impacts on the entire community.
 - There is much greater willingness to pay to avoid higher level water restrictions. The imposition of water restrictions at and above level 3 creates a much higher level of awareness across the community of the value of water conservation. It also begins to impact beyond the residential level and at a broader economic level as water restrictions are placed on businesses which in turn further impacts on individuals. There is also a heightened sense of urgency to avoid more stringent restrictions, and so a greater willingness to pay to avoid these.

Recommendations

- Given that the Regional Water Strategies are yet to go on public exhibition, there is an opportunity to road test the methodology as outlined by Marsden Jacobs for valuing water infrastructure. This region recommends this be undertaken on just one catchment – the Macquarie.
- Consideration should be given to the impacts of water shortages on communities and how these impacts can be measured as a component of the valuation of water functions.
- The willingness to pay for communities may be higher than has been modelled when water availability becomes critical and residents and businesses contemplate worsening conditions and/or an emergency scenario where regions run out of water altogether. These are real experiences for Regional NSW and were evident in the latest drought. This has not been considered nor is it a factor in the currently modelled willingness to pay methodology. As such, if the willingness to pay model is the primary method by which community impacts are measured, it needs to be revised to account for the effects of long-term drought on regions and the possibility of a total water supply failure.
- Further work be undertaken on the value of street trees and green spaces in communities.
- The willingness to pay to avoid water shortages of residents and businesses is not static and would be expected to increase as shortages become more critical and community members become more aware of the issues surrounding water security in times of long-term drought. A limitation to modelling impacts over 12 months of water restrictions does not reflect the reality of experiences in Regional areas nor does it reflect the changing levels of willingness to pay as water related issues progress to higher levels of restrictions and/or long term economic impacts on communities and businesses relating to drought and climate change impacts.

- The duration of droughts needs to be considered, especially in regard to the length of water restrictions. A 12-month timeframe as indicated in the report may not be reasonable.
- Consideration needs to be given to the time lag in developing water infrastructure which can take a long time in actuality to achieve planning approval and for the completion of construction, prolonging water shortages and the need for water restrictions or other water supply solutions to be employed.
- There needs to be consideration of the cost of an emergency response to a complete water supply failure event in the valuation of water functions to adequately capture the value of water.
- The estimated range of costs for development of alternative/additional water supplies, i.e. between \$8000-\$16,000/ML, should be included in section 1.3.1 of the Report.
- The cost of water carting is very much influenced by location, and so any assessment of the valuation of water carting needs to adequately address this, clearly identifying the alternative source of water and its level of reliability.
- When specific projects identified in the Regional Water Strategies are being evaluated the different circumstances relevant to the water utilities involved must be properly recognised and accounted for in the whole-of-life costings of these projects.
- Where the individual circumstance of each LWU varies significantly with regard to the cost of water, the definition of economic costs should include the cost of water.

Recommendations on Issues for future modelling

- A more detailed consideration of the impacts on communities will be needed in the benefit case analysis phase and in the business case phase of assessment, particularly around the impacts on regional reputation and growth, and will also need to include the possibility of an emergency day zero even that would lead to a total industry shutdown and evacuation of region.
- Greater detail of alternative supply options and costing must be made in the benefit cost analysis phase of assessment. This can be done in scenario options as part of the assessment of the best value approach in each project.
- With regards to avoided costs of water restrictions, further clarity will be needed as to whether this will be treated as a one off or annualised cost, given that water supply infrastructure would be expected to prevent water restrictions not only for a single year but for the whole of the asset life.
- The methodology be road tested using the Macquarie Regional Water Strategy given the challenges for its urban communities with input from CNSWJO members, Orange, Bathurst and Oberon of the lived experiences from the most recent drought.

- A better understanding of the value the community places on street trees and green spaces. Where currently there is little if no data on this, the CNSWJO is interested in working with DPIE on a project to determine this.
- Following the threat of “day-zero” in many inland communities and recent rainfalls that have boosted supplies, there is an opportunity to survey businesses and communities in regional NSW to determine what they would be willing to pay to ensure their businesses don’t fail.

In conclusion, again this region would like to thank the DPIE for the opportunity to provide this advice. Water and its scarcity are top of mind in Central NSW. 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.

The Central NSW Joint Organisation Board are eager to work with DPIE to road test the methodology with the Macquarie Regional Water Strategy using the lived experiences from the most recent drought. This would provide a level of confidence for all levels of Government and the Minister in the application of this methodology across the state.

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.

Many of our communities are not out of the woods yet in terms of water security and as urban water managers our members are heavily invested in ensuring that the methodology and policy settings are right.

We welcome the opportunity to continue the conversation about how water is valued for our urban communities and to add rigor and confidence to the great work that has been done in this space so far.

For further advice or to discuss any matters raised in this response please do not hesitate to contact me on [REDACTED] or email me on [REDACTED]

Yours sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Central NSW Joint Organisation

Attached:

1. WRI Report
2. Chris Devitt Consulting Report



WATER VALUATION REVIEW

Central NSW Joint Organisation

10 September 2020

WRI acknowledges the traditional custodians of the Country where we live and work. We pay our respects to Elders of past, present and future and acknowledge the connections and contribution to land, sea and community.
WRI thanks the Central NSW Joint Organisation, member councils and particularly Bathurst Regional Council for assistance in the preparation of this report.

Disclaimer

Any representation, statement, opinion or advice, expressed or implied, in this publication is made in good faith, but on the basis that the Western Research Institute (WRI) or its employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever, which has occurred or may occur in relation to that person taking (as the case may be) action in respect of any representation, statement or advice referred to above.

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Prepared for Central NSW Joint Organisation - 10 September 2020

20 017 FINAL Water valuation review report v2

EXECUTIVE SUMMARY

The Western Research Institute (WRI) undertook a review of the regional water value functions report by Marsden Jacob updated 12 August 2020 for the Central NSW Joint Organisation. Key points from the review were:

