NSW GOVERNMENT

Community Consultation

What we heard about the draft Lower Hunter Water Security Plan

November 2021

HUNTER WATER

love water

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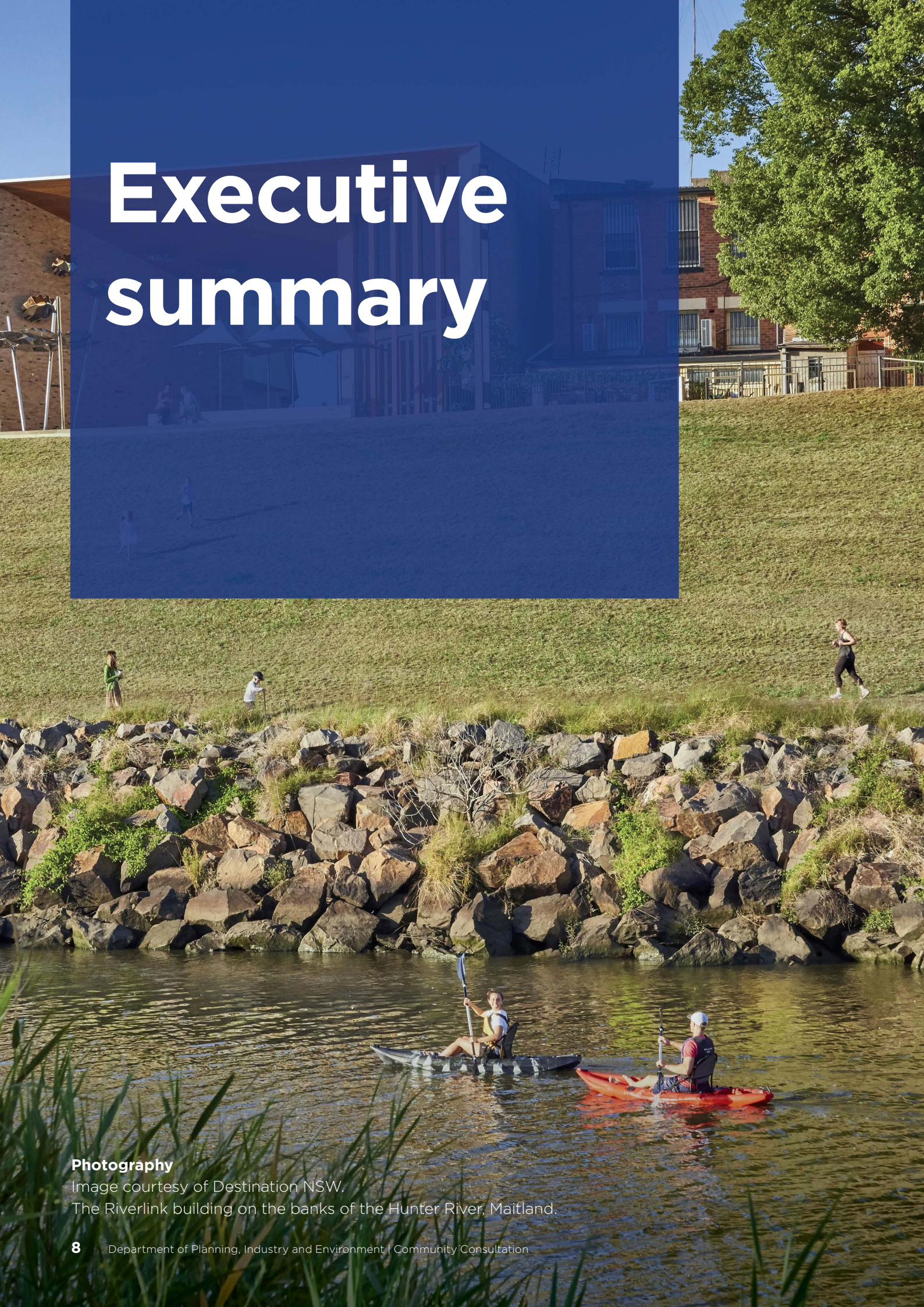
Image courtesy of iStock.
Swansea Channel, Newcastle.

Executive summary



Photography
Image courtesy of Destination NSW.
The Riverlink building on the banks of the Hunter River, Maitland.

Community and stakeholder feedback was sought on the draft Lower Hunter Water Security Plan through a widely promoted public exhibition process that was open from 9 August to 26 September 2021, inclusive.

Feedback could be provided in two ways, by completing a guided submission survey or by providing a written submission either as an individual, or on behalf of an organisation. A total of 112 guided submission surveys were completed and 99 written submissions were received.

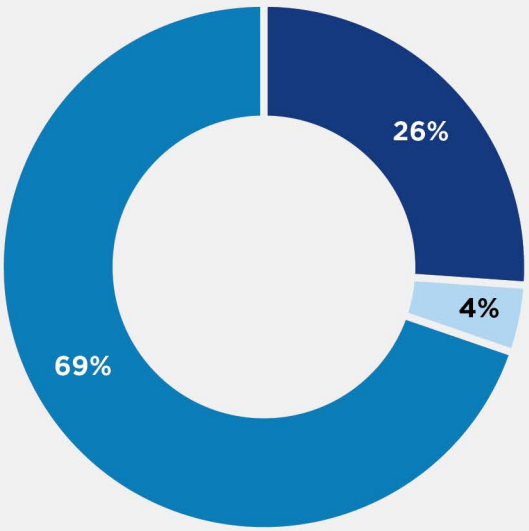
Feedback from the community through both the guided submission survey and written submissions reflected broad support for the draft Lower Hunter Water Security Plan (LHWSP) overall.

I fully support the implementation of the Draft LHWSP as it addresses the need to reduce water consumption and develop a diversified range of climate independent water supply options to meet the regions demand for the next 40 years and beyond, as well as provide an ongoing supply in a long and severe drought.

Individual written submission

What we heard

Figure 1. Overall support draft LHWSP*



Respondents to the guided submission survey were asked to rate their overall support of the draft Lower Hunter Water Security Plan. Approximately seven in 10 respondents supported the draft plan overall. There was also broad support for the draft plan overall from those who made more detailed written submissions.

- Oppose
- Neither support nor oppose
- Support

* Results from LHWSP guided submission survey

Participants in the guided submission survey expressed a high level of support for the draft Lower Hunter Water Security Plan principles and priorities.

Reasons why respondents agreed with the principles include:

- the need for a diversified mix of supply options
- the need to provide a secure water future
- the impact of climate change
- the imperative to start the learning/planning process in time for when we need it
- because we live in a changing world
- potential current and future technological innovation that could be employed.

Reasons why respondents supported the priorities include:

- that safe drinking water and water for liveability is essential for our lives
- using our current system efficiently is valued
- having a diversified mix of options is seen to be important.

Figure 2. Agreement with draft LHWSP principles

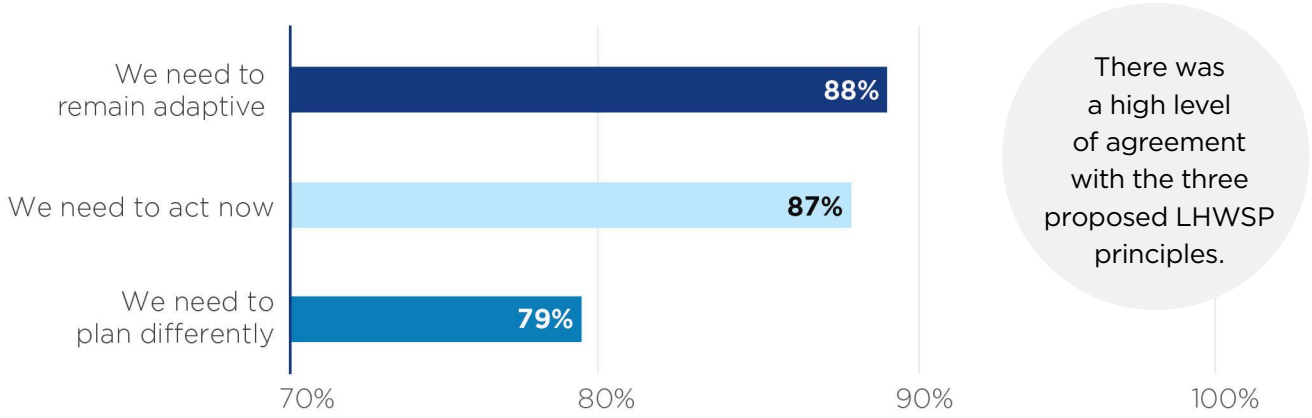
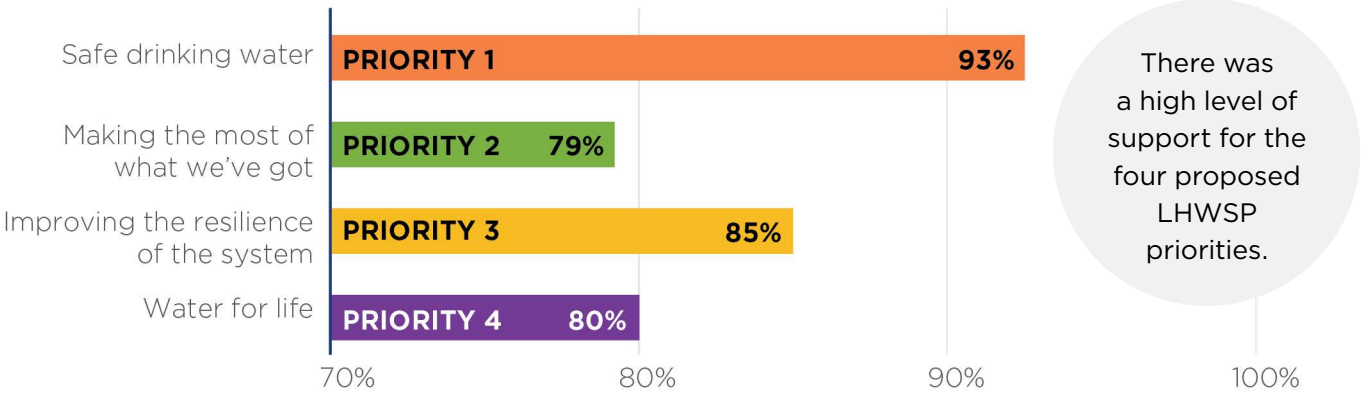