- The Marsden Jacob report assumes that in a region experiencing water shortage, water restrictions would last 12 months before an alternative supply option would be put in place. Water restrictions can last longer than 12 months as evidenced in the most recent drought responses across NSW councils. Some communities have existing levels of water restrictions in place in an ongoing attempt to conserve consumption.
- The willingness to pay model for businesses in the Marsden Jacob report suggests that the impact of water restrictions on businesses would be similar to that for households. This differs to research undertaken by WRI. WRI conducted interviews with businesses in Bathurst asking them what impact water restrictions which would limit the amount of water they had for industrial and commercial purposes would have on their output, employment and planned investment. The general theme of these interviews was that any reduction in available water would have a corresponding reduction in output, i.e. a 50% reduction in water available would lead to a 50% reduction in business output.
- The Marsden Jacob report lists water carting as an alternative supply option for towns with less than 1,000 population but measures only the economic costs of water carting not the financial costs. Future modelling of regional impacts should contemplate the financial implications of water carting given that the costs of water are so critical to local water utilities who are forced from a legislative position to manage the service on a cost recovery basis.
- The Marsden Jacob report assumes that water carting for towns may be sourced from a nearby catchment, but in periods of drought this may not necessarily be an option as neighbouring regions may be experiencing water shortages simultaneously.
- It would be beneficial for a wider range of alternative supply options be considered and for the options to be analysed in greater, region specific detail. The report identifies that the regional issues will be contemplated at the benefit cost or business case phase. As this analysis could be a critical issue in determining the merit of capital water infrastructure funding, the Water Strategies must be properly informed by all the relevant local issues to ensure the allocation of priority rankings for projects is equitable and meets the community's needs.
- The valuation of output per ML of water in the Marsden Jacob report has been calculated using profit margins and mining royalties. WRI has estimated the value of water based on the output from industry sectors to enable a ranking of how the value of water can be differently interpreted. This information should be considered in the BCA/business case analysis to fully understand the value of water would impact on heavily water reliant sectors, particularly manufacturing.
- The Marsden Jacob report does not consider the event of a total water supply failure leading to total industry shut down and evacuation of towns in a region. WRI assumes that this analysis would be undertaken in the benefit cost analysis phase of assessment.
- The impact of water shortages on a region's future growth, economic development, and reputation are also not considered by the Marsden Jacob report. WRI therefore expects

that these considerations would be components of the benefit cost analysis and business case phases of assessment.

RECOMMENDATIONS

WRI makes the following recommendations **regarding the water value functions report:**

- Consideration should be given to the impacts of water shortages on communities and how these impacts can be measured as a component of the valuation of water functions.
- The willingness to pay for communities may be higher than has been modelled when water availability becomes critical and residents and businesses contemplate worsening conditions and/or an emergency scenario where regions run out of water altogether. These are real experiences for Regional NSW and were evident in the latest drought. This has not been considered nor is it a factor in the currently modelled willingness to pay methodology. As such, if the willingness to pay model is the primary method by which community impacts are measured, it needs to be revised to account for the effects of long term drought on regions and the possibility of a total water supply failure.
- The willingness to pay amount to avoid water shortages of residents and businesses is not static and would be expected to increase as shortages become more critical and community members become more aware of the issues surrounding water security in times of long term drought. A limitation to modelling impacts over 12 months of water restrictions does not reflect the reality of experiences in Regional areas nor does it reflect the changing levels of willingness to pay as water related issues progress to higher levels of restrictions and/or long term economic impacts on communities and businesses relating to drought and climate change impacts.
- The duration of droughts needs to be considered, especially in regard to the length of water restrictions.
A 12 month timeframe as indicated in the report may not be reasonable.
- Consideration needs to be given to the time lag in developing water infrastructure which can take a long time in actuality to achieve planning approval and for the completion of construction, prolonging water shortages and the need for water restrictions or other water supply solutions to be employed.
- There needs to be consideration of the cost of an emergency response to a complete water supply failure event in the valuation of water functions to adequately capture the value of water

WRI makes the following recommendations **regarding future modelling:**

- A more detailed consideration of the impacts on communities will be needed in the benefit case analysis phase and in the business case phase of assessment, particularly around the impacts on regional reputation and growth. The next stages of assessment will also need to include the possibility of an emergency day zero when complete water failure is experienced as part of the scenario modelling event that would lead to a total industry shutdown and evacuation of region.
- Greater detail of alternative supply options and costing must be made in the benefit cost analysis phase and business case phase of assessment. This must be done in scenario options as part of the assessment of the best value approach in each project.
- With regards to avoided costs of water restrictions, further clarity will be needed as to whether this will be treated as a one off or annualised cost, given that water supply

CENTRAL NSW JOINT ORGANISATION

infrastructure would be expected to prevent water restrictions not only for a single year but for the whole of the asset life.

INTRODUCTION

The Western Research Institute (WRI) has been asked by the Central NSW Joint Organisation to review the 2020 regional water value functions report by Marsden Jacob updated 12 August 2020. This review assesses the assumptions and methodologies made in the Marsden Jacob report and checks for reasonableness against conditions in regional areas and previous analysis on water valuation undertaken by WRI.

REVIEW

The purpose of the Marsden Jacob report is to define regional water value functions that will be used by the Department of Primary Industries and Environment in the cost benefit analysis undertaken for the Regional Water Strategies.¹ The report identifies key water user groups which have their own associated usage values for water. These groups are:²

- Town water supply
- Agricultural irrigators
- Mining companies
- Industrial water users
- Recreational water users

The economic values associated with water have been categorised in the report as follows:³

- Avoided costs of water restrictions or alternative supply arrangements
- Producer surplus
- Consumer surplus
- Government Revenue
- Benefits to the broader community.

The first water user group examined by the report is town water supply. Costs for this group have been defined as avoided costs of water restrictions, and the costs of developing alternative supply measures. The report estimates that the cost of water restrictions owing to water shortage would be \$1,500/ML for the first 6 months of restrictions and \$3,500 for the next 6 months, with alternative supply measures required after 12 months of water restrictions.⁴ The water restrictions values have been based on the willingness to pay research project by McNair & Ward in 2012 for residential users, the Water Supply Security and Willingness to Pay to Avoid Drought Restrictions study by Hensher et al. in 2006 for businesses, and average yearly usage rates for households and businesses estimated by Marsden Jacob.⁵

¹ Regional water value functions: Values for inclusion in the cost-benefit analysis to support NSW Regional Water Strategies, Marsden Jacob Associates, 12 August 2020, p.15

² Ibid, p.18

³ Ibid, p.19

⁴ Ibid, p.37

⁵ Ibid, p. 38

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The Marsden Jacob report states after 12 months of water restrictions, alternative water supply measures would need to be developed. For towns with populations of less than 1,000 population, the listed alternative is water carting which the report estimates to carry an economic cost of \$185/ML/km.⁶ For towns with over 1,000 population the alternative supply measures listed are desalination plants, bore water drilling, and pipeline and pump installation for which the costs have been estimated by Marsden Jacob. The costs and assumptions of alternative supply measures are outlined in the table below.