Figure 3. Support for draft LHWSP priorities

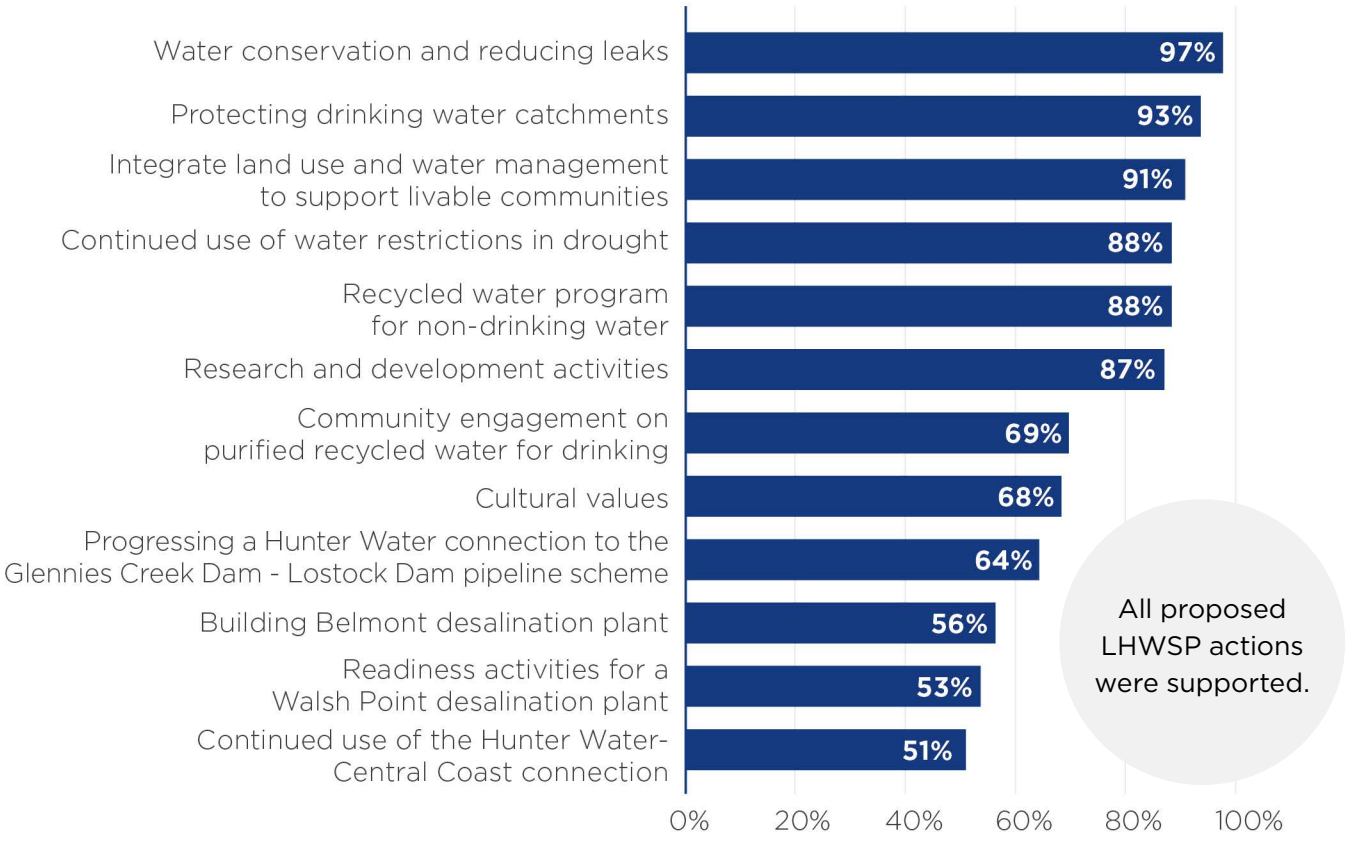


There was broad support for all proposed actions in the draft Lower Hunter Water Security Plan. However, there was some variation in levels of support. The actions with the highest levels of support were related to making the best use of current resources (*water conservation and reducing leaks and protecting drinking water catchments*). There were a range of reasons given as to why the various actions were supported including themes related to:

- reducing demand and water waste
- the efficiency of our current system
- improving resilience and water security in the region
- the need for a diverse mix of options.

Those with the lowest levels of support were around desalination actions and water sharing with the Central Coast. Concerns around Belmont and Walsh Point desalination were predominantly around perceived environmental impacts and costs.

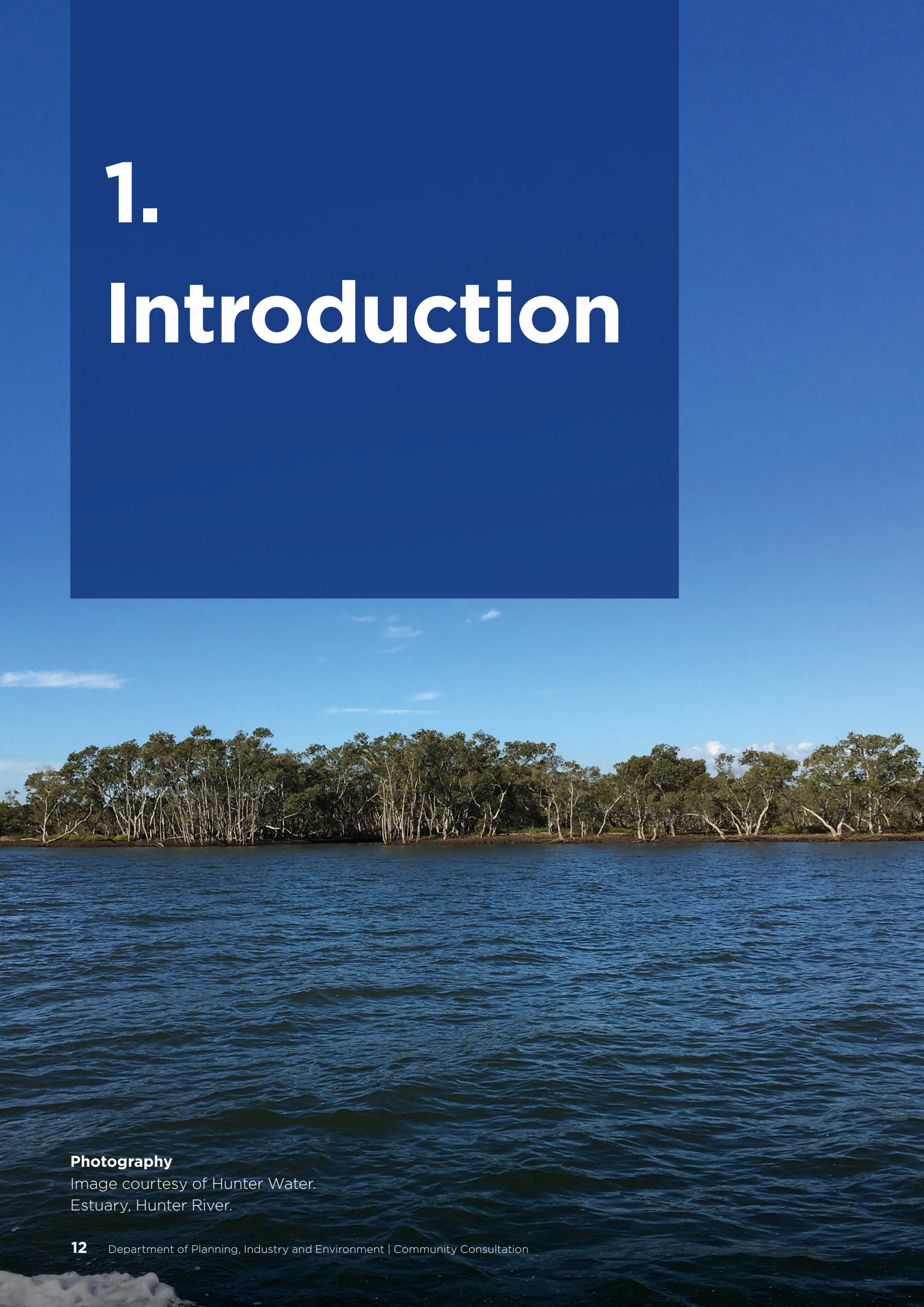
Figure 4. Support for draft LHWSP actions



It was evident from the survey results and written submissions that having a diverse program of actions that increases water security for the region is highly valued by the community.

The main concerns raised across the submissions were predominantly related to the perceived environmental and economic impact of the Glennies Creek Dam to Lostock Dam pipeline scheme, the environmental impacts/energy use associated with desalination and the costs required to deliver the program of actions. These concerns were taken into consideration during the process of finalising the plan.

1.
Introduction



Photography
Image courtesy of Hunter Water.
Estuary, Hunter River.

The draft Lower Hunter Water Security Plan is a whole-of-government approach to ensuring the region has a resilient and sustainable water future that contributes to regional health and prosperity and is supported by the community.

Water is essential for communities across the Lower Hunter to flourish. It nurtures our natural environment, keeps our households and businesses running, contributes to green and cool spaces in our cities and towns and keeps our industries operating and our regional economies thriving. Water is deeply entwined with the spiritual, cultural, social and economic wellbeing of Aboriginal communities across the Lower Hunter region.

The draft Lower Hunter Water Security Plan aims to ensure water security for the Lower Hunter for the next 40 years.

Photography
Image courtesy of iStock.
Aerial view of Dora Creek, Lake Macquarie.

2. Public exhibition overview

Photography
Image courtesy of Destination NSW.
Aerial view overlooking the Carrington Mangrove Boardwalk along Throsby Creek, Newcastle.

The draft plan was on public exhibition from 9 August to 26 September 2021, inclusive. There was a diverse approach to promoting the public exhibition period to encourage engagement with the process.

1,600
visits to the LHWSP Your Voice webpage

157
downloads of the full draft plan

235,000
households received the special LHWSP edition of the Hunter Water's The Fountain newsletter

48
community members attended our virtual webinar

10
presentations to stakeholder/ community groups

25
items of media coverage

Social media across Hunter Water's channels received:

15,350
Engagements

152,716
Impressions

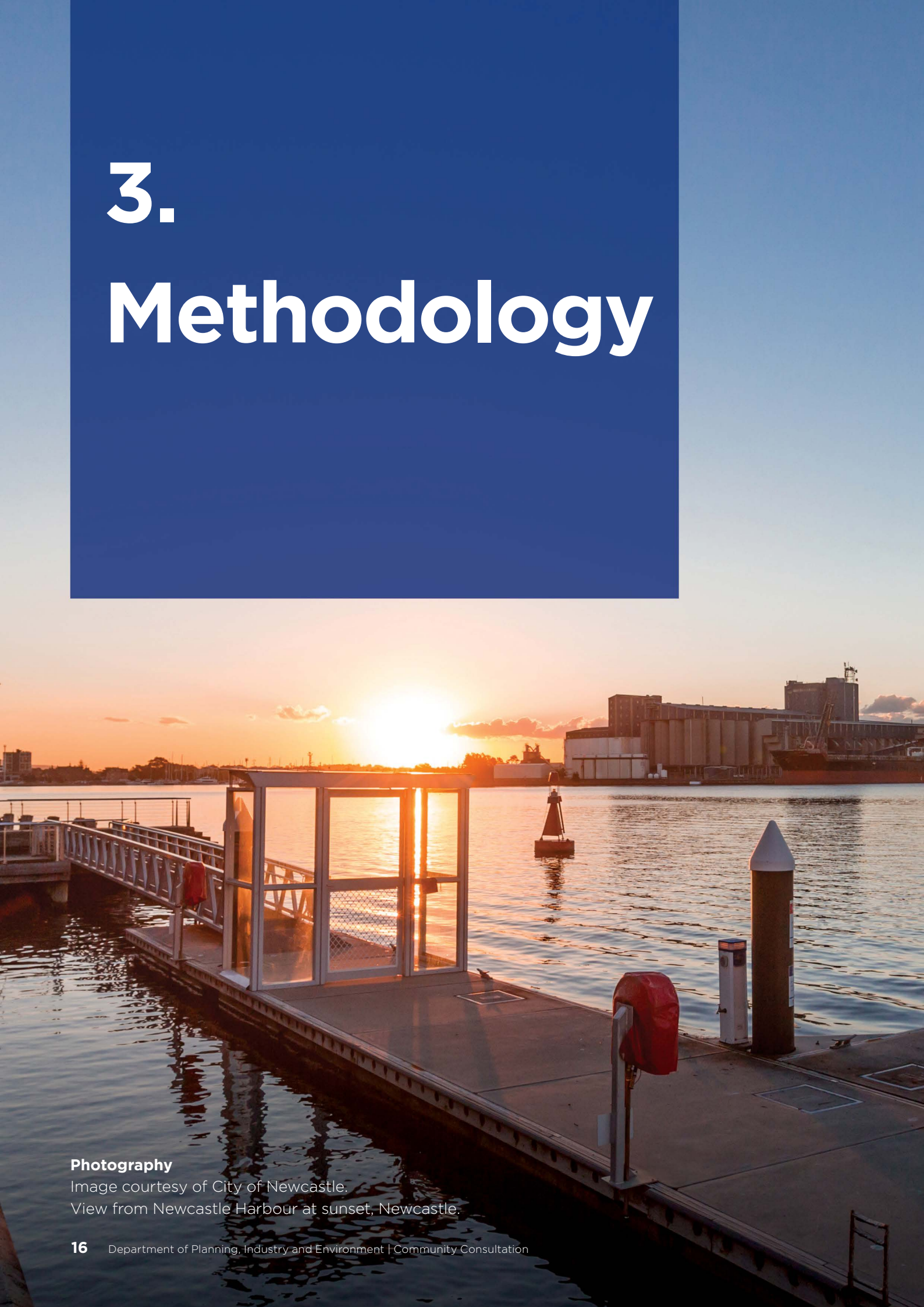
This promotion resulted in a wide range of submissions from individuals and organisations.

112
guided submission surveys were completed

76
written submissions **from individuals**

23
written submissions **from organisations**

3. Methodology



Photography
Image courtesy of City of Newcastle.
View from Newcastle Harbour at sunset, Newcastle.

There were two ways individuals and organisations could make submissions on the draft plan; via a guided submission survey or by providing a written submission.

Guided submission survey methods

A number of conventions were established in the presentation of the guided submission survey results.

Assessment scales

In the survey, respondents were presented with a five-point scale for the assessment of:

- agreement with three draft Lower Hunter Water Security Plan strategic priorities
- level of support for principles, strategic priorities, program of actions and draft Lower Hunter Water Security Plan overall.

The scales were constructed as follows:

Table 1. Construction of scales

Agreement	Support
1=Strongly disagree	1=Strongly oppose
2=Disagree	2=Somewhat oppose
3=Neither agree nor disagree	3=Neither support nor oppose
4=Agree	4=Somewhat support
5=Strongly agree	5=Strongly support
A response of don't know could be provided if a respondent could not rate a statement	

Note: A neither score of 3 out of 5 suggests a neutral opinion, i.e. no strong feelings either way.

Mean scores

The numeric values from the scales (1 to 5) were converted to an overall average (mean) score. This scale is calculated only for those who responded using the 1 to 5 scale – it **does not** include non-scale responses. An example of the calculation of an agreement score follows. All scales outlined above follow the same method for calculating mean scores.

Table 2. Mean score calculation

Response Scale	Number of responses	Response scale x number of responses	Score
1=Strongly disagree	30	1x30	The score is calculated by dividing 1,470 by the number of responses (420 in this case): 1,470/420
2=Disagree	60	2x60	
3=Neither agree nor disagree	80	3x80	
4=Agree	170	4x170	
5=Strongly agree	80	5x80	
Don't know/NA	80	Not included in calculation	
Total	500 (420 when NA responses removed)	1,470	**Score = 3.5**

Note: A neither score of 3 out of 5 suggests a neutral opinion, i.e. no strong feelings either way.

To obtain a score of 5.0 all respondents who provided a rating would have to have answered '5', i.e. answered *strongly agree* etc. as applicable. Therefore, a higher rating represents a relatively more favourable response.

Interpretation

In interpreting the scores, it should be remembered that:

- the higher the score, the higher the level of agreement, support etc.
- an agreement score of greater than 3 indicates that, on balance, respondents agreed (the same interpretation applies to the support scale).

When interpreting the results, the distribution of ratings and the score need to be considered together, not individually. For example, ratings which are evenly spread over the 1 to 5 scale may yield the same mean score as those which are relatively polarised at either end of the scale. The policy implications for these contrasting distributions are very different, despite the fact that they received the same score.

Open ended responses

Participants were given the opportunity to elaborate on their survey responses if they wished to. When more than 20 open ended verbatim responses were provided, these were coded into like 'themes', a full accounting of these responses is given in Appendix I – Open ended guided submission survey responses. Verbatim comments have been coded into themes and presented in tables or figures.

Written submission methods

The analysis of the submissions made by both cohorts (individuals and organisations) followed the same process:

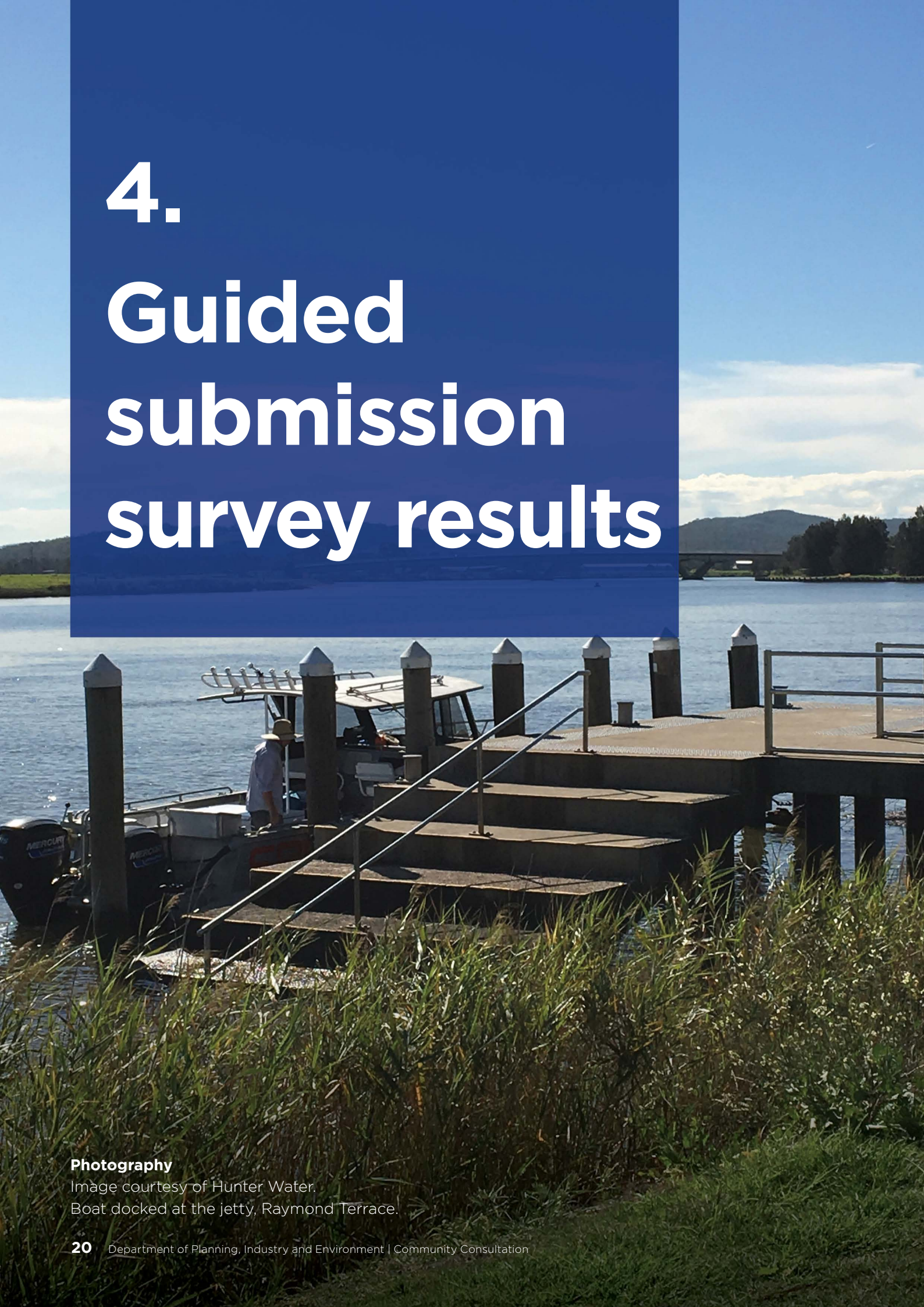
- initial reading and assessment of general sentiment
- codification of key points raised
- identification of the key themes inherent in each submission.

The outcomes of these assessments are presented in tabular form.

Photography
Image courtesy of City of Newcastle.
Aerial view of the coastline and city, Newcastle.

4.

Guided submission survey results



Photography
Image courtesy of Hunter Water.
Boat docked at the jetty, Raymond Terrace.

Demographics

Respondents were asked a series of demographic questions. The results in Table 3, Table 4, Table 5 and Table 6 indicate that:

- of the 112 survey respondents, the majority (95%) were individuals and did not identify as a First Nation or Aboriginal person (98%)
- nine in ten participants (90%) were Hunter Water customers
- local government areas (LGAs) with higher populations had higher proportions of responses.

Table 3. Individual/organisational participation

Are you making this submission as an individual or as a representative of an organisation?	%	Number
Individual	95%	106
Organisation	5%	6
Name of organisation		
Slow Food Hunter Valley		
Committee for the Hunter		
Lower Hunter Agricultural Water Users Association		
EcoNetwork-Port Stephens Inc.		
Not identifiable		
Did not provide response		

Table 4. Aboriginality

Do you identify as a First Nation or Aboriginal person?	%
Yes	2%
No	98%

Table 5. Hunter Water customer

Are you a Hunter Water customer?	%
Yes	90%
No	10%

Table 6. LGA of residence

What local government area do you live in?	%
Cessnock	3%
Lake Macquarie	33%
Maitland	10%
Newcastle	24%
Port Stephens	13%
Dungog	12%
Other	4%

Agreement with draft Lower Hunter Water Security Plan principles

In developing the draft Lower Hunter Water Security Plan, we recognised that in order to meet the challenges facing the Lower Hunter's water resources, and provide a resilient and sustainable water future for the region, we need to do things differently. In light of an increasingly uncertain climate, our decision making has been guided by three key principles:

We need to plan differently—The traditional planning approach for drought has too much risk and uncertainty inherent within it. We need to change our approach so that it aligns with the community expectation that there will be a secure supply of water available even in a long and severe drought.