Item	Value	Assumptions
Carting costs	\$185/ML/km	Calculated as the sum of travel time costs, vehicle operating costs (VOCs), accident (crash) costs, and externality (pollution) costs. Based on NSW Government, Transport for NSW (2016), <i>Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives: Transport Economic Appraisal Guidelines</i> .
Deep bore design and drilling/development	\$150,000	Estimate based on market research
Pump capital cost	\$50,000	Estimate based on market research
Annual pump maintenance	\$2,500	Estimated at 5% of capital cost
Pumping cost	\$80/ML	Estimated based on approach set out in Robinson (2002). ⁷ Key assumptions include: <ul style="list-style-type: none"> • Diesel price \$1.30/litre • Pump efficiency 74% • Derating 75% • Pumping head 50m • Pumping rate 5 ML/day
Pump useful life	10 years	Estimate based on market research
Pipeline installation	\$1,300 / m	Derived from engineering cost estimates for pipeline construction
Pipeline useful life	80 years	Estimate based on market research
Desalination plant capital cost	\$6-15m / ML/day	Derived from previous Marsden Jacob projects (lower end of this

⁶ Ibid, p. 28

⁷ Robinson, D.W (2002) Construction and Operating Costs of Groundwater Pumps for Irrigation in the Riverine Plain, CSIRO, available at <http://www.csiro.au/publications/technical2002/tr20-02.pdf>

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		range for larger desalination plants). Includes grid connection.
Desalination annual operating and maintenance – in operation	\$360,000 - 900,000 / ML /day	Estimate based on WSAA project and Marsden Jacob research (6% of capital cost)
Desalination annual operating and maintenance – on standby	\$60,000 - 150,000 / ML /day	Estimate based on WSAA project and Marsden Jacob research (1% of capital cost)
Plant useful life	30 years	Estimate based on market research

Source: Regional water value functions: Values for inclusion in the cost-benefit analysis to support NSW Regional Water Strategies, Marsden Jacob Associates, 12 August 2020, p. 40

For agricultural, mining, and other industrial users, value of output by ML has been estimated in the report with specific values per ML for selected agricultural crops and mining metals, broken down by region.⁸

For agriculture, ML values for annual crops such as wheat, cotton and rice have been calculated using the gross margins of those crops, which is the gross income gained from a product minus the variable costs involved in its production. ML values for permanent crops such as fruit and nuts and vegetables have been calculated using net margins, which are the same as gross margins but include fixed costs as well as variable costs of production.⁹

Mining values have been calculated in the report based on royalties, on the grounds that mining companies are typically foreign owned and since the profits therefore go overseas royalties are the only value applicable to the benefit cost analysis.

The report mentions that ML values for other industries would be calculated from profit margins for any loss of output due to water shortages.

Finally, the value of water to recreational users has been measured as benefit to the broader community of \$18 per water-based recreation trip per day. This value has been determined based on a literature review undertaken by Marsden Jacob.¹⁰

⁸ Regional water value functions: Values for inclusion in the cost-benefit analysis to support NSW Regional Water Strategies, Marsden Jacob Associates, 12 August 2020, pp.6-9

⁹ Ibid, pp. 21-22

¹⁰ Ibid, p.35

SPECIFIC ISSUES

WRI has identified the following key issues from the Marsden Jacob report for commentary.

Water restrictions

The Marsden Jacob report states that water restrictions would last for 12 months, and then alternative supply measures would be required. It is unclear in the report if the alternative supply measures are expected to immediately eliminate the need for water restrictions. If the assumption is that they would, this may not necessarily be the case particularly if water carting is utilised. Infrastructure options to improve water supply options can have a long time lag, and water restrictions may last longer than 12 months in reality.

The Marsden Jacob report measures the cost of water restrictions to businesses and residents of a community based on a willingness to pay model. The basis for this model is the willingness to pay research project by McNair & Ward in 2012 for residential users and the Water Supply Security and Willingness to Pay to Avoid Drought Restrictions study by Hensher et al. in 2006 for businesses, number of houses and housing type estimates by Marsden Jacob, water utility costs estimated by Marsden Jacob, average yearly usage rates for households and businesses estimated by Marsden Jacob.¹¹ The willingness to pay modelling shows only what households and businesses would pay to avoid the impact of water restrictions on themselves individually. It does not show the impacts of water shortage or reduced industry output or shutdown, nor does it provide an indication of the amount that households and businesses would pay to prevent water shortages or reduced output. These impacts are examined separately in the report.

The \$270 per year willingness to pay amount for households to avoid stage 4 water restrictions based on the McNair & Ward study is reasonable and based on sound methodology.

WRI has in previous research used a willingness to pay for households using the NSW Government's Safe and Secure Water Program benefit cost analysis tool. The willingness to pay model in Safe and Secure Water Program benefit cost analysis tool simply asks if a water infrastructure project will significantly reduce the need for water restrictions and the number of households impacted. Based on these two points of information, an annual value for the avoided water restrictions is generated. The Safe and Secure water willingness to pay model is similarly limited in that it does not consider:

- the impacts of severe water shortages that affect business output
- the occurrence of an emergency water supply failure
- potential increasing willingness to pay amounts in extreme or prolonged water shortage conditions
- the wider impacts of water shortages on business and the community.

The willingness to pay model for households used by WRI estimates a significantly lower amount than that estimated by the Marsden Jacob report of approximately \$218 per household per year.

¹¹ Ibid, p.28

WRI has examined the Hensher et al. willingness to pay study which forms the basis for the \$345 per business per year willingness to pay amount. While the methodology for the model is sound, the model itself is quite limited.

Firstly, it only considers water restrictions for a maximum duration of 12 months, where, as previously mentioned, water restrictions may last significantly longer. Related to this point, the model does not consider that willingness to pay amounts may increase as water shortages last longer and become more severe. As stated in the study by Hensher et al., applying the willingness to pay results to water restrictions lasting longer than 12 months which has been specified in the study has not been considered as the data related to a 12 month period of restriction only.¹² Finally the study does not consider the wider impacts on business and community of severe water shortage and emergency condition water supply failure events. The study states that "business participants noted that water restrictions did not impact on the core functions of their business and accordingly...were not concerned about the frequency level or duration of water restrictions."¹³ This assumption is very different to advice and feedback received by WRI from councils and businesses who have been contemplating water restrictions that impact core business functions, industry shutdown, and complete water supply failure.

WRI's approach to measuring the impact of water restrictions on business has been to estimate lost output, mentioned in the value of output per ML section below. Although businesses may be willing to pay an amount to prevent water restrictions that have minor impacts such as being unable to water gardens, consideration must be given to the reality that during periods of extreme water shortage the water available for normal business operations may be restricted. This restriction would necessarily lead to a loss of output, which is why a willingness to pay model alone may not capture the totality of impacts of water shortages on industry.

WRI conducted interviews with major commercial and industrial water users in Bathurst in 2019 to determine what their response would be to water restrictions that reduced the amount of water they had available for industrial and commercial uses. Businesses were asked what the impact on output, employment and investment would be of a 25%, 50%, and 100% reduction in the amount of water available. Although there was a great deal of uncertainty by respondents in their estimations, the general theme of responses was that any reduction in available water would have a corresponding reduction in production output. Employment and investment levels would similarly be affected if the restrictions on available water were to extend longer than the short term.

A summary of the responses is:

- a 25% reduction was associated with minor impacts on output, but generally would not affect employment or investment.

¹² Water Supply Security and Willingness to Pay to Avoid Drought Restrictions, Hensher et al., March 2006, p.63.

¹³ Ibid, p. 64

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- a 50% reduction was associated with significant downscaling and reduction in employment and investment, typically proportional to the reduction i.e. a 50% reduction in available water would lead to a 50% loss of output, staff and planned investment.
- Most businesses would not close until a 100% reduction of water was applied, however one business in the accommodation and food services noted it would close at a 50% reduction.

In contemplating the value function of water issues relating to the business impacts and business confidence should be considered.

A council in the Central West of NSW has identified from experience that a town with a perceived water issue will be less likely to attract investors and thus questions of long term sustainability and the benefits it offers to regional NSW must be considered.

It is WRI's contention that the use of willingness to pay considerations has additional elements that impact this methodology including:

- As water restrictions and/or the reliability of water supply arise in a community, the willingness to pay changes over time as community awareness and consideration of longer term issues give more information and thus communities may refocus their willingness to pay levels according to changing conditions.
- Water restrictions can be in place for longer than the 12 months used in the Marsden Jacob modelling. Clarification of how changes to willingness to pay will be modelled over time given the impacts of changing conditions on the level of willingness to pay should be considered.
- The willingness to pay modelling does not adequately capture the economic factors associated with decreasing industry outputs and reducing employment in regional communities. These elements should be considered in the modelling of the value of water functions as they are key issues for determining how a community values the water functions it uses.

Alternative supply measures

The Marsden Jacob report lists water carting from a nearby catchment as an alternative for towns with populations of less than 1,000 people at a cost of \$185/ML/km.¹⁴ This cost considers the economic cost of water carting only, which is the sum of the travel time, vehicle operating, accident, and pollution costs, and that the financial costs may be "considerably higher".¹⁵

Two points of consideration are raised from the above.

Firstly, it may not be reasonable to assume that nearby catchments would have water available to cart. During periods of drought, multiple adjacent catchments may all be experiencing shortages

¹⁴Regional water value functions: Values for inclusion in the cost-benefit analysis to support NSW Regional Water Strategies, Marsden Jacob Associates, 12 August 2020, p. 28

¹⁵Op cit

with many towns and local government areas competing for access to water. There may not be sufficient capacity to simply cart water from one catchment to another town, and local government councils may be unwilling to do so for water security concerns. Local Water utilities, usually councils, who have responsibility to manage water function, must do so on a self funding basis. Impacts on revenue streams has to be contemplated in assessing the value of water where there is a suggestion that water would be accessible from other locations. If the value exchange of supplying water to a neighbour versus to residents results in an overall loss, the costs should be included in analysis. Further, the opportunity cost of not having water available for residents because it has been supplied to someone else is also a key consideration when valuing water functions.

The second point is that while the financial costs of water carting have not been included, they are nonetheless a real consideration for councils. If councils cannot afford the costs of water carting the wider economic implications of water shortage need to be considered. The report assumes an economic cost of water carting of approximately \$10,000/ML based on a cost of \$185/ML/km and a carting distance of 55km.¹⁶ This 55km distance would be unlikely to be sufficient for most regions, especially more remote areas which may need to source water from further away.

For comparison, Bathurst Regional Council estimates in their Drought Management Plan that water carting would cost \$11 million per week.¹⁷ Based on most recent annual usage volume from the Council's Drought Management Plan of 4,500 ML per year¹⁸, this is a value of approximately \$127,124/ML. Although this value is a financial rather than economic cost, the magnitude of difference between the two values raises the question that the \$10,000/ML figure may be underestimated.

Other alternative supply measures mentioned by the report are focused on accessing groundwater and include the use of desalination plants, bore water drilling, and pipeline and pump installation. While this provides basic coverage of water supply options, it would be beneficial to the decision making process of councils if a wider range of options such stormwater harvesting were given consideration. Groundwater access may not be viable for regions in drought with depleted aquifers and other alternatives may need to be considered. The costs for these options have been estimated generically although the report mentions that actual costs would be site specific¹⁹ and that the localised issues would not be considered until the benefit cost analysis and business case processes are undertaken. For the purposes of determining supply alternatives at the conceptual level, this may be acceptable if the value of water modelling in the Marsden Jacob report are applied universally to all regions, however greater attention to details of specific costs on a per site basis will be essential in the benefit cost analysis and business case phase of assessment as all three stages will ultimately influence what projects are prioritised in the Regional Water Strategies.

¹⁶ Ibid, p.42

¹⁷ Bathurst Regional Council Drought Management Plan 2014, p 46

¹⁸ Regional water value functions: Values for inclusion in the cost-benefit analysis to support NSW Regional Water Strategies, Marsden Jacob Associates, 12 August 2020, p 15

¹⁹ Ibid p.28

Value of output by ML

The valuation of output for agricultural, mining, and other industrial production in the Marsden Jacob report is a different approach than has been undertaken by WRI in its research which has focused on local industrial impacts from an output perspective to illustrate the impact on local economies. We contend this type of analysis is critical to understand the economic impacts water management has on regional communities.

WRI has considered per ML values on a total output basis for individual industry in the Bathurst local government area (with the exception of mining which was not included in WRI analysis). Based on consumption volume and feedback from industry interviews, the manufacturing sector is especially reliant on water for its production processes and contributes \$508,681,000 in output to the Bathurst economy which is more than any other single sector. From interview feedback, the accommodation and food services industry output is also comparatively sensitive to reductions in available water and represents \$130,352,000 in output.

There is a question of whether it is suitable to look only at the profit margins of reduced output, given that reduction in industry output would have flow-on economic impacts for the entire region and beyond given the interdependent nature of industry output and expenditure. For reference, values per ML for production by industry for Bathurst and the value of agricultural production by crop have been provided below.²⁰

²⁰ Western Research Institute, Bathurst Regional Council Water Productivity Report, 16 July 2020

Value of output per ML by industry in Bathurst Local Government Area

Industry	Output (2017-18)	Consumption megallitre (2019)	Value of output per megallitre of water
Irrigated agriculture*	\$13,889,084	3,000	\$4,945
Wholesale trade	\$87,940,000	4.8	\$18,343,763
Electricity, gas, water and waste services	\$140,375,000	7.7	\$18,292,286
Professional, scientific and technical services	\$141,854,000	9.0	\$15,688,343
Administration and support services	\$104,366,000	7.9	\$13,264,616
Financial and insurance services	\$95,996,000	7.7	\$12,408,997
Information media and telecommunications	\$113,561,000	9.2	\$12,279,520
Construction	\$492,533,000	61.4	\$8,018,054
Transport, postal and warehousing	\$104,452,000	41.5	\$2,519,587
Rental, hiring and real estate services	\$113,718,000	46.0	\$2,473,744
Public administration and safety	\$263,705,000	108.8	\$2,424,851
Health care and social assistance	\$216,474,000	91.6	\$2,362,557
Education and training	\$281,776,000	142.8	\$1,973,733
Other services	\$79,640,000	42.4	\$1,878,213
Accommodation and food services	\$130,352,000	120.5	\$1,081,975
Retail trade	\$172,765,000	165.7	\$1,042,411
Manufacturing	\$508,681,000	795.6	\$639,393
Art and recreation services	\$29,058,000	345.4	\$84,119
Residential and other minor users	N/A	1,492	N/A
	\$3,091,105,084	6,500	\$475,554

Source: Western Research Institute, Bathurst Regional Council Water Productivity Report, 16 July 2020

*Irrigated agriculture value calculated by WRI using data from ABS 2015-16 agricultural census. Not representative of agricultural industry overall and does not include non-irrigated agriculture or agricultural support services. Water consumption value for irrigated agriculture based on advice from Council.