We need to act now—To ensure we have a reliable water supply in typical conditions and in drought, we need to take steps now. This means continuing to invest in water conservation and recycling, increasing the capacity of our water supply system and planning for the infrastructure we may need in drought before the next drought.

We need to remain adaptive—The future is uncertain. We need to be more adaptive in how we manage our water system. This means adopting an approach that progressively delivers 'no-regret' actions over time while also allowing us to remain adaptable to changing conditions and respond to risks and opportunities as they arise.

Respondents were asked how strongly they agreed or disagreed with these principles. Results in Table 7 indicate that:

- The mean score for all three principles was above four, indicating that participants on balance agreed with them
- A total of 79 per cent either agreed or strongly agreed that *we need to plan differently*, 87 per cent agreed or strongly agreed that we need to act now and 88 per cent agreed or strongly agreed that *we need to remain adaptive*.

Table 7. Level of agreement with draft Lower Hunter Water Security Plan principles

Principles	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know	Mean score
We need to plan differently	5%	5%	11%	30%	49%	0%	4.1
We need to act now	3%	4%	6%	32%	55%	0%	4.3
We need to remain adaptive	3%	1%	7%	29%	59%	1%	4.4

Survey participants were given the opportunity to indicate why they agreed or disagreed with the principles. A total of five respondents provided a reason why they disagreed with the principle *we need to plan differently*, three for *we need to act now* and two for *we need to remain adaptive*. These responses are provided verbatim in Table 8.

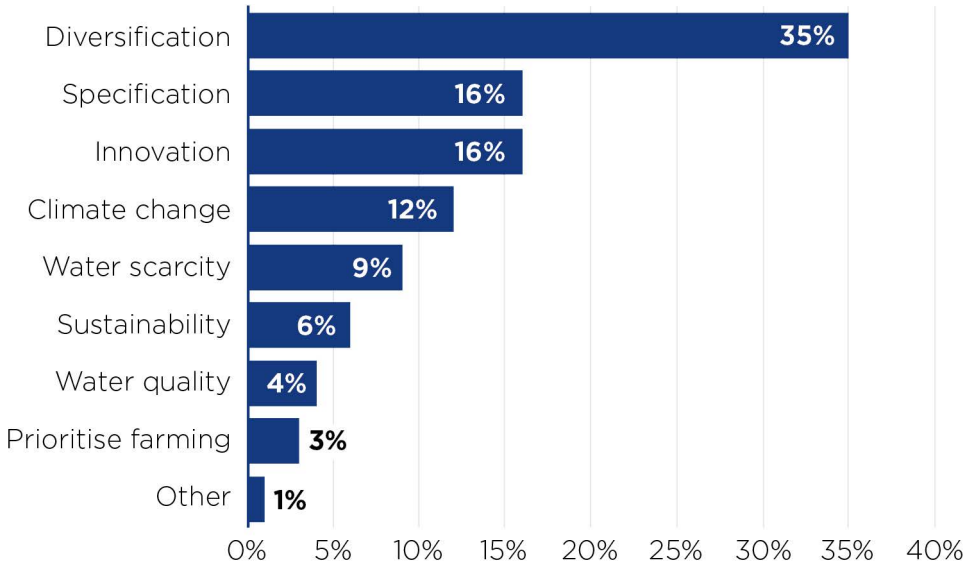
Table 8. Why disagree with principles

We need to plan differently	We need to act now	We need to remain adaptive
Build more dams for the growing population	It is how we act now. To disadvantage emerging agribusiness in the region with acting now to change, may not be the right thing to do	Because everyone one of these surveys ends up being for the latest green expensive plan that costs more for users rather than simply building another damn dam
No desalination plants	Desal plant built at Tugun by QLD was a white elephant	This is no time to be considering significantly increasing water bills
Been nothing wrong with how things have been going	There is a secure supply of water especially	
Yes		
The plan has key elements of a plan		

The reasons why participants agreed with the principles have been thematically coded (shown in Figure 5, Figure 6 and Figure 7) and indicate that:

- the highest proportion of responses related to *we need to plan differently* were around the need for having a diversified mix of supply options
- between one-fifth and one-quarter of responses to *why we need to act now* were to provide a secure water future (23%), the impact of climate change (22%), and we need to start the learning/planning process in time for when we need it (21%)
- one-third of responses (33%) to *we need to remain adaptive* was because we live in a changing world. A further approximately three in ten (28%) responses related to current and future technological innovation that could be employed.

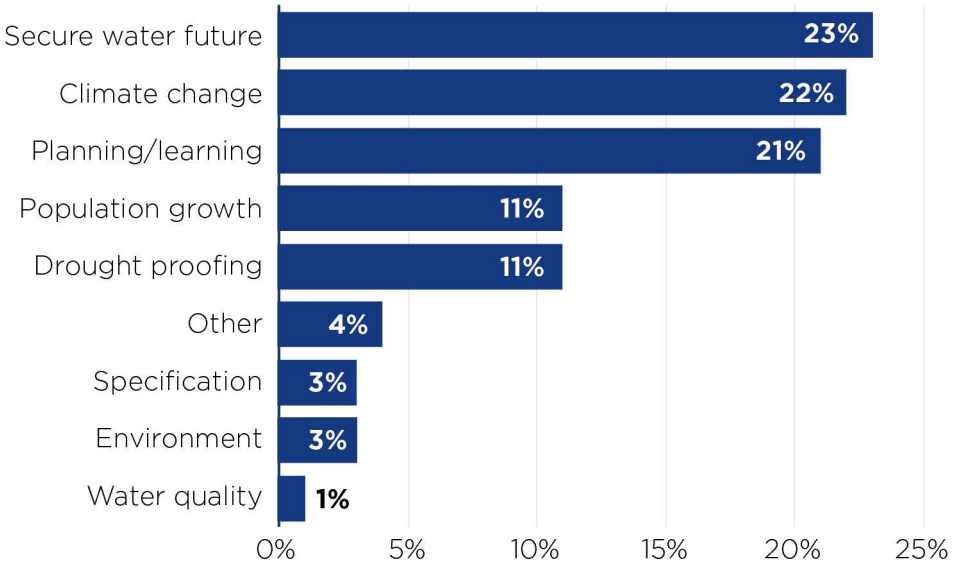
Figure 5. Reason for agreement with the principle that we need to plan differently (n=62)



What we heard

'The world is changing, so doing things as they've always been done isn't really appropriate.'

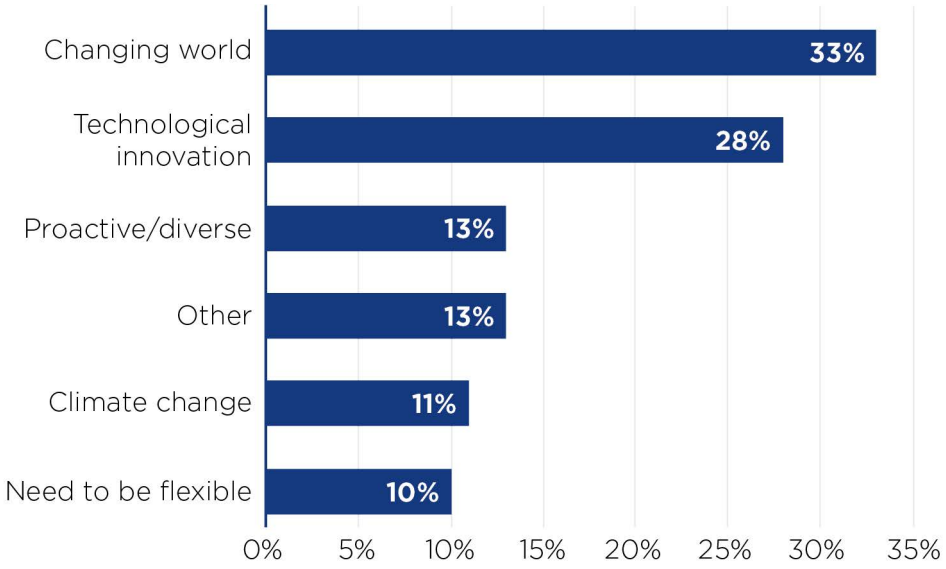
Figure 6. Reason agree - need to act now (n=68)



What we heard

'Because if we wait, it'll be too late.'

Figure 7. Reason agree - need to remain adaptive (n=65)



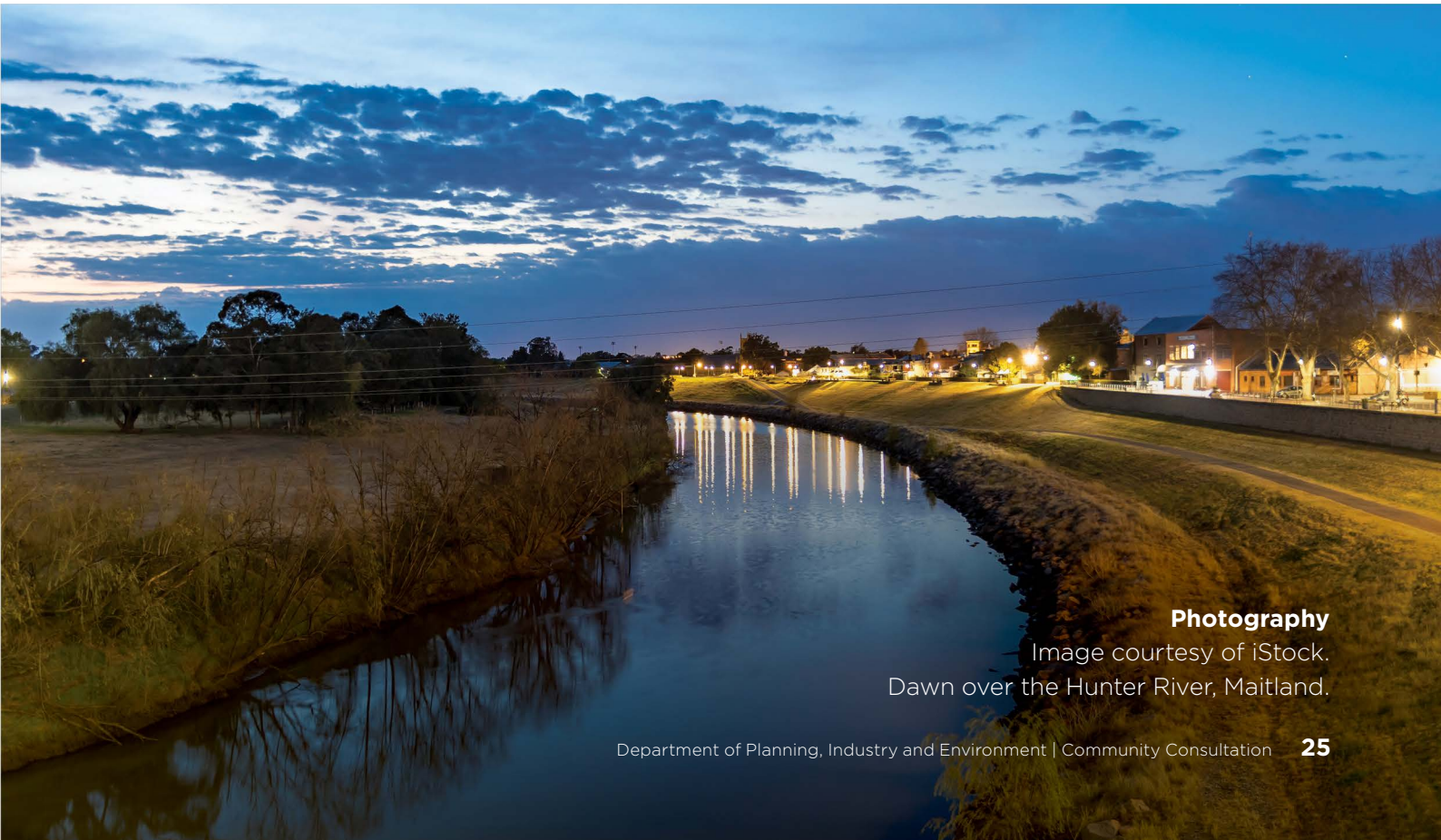
What we heard

'Need to be able to respond to changing circumstances - climate, technology, social, economic'

A full list of the verbatim responses are provided in Table 21, Table 22 and Table 23 in Appendix I – Open ended guided submission survey responses.