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Value of agricultural production in Bathurst Local Government Area

Bathurst LGA value of production inflated to 2018/19 dollars	Value (\$)	Percentage of NSW production value
Total agriculture	62,956,508	0.45%
Total value of crops	18,357,490	0.25%
Broadacre crops - Total	1,268,440	0.02%
Broadacre crops - Cereal crops - Wheat for grain	317,573	0.02%
Broadacre crops - Cereal crops - Oats for grain	586,597	0.50%
Broadacre crops - Cereal crops - Barley for grain	87,423	0.01%
Broadacre crops - Cereal crops - Sorghum for grain	108	0.00%
Broadacre crops - Cereal crops - Triticale for grain	27	0.00%
Broadacre crops - Cereal crops - All other cereals for grain or seed	19	0.00%
Broadacre crops - Non-cereal crops - Lupins	177	0.00%
Broadacre crops - Non-cereal crops - Mung beans	327	0.00%
Broadacre crops - Non-cereal crops - Faba beans	66	0.00%
Broadacre crops - Non-cereal crops - Oilseeds - Canola	270,774	0.05%
Broadacre crops - All other crops not elsewhere classified nec	5,351	0.06%
Hay - Total	2,464,659	0.71%
Hay - Lucerne cut for hay	1,476,840	1.23%
Hay - Other pasture cut for hay	332,244	0.57%
Hay - Cereal cut for hay	494,765	0.33%
Hay - Other crops cut for hay	160,810	0.76%
Nurseries, cut flowers or cultivated turf - Total	2,307,871	0.72%
Nurseries, cut flowers or cultivated turf - Nurseries	314,349	0.20%
Nurseries, cut flowers or cultivated turf - Nurseries - Undercover	11,827	0.02%
Nurseries, cut flowers or cultivated turf - Nurseries - Outdoor	302,522	0.30%
Nurseries, cut flowers or cultivated turf - Cut flowers	141,914	0.19%
Nurseries, cut flowers or cultivated turf - Cut flowers - Outdoor	141,914	0.57%
Nurseries, cut flowers or cultivated turf - Cultivated turf	1,851,609	2.13%
Fruit and nuts (excluding grapes) - Total	352,231	0.05%
Fruit and nuts - Pome fruit - Apples	2,116	0.00%
Fruit and nuts - Stone fruit - Apricots	2,685	0.47%
Fruit and nuts - Stone fruit - Cherries	644	0.00%
Fruit and nuts - Stone fruit - Nectarines	121,618	2.07%
Fruit and nuts - Stone fruit - Peaches	131,846	2.37%
Fruit and nuts - Other fruit - Blueberries	39,642	0.03%

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Bathurst LGA value of production inflated to 2018/19 dollars	Value (\$)	Percentage of NSW production value
Fruit and nuts - Other fruit - Strawberries	53,433	4.27%
Fruit and nuts - Nuts - All other nuts nec	247	0.00%
Fruit and nuts - Grapes - Total	8,104	0.00%
Fruit and nuts - Grapes - Wine production	8,104	0.01%
Vegetables for human consumption - Total	11,956,184	2.68%
Vegetables for human consumption - Broccoli	442,839	20.14%
Vegetables for human consumption - Brussels sprouts	76,338	90.67%
Vegetables for human consumption - Cabbages	4,189,704	25.66%
Vegetables for human consumption - Capsicum - (excluding chillies)	10	0.00%
Vegetables for human consumption - Cauliflowers	3,892,289	57.41%
Vegetables for human consumption - Lettuces - Total	496,480	5.90%
Vegetables for human consumption - Potatoes - Fresh market and processing	404,352	0.53%
Vegetables for human consumption - Pumpkins	83,180	0.36%
Vegetables for human consumption - Sweet corn	1,193,316	40.05%
Vegetables for human consumption - All other vegetables nec	1,177,677	1.05%
Livestock products - Total	14,591,035	0.76%
Livestock Products - Wool	13,761,452	1.37%
Livestock products - Milk	771,392	0.12%
Livestock products - Eggs	58,191	0.02%
Livestock slaughtered and other disposals - Total	30,007,983	0.64%
Livestock slaughtered and other disposals - Sheep and lambs	9,913,536	1.27%
Livestock slaughtered and other disposals - Cattle and calves	20,053,595	0.74%
Livestock slaughtered and other disposals - Goats	3,815	0.05%
Livestock slaughtered and other disposals - Pigs	3,473	0.00%
Livestock slaughtered and other disposals - Poultry	33,565	0.00%

Source: Western Research Institute, Bathurst Regional Council Water Productivity Report, 16 July 2020

Effect of water shortages on regional areas

The Marsden Jacob Report provides tables with catchment specific data for the per ML valuation of agricultural and mining products. However, aside from these tables, the models, values and assumptions in the Marsden Jacob report are largely generic and not region specific. This may be an appropriate methodology for determining water value functions at the conceptual level, however more detailed region specific considerations is essential at the benefit cost analysis phase and business case development within the project assessments.

The consideration of industry shut down or even evacuation of towns in regional areas is not covered by the Marsden Jacob report. These threats are real for regional communities and WRI's research with industry illustrated the significance of changes in water supply and reliability on the economic contribution to regional areas. The majority of the 7 main inland cities all faced issues.

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with water supply and reliability as part of the last drought. The value of water is impacted by the conditions individual regions are facing at any given time.

Some regions, including Bathurst, have been looking at a day zero event where water supply is effectively exhausted.

Under these emergency conditions, industry output would not merely be limited or reduced but would shut down altogether. The Marsden Jacob report considers the impact of reduced output on mining and other industries but does not consider the impact of industries closing or mining companies leaving regions because they cannot get the reliable access to water that they require.

In addition, a day zero event would require an evacuation of one or more towns in a region which would be associated with very high costs. We would contend that the value of water under these severe conditions would require different assumptions and thus amendments to the modelling. It is acknowledged however that there is an opportunity to consider shutdown as a part of sensitivity analysis in the benefit cost analysis where this could be highlighted.

Frequently when emergency water supply failures and extreme water shortages are imminent in regional towns, the NSW Government will provide emergency relief funding to projects that address these shortages. Examples of emergency relief funding include²¹:

- Bathurst: \$5 million in funding for implementation of stormwater harvesting, \$5 million in funding for replacement pipeline from Winburndale Dam to Bathurst Water Treatment Plant.
- Orange: \$2.5 million in funding for development and delivery of Blackmans Swamp Creek stormwater scheme, \$2.5 million in funding for construction of pipeline to connect Spring Creek Dam to Icely Road Water Treatment Plant.
- Dubbo: \$30 million in funding for groundwater infrastructure.