Draft Lower Hunter Water Security Plan principles – summary of feedback

Survey participants broadly agreed with the draft Lower Hunter Water Security Plan principles. Reasons for agreement included a recognition that we need to start working now to ensure we are ready to provide a secure water future and that having a diversity of options is important.



Photography
Image courtesy of iStock.
Dawn over the Hunter River, Maitland.

Support for draft Lower Hunter Water Security Plan strategic priorities

To achieve the goals and objectives of the plan — and based on community feedback and technical analysis — four strategic priorities were identified. These are:

PRIORITY 1 **Safe drinking water**	Safe drinking water is our highest priority. We will continue to provide high-quality drinking water for the health and wellbeing of our community and the future prosperity of the region.
PRIORITY 2 **Making the most of what we've got**	We will manage our existing water resources wisely, working together with our community and stakeholders to make the most of our existing water resources, particularly before investing in new sources.
PRIORITY 3 **Improving the resilience of the system**	Our climate is changing and the future is uncertain. We will act to improve our resilience to shocks such as drought as well as remaining adaptive to future risks and opportunities.
PRIORITY 4 **Water for life**	Water is an essential part of connection to country for First Nations and Aboriginal people and supports liveable communities. Our plan will work to incorporate the values and participation of First Nations and Aboriginal people. Water supports liveable communities and our plan will seek to protect and restore our environment and ecosystems.

Respondents were asked how strongly they supported or opposed these priorities. Results in Table 9 indicate that:

- the mean score for all priorities was over four, indicating that there was overall support from participants
- less than one in ten participants opposed or strongly opposed any of the priorities.

Table 9. Level of support with draft Lower Hunter Water Security Plan priorities

Priority	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know	Mean score
PRIORITY 1 Safe drinking water	1%	0%	6%	6%	86%	0%	4.8
PRIORITY 2 Making the most of what we've got	4%	5%	13%	10%	69%	0%	4.4
PRIORITY 3 Improving the resilience of the system	1%	1%	13%	14%	71%	0%	4.5
PRIORITY 4 Water for life	5%	3%	13%	21%	59%	0%	4.3

Survey participants were given the opportunity to indicate why they supported or opposed the priorities. No participants provided a reason for why they opposed *priority 1*, five provided responses for *priority 2*, one for *priority 3* and four for *priority 4*. These responses are provided verbatim in Table 10.

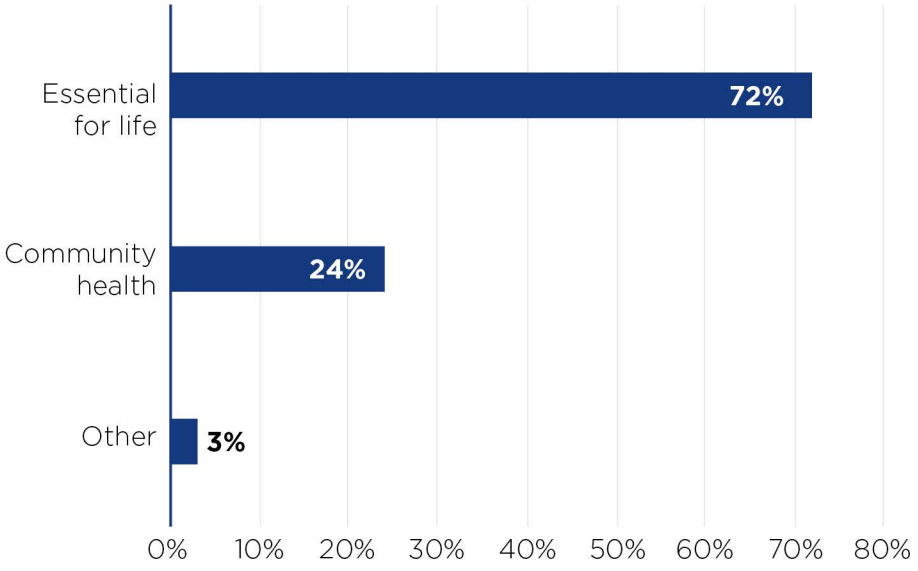
Table 10. Reasons why oppose priorities

PRIORITY 2 Making the most of what we've got	PRIORITY 3 Improving the resilience of the system	PRIORITY 4 Water for life
We actually need a large water storage Dam to drought proof this area.	Desalination – this has already been approved and will no doubt go ahead. I feel that the Draft Plan has been skewed for us to believe this is the only and best way forward. We have not had access to the environmental assessments of a desal. plant. Based on the community feedback, there is a strong (77-85%) positive response to recycled and purified recycled water use. I see that this has really been quashed by the Report. The aim for a Desal start date is by 2026 – as per the report. However, our dam levels have not reached a critical 60% storage capacity for 24 years (prior to 2018). It seems that this report is construed to align with climate change as to why we need a desal, however past history has shown we haven't needed it.	We are all Australians & we live on the driest continent in the world. We need to provide water for everyone.
Efficiency is good and prudent but water isn't only for survival, at least it shouldn't be in Australia in 2021. We need more supply now for the tough times.		Because there is a far greater need to reform our water management that impacts on us all, not just some people.
Because what we have is inadequate for future needs.		More lefty utopic ideas that will be expensive rather than practical and affordable. We are a modern country and back to the future is not always best.
Restricting what we got ignores a growing population while increases the price of water.		Political correctness overload with regard to aboriginal people, if you continue to separate people into racial categories you will continue the racist issues we have suffered with for generations.
Money used to conserve instead of produce will result in more restrictions in the future.		

The reasons why participants supported the priorities have been thematically coded (shown in Figure 8, Figure 9, Figure 10 and Figure 11) and indicate that:

- approximately three-quarters (72%) of responses as to why they supported Priority 1 Safe drinking water were because it is essential for our lives
- a total of 44 per cent supported Priority 2 Making the most of what we've got because water efficiency was valued
- approximately one-quarter felt that for Priority 3 Improving the resilience of the system, having a diversified mix of options was important (28%) as was protecting our water supply (25%)
- over one-third of responses (37%) as to why Priority 4 Water for life was supported related to water being essential for our lives.

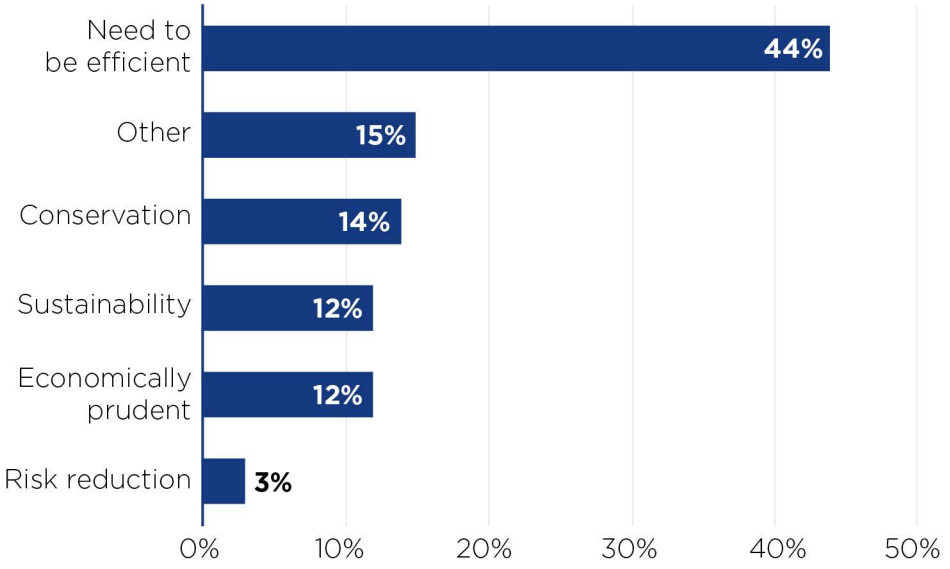
Figure 8. Reason support - Priority 1 Safe drinking water (n=59)



What we heard

'Critical to public health and a functioning society'

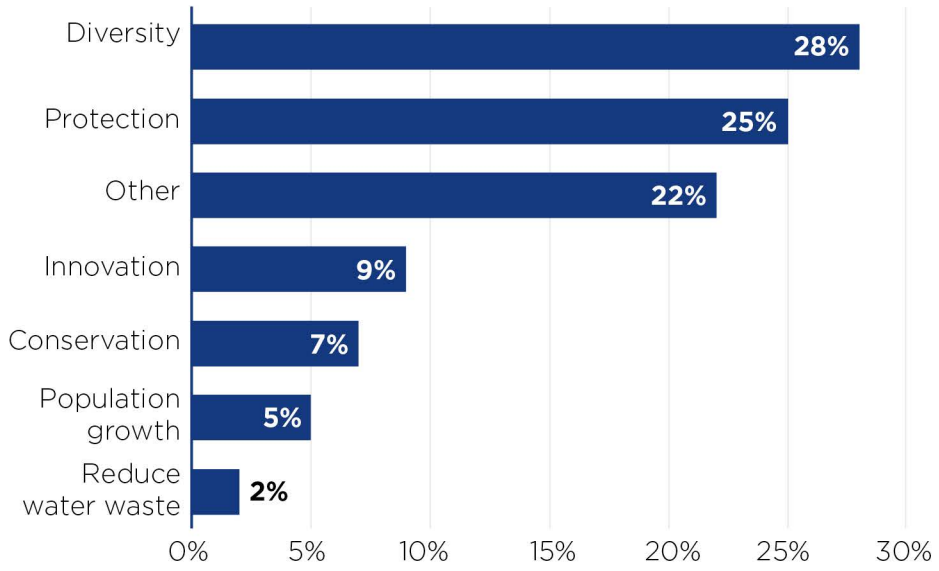
Figure 9. Reason support - Priority 2 Making the most of what we've got (n=51)



What we heard

'Existing supplies need to be used as efficiently as possible'

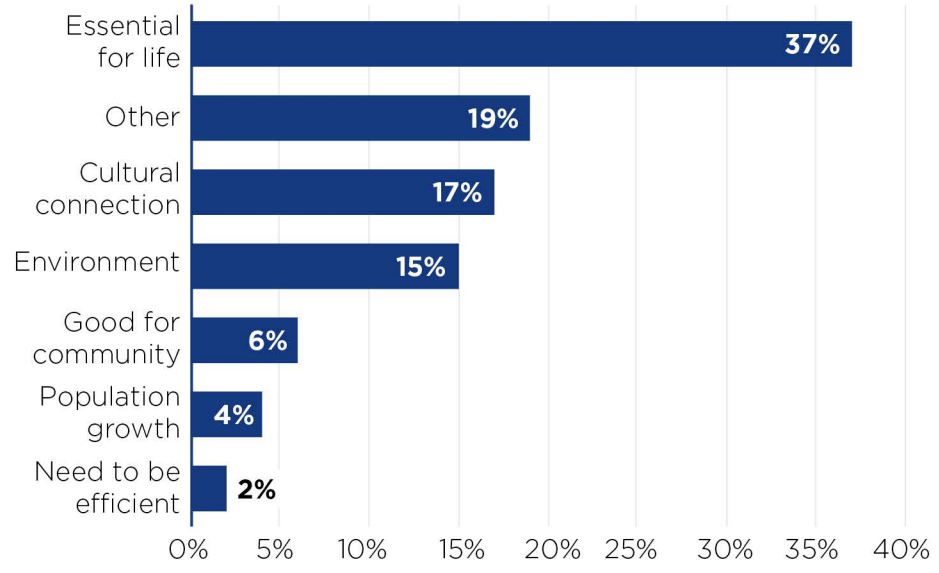
Figure 10. Reason support - Priority 3 Improving resilience of the system (n=55)



What we heard

'Increased resilience by embracing all feasible options is a necessary risk-mitigation measure during times of great uncertainty'

Figure 11. Reason support - Priority 4 Water for life (n=51)

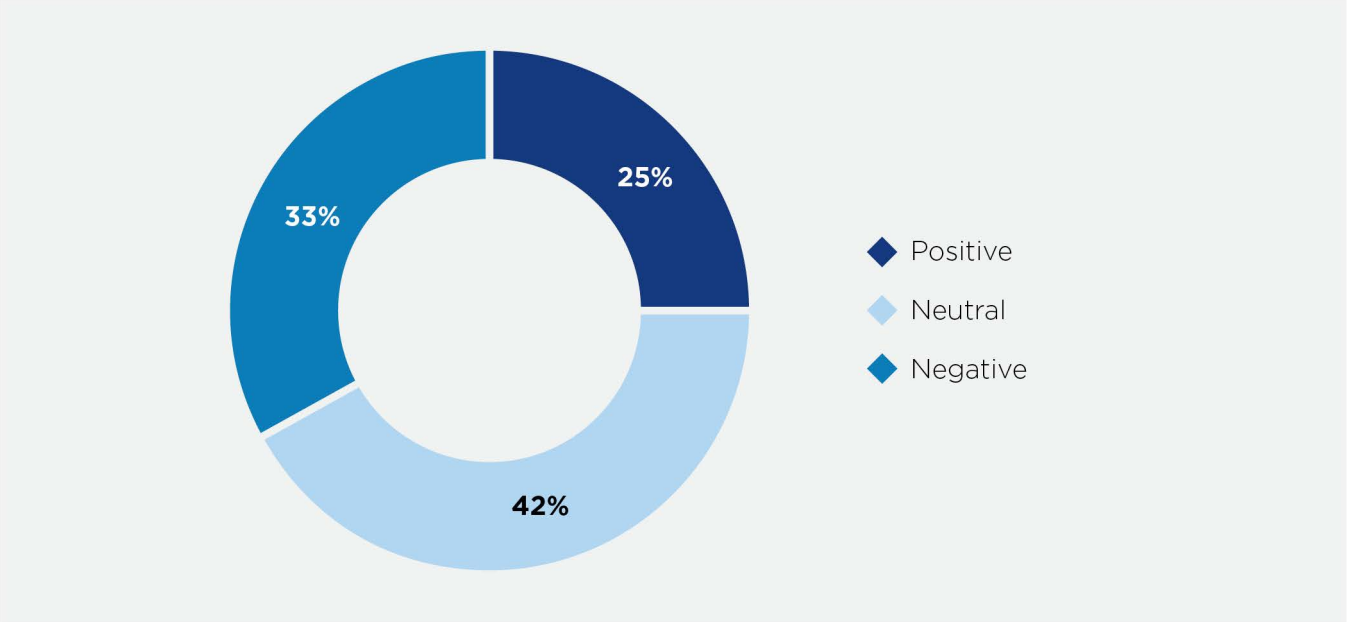


What we heard

'Aligns with Safe Drinking Water and the UN Sustainable Goals. Not only in recognition of First Nations people but the liveability of everyone in our communities.'

Participants could also provide any further feedback they had on the priorities; these have been thematically coded for sentiment (Figure 12). Negative comments were predominantly around specific aspects of water supply rather than being holistically negative about the priorities.

Figure 12. Additional comments on priorities – sentiment (n=52)



A full list of the verbatim responses are provided in Table 24, Table 25, Table 26, Table 27 and Table 28 in Appendix I – Open ended guided submission survey responses.

Draft Lower Hunter Water Security Plan strategic priorities – summary of feedback

Participants were supportive of the draft Lower Hunter Water Security Plan priorities. Reasons for support included an acknowledgment that water is essential for our lives, that existing resources should be used efficiently and that having a diverse mix of options is appropriate.

Support for draft Lower Hunter Water Security Plan program of actions

Together the proposed actions in the plan will ensure a sustainable and resilient water supply for the Lower Hunter for the next 40 years and prepare us for a future with a growing population and an uncertain climate.

Survey participants were asked how strongly they supported or opposed the program of actions. The mean score of over three indicates that, on balance, participants supported all of the proposed actions.

The results shown in Table 11 indicate that:

- *Water conservation and reducing leaks and protecting drinking water catchments* had the highest level of support (98% and 93% either somewhat or strongly supported, respectively).
- *Continued use of the Central Coast connection, building the Belmont desalination plant and readiness activities for a Walsh Point desalination plant* had the lowest levels of support (51%, 56% and 53% either somewhat or strongly supported, respectively).
- The two desalination options (Belmont and Walsh Point) had the highest levels of opposition (31% and 28% either somewhat or strongly opposed, respectively).
- Approximately three in ten participants (28%) indicated that they neither supported nor opposed the *continued use of the Central Coast connection*. This could be reflective of a level of ambivalence, or lack of understanding about this option.

Photography
Image courtesy of Hunter Water.
Aerial view of Swansea bridge and town centre.

Table 11. Level of support for draft Lower Hunter Water Security Plan actions

Actions	Strongly oppose	Some-what oppose	Neither support nor oppose	Some-what support	Strongly support	Don't know	Mean score
Water conservation and reducing leaks	0%	1%	1%	15%	83%	0%	4.8
Protecting drinking water catchments	1%	1%	4%	13%	80%	0%	4.7
Integrate land use and water management to support liveable communities	0%	1%	3%	30%	61%	5%	4.6
Recycled water program	4%	1%	7%	16%	72%	0%	4.5
Continued use of water restrictions in drought	3%	4%	4%	19%	69%	1%	4.5
Research and development activities	0%	1%	11%	24%	63%	1%	4.5
***Cultural values**	4%	1%	20%	28%	40%	7%	4.1
Community engagement on purified recycled water for drinking	11%	3%	16%	19%	51%	1%	4.0
Progressing a Hunter Water connection to the Glennies-Lostock scheme	5%	7%	15%	24%	40%	9%	4.0
Continued use of the Central Coast connection	7%	9%	28%	19%	32%	5%	3.6
Building the Belmont desalination plant	19%	12%	9%	19%	37%	4%	3.5
Readiness activities for a Walsh Point desalination plant	21%	7%	12%	21%	32%	7%	3.4

* Knowledge sharing and participation of First Nations and Aboriginal people in water planning

Survey participants were given the opportunity to indicate why they supported or opposed the actions. The number of reasons for opposition to the various actions are provided in Table 12.

Table 12. Number of respondents opposed to actions

Action	Number opposed
Building the Belmont desalination plant	22
Readiness activities for a Walsh Point desalination plant	20
Continued use of the Central Coast connection	11
Community engagement on purified recycled water for drinking	9
Progressing a Hunter Water connection to the Glennies-Lostock scheme	9
Continued use of water restrictions in drought	5
Recycled water program	4
***Cultural values**	4
Protecting drinking water catchments	2
Water conservation and reducing leaks	1
Research and development activities	1
Integrate land use and water management to support liveable communities	0

* Knowledge sharing and participation of First Nations and Aboriginal people in water planning

Reasons for opposing the Belmont and Walsh Point desalination plants have been thematically coded and are provided in Table 13 and Table 14. They indicate that those that oppose the desalination options (and provided a response as to why) did so due to perceived impacts on the environment and the costs associated with building and operating the plants.

Table 13. Reason oppose Belmont desalination plant

Why oppose Belmont desalination plant	
Environment impacts	38%
Too expensive	38%
Prefer other options	25%

Table 14. Reason oppose Walsh Point desalination plant

Why oppose readiness activities for Walsh Point desalination plant	
Environmental impacts	35%
Too expensive	35%
Prefer other options	30%

A full list of these verbatim responses is shown in Table 29 in Appendix I – Open ended guided submission survey responses.

Reasons provided for opposition to remaining actions are shown in Table 15.

Table 15. Reasons oppose draft Lower Hunter Water Security Plan actions

Protecting drinking water catchments (n=2)
Hunter Water don't own the rivers.
There needs to be more recreation activities in catchment, you take lots but you don't give much.
Water conservation and reducing leaks (n=1)
Avoiding the real issue.
Recycled water program (n=4)
Not sure if you have space for this here. Recall the problems in USA with recycled domestic supply that became contaminated with hormones and soluble chemical contaminants. If you want to do this it will need to be so well treated as to make its' cost similar to desalinated water bringing little gain. You would have many social barriers to acceptance and would have to plan to pump this water up to the headwaters of a dam for dilution than rather putting it directly into the supply.
Bandaid solutions.
Making up for a previous poor decision.
Inefficient use of money leading to a likely white elephant. Consider similar Australian installations (e.g. Tugun).