The purpose of previous modelling undertaken by WRI and the recommendations in this report are to prevent the need for emergency funding and instead inform long term infrastructure solutions for sustainable water security in regional towns. As part of the Regional Water Strategy development, the ability to limit emergency relief funding by adequately implementing long term water infrastructure planning should enable the emergency relief money to be used to actually build solutions to enhance regional water supply reliability and availability.

The impacts of water availability on regional growth and regional reputations are not considered by the Marsden Jacob report.

Many local government areas in the Central West are experiencing strong population growth.

WRI's research shows that Bathurst has a projected compound annual growth rate of 0.68% from 2016 to 2041, and the number of businesses in Bathurst grew at a compound annual growth rate of 1.08% from 2015 to 2019. Water security is not only required to maintain these strong growth rates, but the growth in population and businesses creates increasing demand for water necessitating improvements in water security. The cost of losing this growth should be considered

²¹ NSW Government, Emergency relief for regional town water supplies, retrieved 10 September 2020 from <https://www.industry.nsw.gov.au/water/water-utilities/technical-assistance/emergency>

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in any assessment of a region's water value. Other towns are planning for large long term increases as regional cities attract higher immigration from metropolitan cities and from neighbouring rural centres so residents have easier access to health, education and goods and services. The value of water under changing population scenarios should also factor in planning over the 40 year horizon in the Regional Water Strategies.

Water security is a real consideration for investors, businesses, new residents and tourists in a region. A region known to have low water security, long periods of water restrictions, and water supply failures will suffer from a poor reputation and will be less likely to attract these groups and therefore the benefits that they bring. This reputational damage has real economic consequences which need to be considered.

Recommendations

WRI recommends the following in response to the Marsden Jacob Regional water value functions report and also identifies additional issues for future modelling in further stages of assessment that are proposed as part of the creation of the Regional Water Strategies.

Marsden Jacob Regional water value functions report

- Consideration should be given to the impacts of water shortages on communities and how these impacts can be measured as a component of the valuation of water functions.
- The willingness to pay for communities may be higher than has been modelled when water availability becomes critical and residents and businesses contemplate worsening conditions and/or an emergency scenario where regions run out of water altogether. These are real experiences for Regional NSW and were evident in the latest drought. This has not been considered nor is it a factor in the currently modelled willingness to pay methodology. As such, if the willingness to pay model is the primary method by which community impacts are measured, it needs to be revised to account for the effects of long term drought on regions and the possibility of a total water supply failure .
- The willingness to pay amount to avoid water shortages of residents and businesses is not static and would be expected to increase as shortages become more critical and community members become more aware of the issues surrounding water security in times of long term drought. A limitation to modelling impacts over 12 months of water restrictions does not reflect the reality of experiences in Regional areas nor does it reflect the changing levels of willingness to pay as water related issues progress to higher levels of restrictions and/or long term economic impacts on communities and businesses relating to drought and climate change impacts.
- The duration of droughts needs to be considered, especially in regard to the length of water restrictions.
A 12 month timeframe as indicated in the report may not be reasonable.
- Consideration needs to be given to the time lag in developing water infrastructure which can take a long time in actuality to achieve planning approval and for the completion of construction, prolonging water shortages and the need for water restrictions or other water supply solutions to be employed.
- There needs to be consideration of the cost of an emergency response to a complete water supply failure event in the valuation of water functions to adequately capture the value of water

Issues for future modelling

- A more detailed consideration of the impacts on communities will be needed in the benefit case analysis phase and in the business case phase of assessment, particularly around the impacts on regional reputation and growth. The next stages of assessment will also need to include the possibility of an emergency day zero when complete water failure is experienced as part of the scenario modelling event that would lead to a total industry shutdown and evacuation of region.

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- Greater detail of alternative supply options and costing must be made in the benefit cost analysis phase and business case phase of assessment. This must be done in scenario options as part of the assessment of the best value approach in each project.
- With regards to avoided costs of water restrictions, further clarity will be needed as to whether this will be treated as a one off or annualised cost, given that water supply infrastructure would be expected to prevent water restrictions not only for a single year but for the whole of the asset life.

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CAPABILITY

GAICD, MIA, Change Management Qualification (AGSM), BComm (Economics (with merit) - UWO), Public Participation Certificate (IAP?), Certificate IV Workplace training and assessment (TAFE)

joined the WRI team in February 2018 having previously worked on a variety of boards and senior management roles across sectors including media, health, education, regional development, government, event management, research and sales.

For a number of years, also ran a consultancy specialising in services for not for profit entities, focusing on best practice techniques in management and governance.

With formal qualifications in change management, company directorship, community engagement, economics and training, and well developed skills in human resources, information technology, finance and economic development offers a unique skill set to assist with most business needs.

is a member of the Australian Institute of Internal Auditors and has developed internal audit and process improvement frameworks for a number of organisations.

B Econ (UNE)

is an Economics graduate from the University of New England and is currently undertaking a Master of Economics course. has a great interest and passion for macroeconomics and microeconomics, policy analysis and regional development economics. Throughout his undergraduate degree has gained skills in benefit cost analysis, business statistics and economic modelling. Having grown up on a property on the mid-north coast has a strong understanding of life in regional Australia and the issues rural communities face.

BA (ANU)

is responsible for all administrative processes at WRI including executive support, finance maintenance of policies. She also works on research tasks and in particular in the community consultation projects. has worked in a variety of roles at WRI including Fieldwork Supervisor and Research Assistant. As a result, she provides a strong understanding of research processes to her variety of roles. brings a high level of organisational skill and efficiency to her role as

Certificate III – Business (Australian College of Commerce and Management)

brings strong skills in customer service from her experience working in the retail industry. is passionate about building strong rural communities.



Comments on Marsden Jacob Report-Regional Water Value Functions 12 August 2020

Devitt Consulting September 2020

Outline of Marsden Jacob report methodology

The approach taken in the MJ report for placing an economic value on urban water during restrictions is to estimate this in stages:-

0-6 months

- Based on the community's willingness to pay for water restrictions-\$1500/ML.

6-12 months

- Based on the community's willingness to pay for increased water restrictions-\$3500/ML.

>12 months

- For small communities, <1000 people, ongoing water carting is seen as an appropriate ongoing strategy.
- The estimated cost, based on a 55km carting distance, is \$185/ML/kl or \$10,000/ML
- For Larger communities it is assumed that during the 12 months of restrictions options for alternative water supplies have been developed and will be implemented.
- The alternative water supply is assumed to be groundwater, which is needed to be treated through desalination to make it suitable for potable use.
- The order of cost of these works is estimated, as per Appendix 1, to be between \$8,000/ML for a 3 ML/day desal plant operating 100% of the time, up to \$16,000/ML for the same plant only operating 20% of the time-i.e. 2 years in every 10.