Community engagement on purified recycled water for drinking (n=9)
As above! YUK! Stupid-as! Disease is rife & you talk about drinking second hand sewerage!
There would be huge problems convincing the public it was safe. You would need to guarantee 24 hr monitoring to ensure slugs of soluble contaminants did not pass the normal treatment.
Waste of time.
Yuck. Risk of contamination. Why try to use the dirtiest water you can find when there is plenty of other options.
Not the answer so much fresh water goes out to sea.
We have professionals in that area and don't need inexperienced input.
Should be no need.
No one wants this, disgusting.
There is absolutely no need to add recycled sewage to the drinking water supply when we are a coastal region with access to desalination. Desalination makes much more sense as an option and has the added safeguard of being a tried and tested technology. Why should the community in the Hunter be guinea pigs for something that is hardly done anywhere in the world and certainly not done (directly) in Australia. I strongly support desalination over and above any thought of drinking recycled wastewater.
Continued use of the Central Coast connection (n=11)
Bandaid solutions.
With the connection of minor dams to mangrove facility no longer needed.
Build infrastructure at the central coast no sharing.
In principle, communities should provide their water locally. Moving water long distances increases community vulnerability and also is inherently inefficient and has a higher ecological footprint.
The lower Hunter will be on restrictions sooner than normal during dry periods.
As long as they are under harsher water restrictions than Newcastle.
Because it only benefits in one direction.
Planning for the growing population of the Central Coast needs to include independent water security.
Should not punish hunter customers who historically built our water assets with ratepayer money.
They have their own water, just a money grab.
Why does hunter water supply water to Brisbane water on the Central Coast?
Progressing a Hunter Water connection to the Glennies Creek Dam - Lostock Dam pipeline scheme (n=9)
Concerned about impacts on the river ecosystems, and businesses that rely on water that draw from the river.
The impact on the Paterson Valley & the tidal pool.

Progressing a Hunter Water connection to the Glennies-Lostock scheme (n=9) (continued)
This water should be used for agriculture.
This will increase salinity in the Paterson tidal pools. Negatively affect natural environmental flooding. I suggest Priority 1 will not be achievable if the expansion of Martins Creek Quarry (SSD-6612) as toxic waste will run into the Paterson River upstream from the Gostwick offtake. Reduction in supply of suitable water for agriculture.
See above.
For ecological reasons, cross catchment water transfers are a bad idea. These can facilitate spread of undesirable organisms, pathogens and interfere with ecological processes in an undesirable way.
The impact on the lower Paterson and hunter rivers would increase the salinity levels making agricultural businesses unviable.
Band aid solution same as previous comments.
Damage to the Paterson River ecosystem. Doubt over water availability for existing users e.g. rural irrigators and also for environmental flows. Nothing in it for Dungog Shire- water resources generated within shire being taken for use elsewhere without recompense.
Continued use of water restrictions in drought (n=5)
Just goes to show we don't have enough water storage.
We need them because of poor planning. Australia in the year 2021 isn't capable of supply enough water – wow.
Its a failure of investment in storage.
If you continually fail to act on decision making towards new dams don't then charge customers for running low on water.
You went too hard last time. When the rains came we had room to have used more water.
Research and development activities (n=1)
We can't make decisions when obvious ones are right in front of us so why have another non decision making committee as they get thrown aside for political reasons it appears.
***Cultural values (n=4)**
I cannot see any cultural values.
Life is about balance so some things have to give way for a greater good but it doesn't mean they're not important or shouldn't be recognised.
It's water, we don't need wholeness. We are one nation, stop with the divisive nonsense that divides. Get on with the business of water and not PC drivel.
This is laughable that a water utility is focused on anything but delivering water. cultural values ARE NOT YOUR JOB OR CONCERN. As a paying customer this is infuriating to have a utility concerned about political issues instead of doing it's job which is solely to DELIVER SAFE DRINKING WATER.

* Knowledge sharing and participation of First Nations and Aboriginal people in water planning

The reasons why participants supported the program of actions have been thematically coded (shown in Table 16). The themes indicate that across the program of actions, protecting what we currently have, reducing waste and demand for water resources as well as a sustainable, equitable and diverse approach were commonly valued.

What we heard

'An essential element in the multiple barrier approach to providing safe drinking water also provides other environmental benefits.'

'Reduces need to invest in new infrastructure and reduces resource wastage (water, power, chemicals).'

'Where appropriately integrated as part of an integrated strategy makes best use of available resources and increases water supply resilience.'

'Education and engagement will ensure the community understands the process, feels comfortable and sees the benefits of this option.'

'A 'whole of region' approach is critical. Collaborating with neighbouring regions will ensure water is available to all.'

'Increases the water security and resilience of the system in an efficient and effective manner.'

'Linking all existing water storage will facilitate a mechanism of improving the current water supply infrastructure.'

'People are wasteful and the majority will only be conservative when they're made to.'

'Strongly support this rainfall independent technology, it is the water supply of the future.'

'We cannot advance if we do not research and develop.'

'Imperative to a regenerative and sustainable wholistic system.'

'First Nations people's voices must be heard on matters that affect their country.'

Photography
Image courtesy of Hunter Water.
Active leak detection.

Table 16. Reasons why support specific draft Lower Hunter Water Security Plan actions

Why support specific draft Lower Hunter Water Security Plan actions					
Protecting drinking water catchments (n=51)		**Water conservation and reducing leaks (n=56)**		**Recycled water program (n=52)**	
Essential to protect	35%	**Less wasted water**	35%	**Reduces demand**	29%
Water quality	35%	**Efficiency**	23%	**Reduces water waste**	23%
Other	17%	**Common sense**	18%	**Need more of it**	15%
Health	10%	**Cost savings**	15%	**Other**	13%
Less costly	4%	**Other**	5%	**Common sense**	12%
		Resilience/ conservation	5%	**Cost savings**	4%
				Drought proofing	4%
Community engagement on purified recycled water for drinking (n=37)		**Continued use of the Central Coast connection (n=25)**		**Building the Belmont desalination plant (n=30)**	
Education important	66%	**Benefits to both**	36%	**Water security**	55%
Resilience/ innovation	8%	**Makes better use of existing system**	24%	**Climate independence**	13%
Safe	8%	**Sustainability**	20%	**Diversity**	13%
Used well elsewhere	8%	**Diversity**	12%	**Supportive if energy offset**	10%
Reduce water waste	5%	**Other**	8%	**Other**	10%
Cost saving	3%				
Other	3%				

Why support specific draft Lower Hunter Water Security Plan actions					
Progressing a Hunter Water connection to the Glennies Creek Dam - Lostock Dam pipeline scheme (n=32)		**Continued use of water restrictions in drought (n=47)**		**Readiness activities for a Walsh Point desalination plant (n=29)**	
Enhances existing resources	45%	**Conservation important**	28%	**Need to forward plan**	34%
Sustainability	18%	**Water security**	26%	**Drought security**	28%
Diversity	15%	**Common sense**	19%	**Other**	21%
Common sense	9%	**Encourages water saving behaviour**	17%	**Diversity**	17%
Efficiency	6%	**Need outside of drought**	9%		
Other	6%	**Other**	2%		
Research and development activities (n=44)		**Integrate land use and water management to support liveable communities (n=43)**		**Cultural values (n=31)**	
Innovation	39%	**Sustainability**	28%	**First Nations voices must be heard**	29%
Common sense	25%	**Environmental considerations**	19%	**Important issue**	26%
Sustainability	18%	**Essential**	14%	**Other**	19%
Efficiency	14%	**Other**	14%	**Need to be inclusive**	10%
Other	5%	**Equity of land uses**	12%	**Need to show respect**	10%
		Common sense	9%	**Common sense**	6%
		Climate change	2%		
		Conservation	2%		

A full list of the verbatim responses are provided in Table 30, Table 31, Table 32, Table 33, Table 34, Table 35, Table 36, Table 37, Table 38, Table 39, Table 40 and Table 41 in Appendix I – Open ended guided submission survey responses.

Draft Lower Hunter Water Security Plan program of actions – summary of feedback

There was broad support for all proposed actions in the draft Lower Hunter Water Security Plan. However, there was some variation in levels of support. The actions with the highest levels of support were related to making the best use of current resources (water conservation and reducing leaks and protecting drinking water catchments).

Those with the lowest levels of support were around desalination actions and water sharing with the Central Coast. Concerns around Belmont and Walsh Point desalination were predominantly around perceived environmental impacts and costs.

Overall, reasons for supporting the program of actions were that they aimed to protect what we currently have, reduce waste and demand for water resources as well as provide a sustainable, equitable and diverse approach to water security for the region.

Photography
Image courtesy of Destination NSW.
Sunset across Tomaree National Park, Port Stephens.

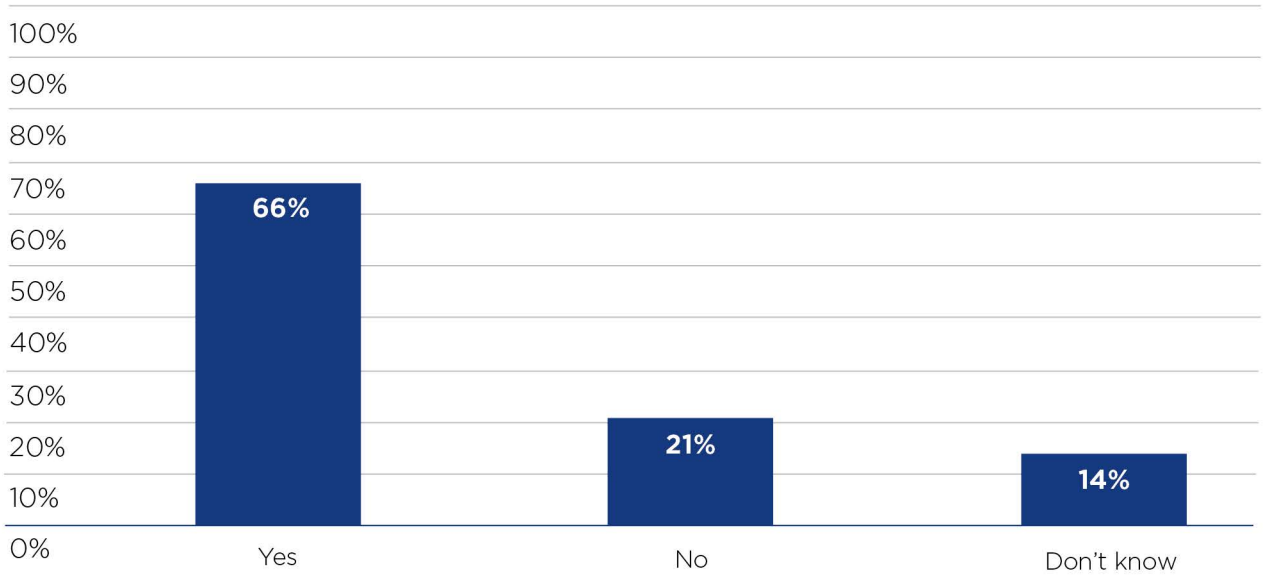
Costs

To meet community expectations, ensure a water supply that is resilient to drought, and to service growth requires increased investment. The actions proposed in the draft Lower Hunter Water Security Plan are likely to result in an one-off increase in annual residential customer bills by between $75 to $120 (an increase of between 6 and 9 per cent for the average residential customer).