Comments on MJ Report

1. General

The report, in section 1.3.1, provides a summary of the estimated cost of water restrictions over a 12-month period, as well as the cost of water carting which would be implemented after 12 months. There is also reference made to the development of alternative/additional water sources after 12 months of restrictions for larger towns which cannot be serviced by water carting.

The estimate range of costs for development of these alternative supplies, i.e. between \$8000-\$16,000/ML, should also be included in section 1.3.1. This would have provided the full range of estimated costs associated with long term provision of urban water, particularly recognising how the value of urban water increases significantly over an extended drought period, when much greater levels of intervention beyond imposition of water restrictions, are needed to sustain town water supplies over 2-3 years of drought.

2. Valuation of water carting

The methodology used in the report for valuing water carting does not fully reflect the actual impacts during drought. As was the case during the last drought, accessibility to water carters became increasingly difficult due to the strong demand for these services both locally and regionally. Water

tankers used to cart potable water need to be properly accredited as a food-standard compliant vehicle to reduce the risk of contamination. There are significant costs to gain and maintain this accreditation and only a limited number of operators undertake this type of work, particularly as there is only limited demand during non-drought periods. As a result, there is limited capacity within the industry to ramp up to large scale, long term water carting campaigns during widespread drought. In some cases, milk tankers have been utilised to meet this extra demand.

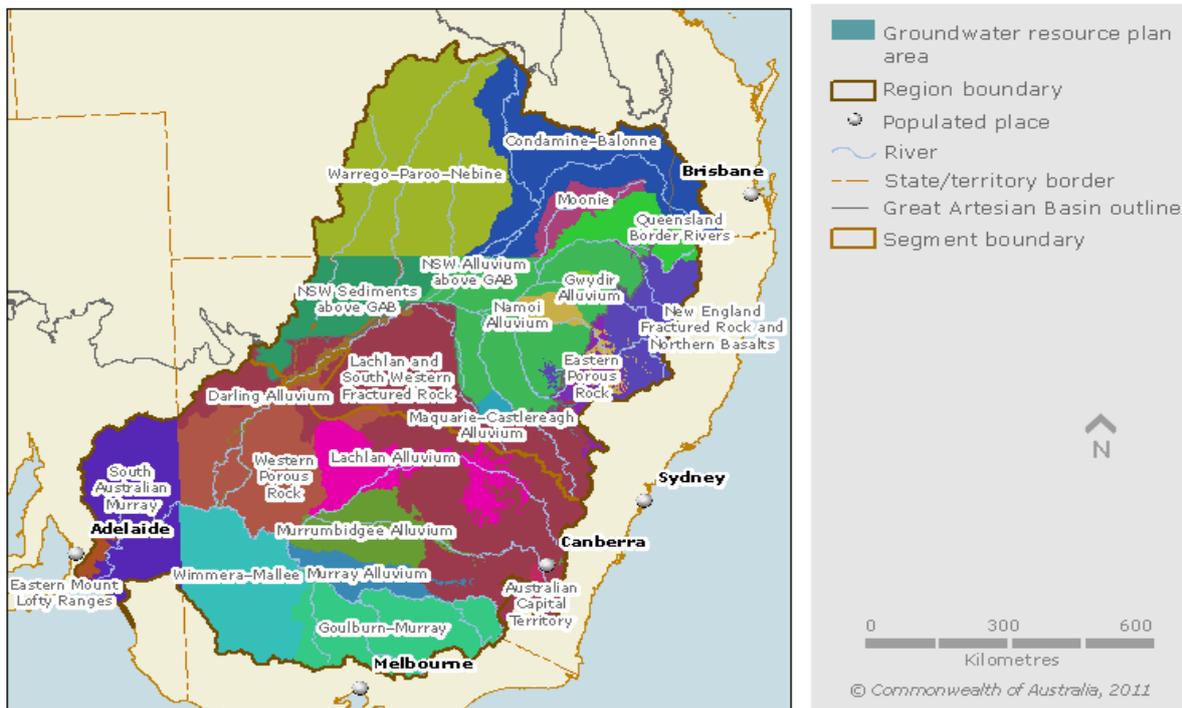
Therefore, where these vehicles are diverted to water carting, there is an economic impact on other industries. Consideration needs to be given to the scarcity cost in addition to the identified economic costs, particularly travel time costs and VOCs.

The cost of carting water will vary significantly due to the distance travelled. The worked example, based on a travel distance of 55km, equates to \$10,000/ML. Many of the smaller centres in NSW which could potentially be serviced by water carting due to their relatively small population, are also often more remote. In times of drought access to alternative water supplies is very limited either due to the distances involved or an unwillingness of other suppliers to provide water out of concern for preserving their own supplies.

The cost of water carting is very much influenced by location, and so any assessment of the valuation of water carting needs to adequately address this, clearly identifying the alternative source of water and its level of reliability.

3. Alternative water supplies

The development of alternative groundwater supplies is a standard response to ongoing water security issues during drought. This approach has been utilised very extensively across NSW over the past 2-3 years and is often the only viable alternative supply available to regional communities. As indicated in the map below extensive groundwater resources exist across NSW-the key issues to utilising these resources for town water use include the depth of drilling required, the degree of transmissivity of the aquifer and the quality of the water and the subsequent level of treatment required prior to using it for human consumption.



The provision of cost estimates in the MJ report for desalination of groundwater recognises the high capital and operating costs associated with the development of new groundwater supplies. As the report acknowledges, the cost/ML can vary significantly depending on the scale of the works as well as the time period which they are utilised- ideally the high capital costs need to be distributed over as long a time period as possible to reduce the cost per ML, however the high operational cost/ML encourages minimal use of this option especially when normal supplies are restored.

This highlights the critical need for long term water security planning to move away from “short term fixes” to help survive drought, then settle back to BAU until the next inevitable drought hits. Rather these alternative water supplies need to be seen as part of the overall portfolio of options any responsible water utility needs to develop and have at their disposal to provide resilience and meaningful long-term water security for their community.

This approach will result in an increase in the ongoing cost of water supply beyond the drought. When normal supplies resume the emergency supplies may either be mothballed or utilised intermittently to keep the associated infrastructure in working order. However, they will result in additional lifetime ownership costs, effectively the premium which needs to be paid to have these emergency supplies available as a future insurance policy for future droughts.

The order of cost, both capital and operating, utilised in the MJ report is appropriate, given these can only be utilised as a general indication of cost given the high number of variables associated with every individual water supply. The costs adopted in the report range between \$8000-16,000/ML. By way of comparison, the \$30M provided to Dubbo Regional Council will deliver in the order of 4,500ML/a of additional groundwater supplies, at a capital cost of around \$6,700/ML with minimal additional water treatment required. Cabonne Council is currently developing a new groundwater supply in Molong at a

cost of around \$1.2M to deliver 100ML /a of groundwater-a cost of \$12,000/ML which includes some additional water treatment.

On this basis the costs utilised in the MJ report are regarded as a reasonable estimate of the cost of providing emergency water supplies for regional water utilities. However, the specific circumstances and costs associated with each option must be fully identified and recognised in evaluating their value.

4. Impacts of time on water valuation

The costs associated with water restrictions cannot realistically be confined to a 12-month period, particularly because it cannot be assumed that alternative water supplies will be implemented within 12 months. Water restrictions continue to be utilised as the key tool by LWUs to not only drive down water usage but also raise awareness of the future capacity of water supplies, with “day-zero” assessments becoming a key communication approach to reinforce this starkly to communities. At the same time alternative water supply options need to be developed with increasing urgency, but are subjected to significant time delays due to a range of issues including:

- gaining full appreciation of the urgency of the situation, either within local communities themselves or at a State level.
- securing funding, which often requires development of submissions and business cases to justify the project, followed by a period where the applications are assessed in detail before funding deeds finalised.
- ensuring appropriate approvals are secured, especially where projects have the potential for significant environmental or economic impacts, both of which are under greater scrutiny during times of water shortage and competition for diminishing supplies.
- securing contractors to undertake works quickly-for example the availability of water drilling resources in NSW during the last drought led to delays of up to 6 months for urgent work due the level of demand.

The experiences in centres such as Orange and Dubbo during recent drought has been that even urgent and well-funded projects take between 2-3 years to develop and implement. This requires ongoing water conservation and demand management activities to continue, with an increasing level of impact, as the reality of the situation becomes apparent to the community. The approach is one of adaptive management, focussed on employing as wide a range of strategies as is needed to extend water supplies and reduce demand to avoid “day zero”. As this continues the actual value of water in the eyes of the community increases significantly, with issues once seen as non-negotiable such as closure of sporting facilities and the death of street trees accepted as the harsh reality of the drought and a cost the community has to bear.

The process of valuing town water during drought needs to give proper consideration to the extended time period over which the impacts of water shortages are felt by communities.

5. The Value of Urban Water

The definition of economic costs does not include the cost of water, as this is seen as a transfer between 2 parties in NSW and therefore no net cost at a State level. This seems to infer that the value of water is equal between the two parties.

However, this fails to recognise that Local Water Utilities (LWUs) operate as independent authorities, required by the NSW Government to operate under a full cost recovery model as part of Best Practice Principles. Water security is often used as a point of difference between LGAs to promote and attract economic development and population growth. LWUs which invest heavily in their long term water security, or who work hard with their community to drive down per capita water usage, place a much higher value on water per kl compared to communities who are relatively relaxed about water use, or where water usage is heavily subsidised via general rates.

The individual circumstance of each LWU varies significantly with regard to the cost of water. In some instances, water can simply be pumped out of shallow wells close to town and disinfected to make it suitable for potable use, a very inexpensive system in terms of water storage and treatment. By comparison other centres have to capture and store water in large Council-owned water supply dams, then pump this water long distances prior to extensive water treatment before distribution to urban users, resulting in a much more expensive water supply system from an asset value as well as daily operational cost perspective.

In times of water shortage there are limitations on the capacity of LWUs to both purchase and provide water. In addition to the physical distance, the willingness or capacity of an adjacent LWU to supply water is driven by many factors.

- the production cost of the water which must at least be charged by the supplier to maintain equity with other water customers.
- the scarcity concerns from the community, who argue that a higher price should be imposed to act as a deterrent to excessive demand from struggling LWUs.
- an equity perspective, with the community having sufficient water achieving this through good long term water management, which comes at a cost, compared to the neighbouring LWU who failed to properly provide for future potential water shortages, and now should not be simply "bailed out" due to this lack of action.

While it is acknowledged that the MJ report seeks to provide a very general approach to valuing water across NSW and that every individual case will be different, when specific projects identified in the Regional Water Strategies are being evaluated the different circumstances relevant to the water utilities involved must be properly recognised and accounted for in the whole-of-life costings of these projects.

This would also help reinforce the much higher economic value of urban water during times of scarcity compared to agricultural and mining uses.

Comments on McNair Ward Willingness to Pay Report

The overall findings of this report support the general community attitude to water restrictions in the Central West i.e.:-

1. There is little value placed on level 1 and 2 water restrictions and so a lack of willingness to pay for the outcomes these restrictions deliver.

The impacts of low-level water restrictions do not impact significantly on water users, often no more so than the annual fluctuations of rainfall throughout the year. They provide a "feel good" factor for

communities, to enable them to participate in water conservation without too much actual impact on their lifestyle. Level 1 and 2 water restrictions have value as putting the community on-notice that there is a potential impending water supply issue looming, and also lessens the impact, either actual or perceived, when more stringent restrictions have to be imposed.

Orange residents effectively demanded Council retain level 2 water restrictions following the last drought as a “base case” to help avoid the hardships of much more stringent restrictions. This was driven mostly by the community’s sense that it was the right thing to do and a way to secure water conservation gains made during the drought, rather than any financial imperative.

2. The impact of more stringent water restrictions should be shared by all residents

The option of allowing residents to pay a higher price to face fewer water restrictions is not generally supported within the community, with a financial capacity to pay for more water seen as inappropriate and wasteful, particularly when this generally is evident as the only green lawn in the street. Water is regarded as an essential service which should be equally available to everyone, so actual or perceived waste by an individual impacts on the entire community. The willingness of neighbours to report inappropriate water usage during water restrictions, or the sense of community shaming of individuals/organisations guilty of high-water use, as well as the prevalence of “bore water in use signs” all demonstrate the sense of community ownership of water.

3. There is much greater willingness to pay to avoid higher level water restrictions

The imposition of water restrictions at and above level 3 creates a much higher level of awareness across the community of the value of water conservation. As well it begins to impact beyond the residential level and at a broader economic level as water restrictions are placed on businesses which in turn further impacts on individuals. There is also a heightened sense of urgency to avoid more stringent restrictions, and so a greater willingness to pay to avoid these. Level 3 restrictions are often seen as still manageable but once level 4 is imposed, the urgency to avoid further restrictions becomes critical. During the recent drought a number of Central West Communities who were on level 5 water restrictions were regularly portrayed as being amongst the most at risk communities in the State, where calculations of “day zero” started to emerge as the preferred measure of the criticality of water supplies. While this helped focus the entire State on the dire situation faced by these communities, it also made many of them realise that this level of attention should be avoided in the future at all cost.

Capability

BE Civil, FIE Aust, CP Eng.

As the former [REDACTED] [REDACTED] has had extensive experience in developing sustainable responses to improved urban water security, throughout the Millennium Drought at Orange as well as the recent drought in Dubbo. In both cases his approach has been to identify and develop a broad range of water supply options, utilising a mix of traditional and innovative solutions to build diverse and resilient urban water supply systems. In addition he was heavily involved in the development of the 2009 CENTROC Water Security Study, which adopted a regional approach to urban water security across the Central West of NSW and has provided a blueprint for the delivery of a number of significant water security projects since the study was completed. Over the past 12 months with Devitt Consulting, [REDACTED] has continued to work with Dubbo Regional Council as well as a number of smaller regional Councils on their water security challenges.