It's important to appreciate that an unreliable water supply has economic impacts. Running out of water would have severe implications on Lower Hunter households, businesses and the regional economy. The actual amount of the bill increase would depend on a range of factors such as the timing of major capital works, and the increase may be phased over time. Hunter Water pension rebate and hardship support measures will remain in place.

Participants were asked if they accepted that increased water security requires Hunter Water to make investments that result in higher bills. As shown in Figure 13, two-thirds of respondents (66%) accepted that increased water security would result in higher bills.

Figure 13. Acceptance that increased water security results in higher bills

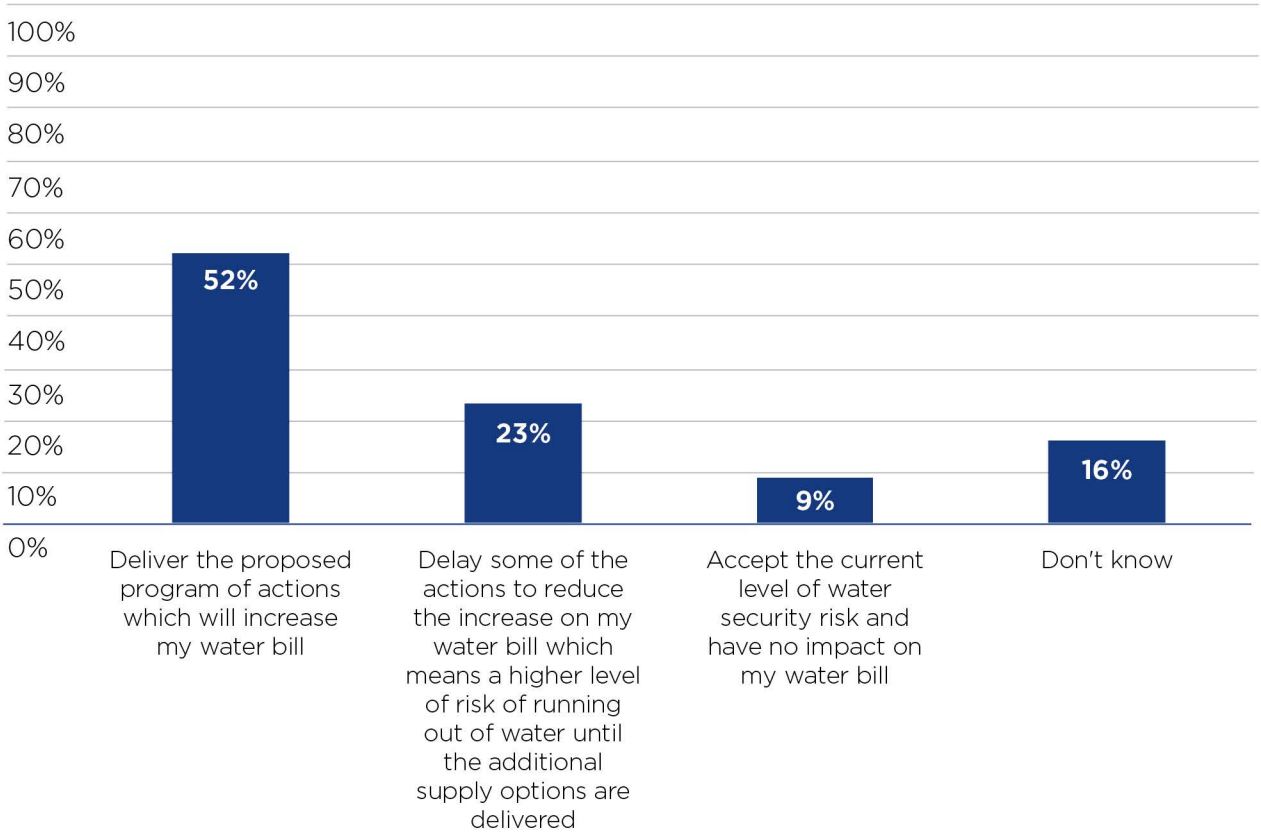


Participants were then asked to indicate which of the following options was their preference:

- deliver the proposed program of actions which will increase my water bill
- delay some of the actions to reduce the increase on my water bill which means a higher level of risk of running out of water until the additional supply options are delivered
- accept the current level of water security risk and have no impact on my water bill.

The results in Figure 14 show that just over half of participants (52%) preferred Hunter Water to deliver the proposed program of actions with the associated bill increases.

Figure 14. Preference for delivery of actions



Photography
Image courtesy of iStock.
A bright sunny day at Lake Glenbawn Dam near Scone in country NSW, Australia.

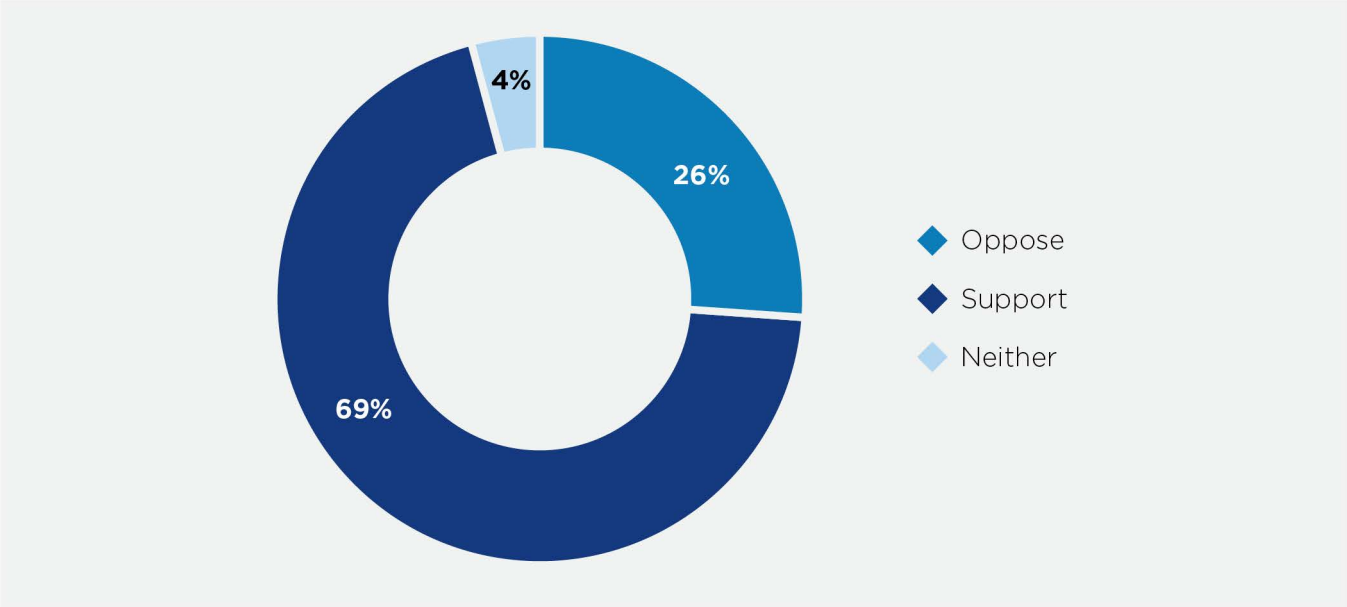
Overall support for the draft Lower Hunter Water Security Plan

Survey participants were asked how supportive of the draft Lower Hunter Water Security Plan they were overall. As shown in Table 17 and Figure 15, participants were broadly supportive of the draft plan overall (69% either somewhat or strongly support, mean score 3.7 out of a possible 5).

Table 17. Level of overall support for draft plan

Overall, how strongly do you support or oppose the draft Lower Hunter Water Security Plan?					
Strongly oppose	**Somewhat oppose**	**Neither support nor oppose**	**Somewhat support**	**Strongly support**	**Mean score**
11%	15%	4%	28%	42%	3.7

Figure 15. Level of overall support for draft plan



Survey participants were given the opportunity to indicate why they supported or opposed the draft plan. A total of 19 responses were provided as to why people opposed the plan. These are provided verbatim below. There was some variation in the responses given.

However, more common reasons for opposing the draft plan were because a new dam was not included, because they have concerns about desalination and because they had concerns about the costs to deliver the actions.

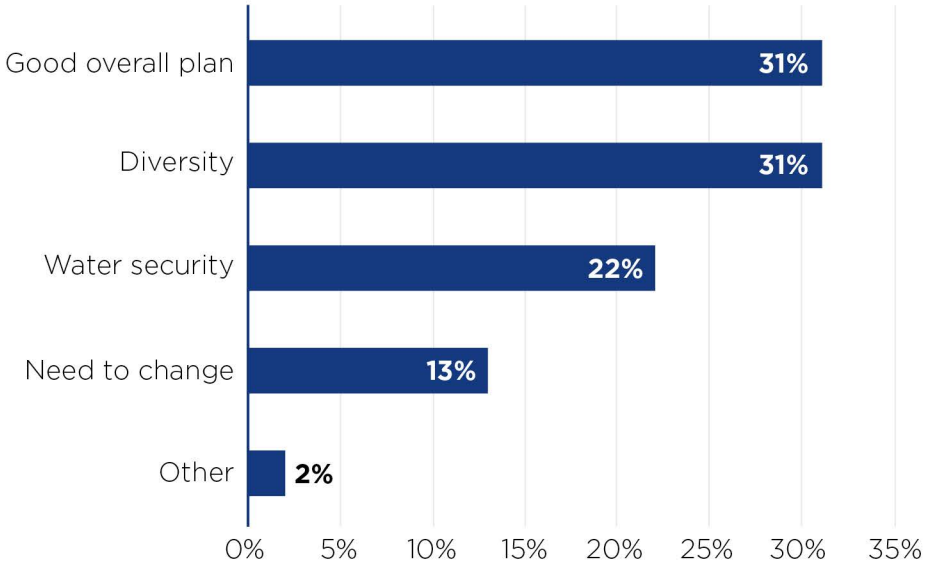
Table 18. Reason given for opposing the draft Lower Hunter Water Security Plan overall

Why oppose draft plan
The draft plan indicates that the customer needs to accept higher costs which is mainly a result of desalination. Also HWC still pays a significant dividend to the State Government, this money could be used to pay for recycling schemes to increase water security.
Hunter Water is not facing reality. It must build a large Dam (infrastructure) to secure the supply of water for the Hunter Valley. No water infrastructure has been built in the Hunter for many decades & the population is exploding.
As mentioned previously I do not support the Lostock to Glennies creek pipeline or the Gostwick offtake.
Because desalination plants cost too much to have sitting around in the good years when the dams are full.
Instead of providing for a new dams a host of minor investments are made. Also why should users pay when we pay taxes so governments build major infrastructure.
Desal direction no storage.
Too much talk about dams and flooding valuable land.
The Lostock to Glennies creek pipeline and the loss of security to the lower hunter unregulated water users quality of water.
Please go back to Tilegra dam option it will provide approx 150 gig being 7 1/2 times what Chichester holds and is the best long term solution. The desalination plant at Belmont will supply approximately 120 meg per day which is a waste for the damage and energy it costs. I know it will get green votes but please do the right long term solution. If you want to spend additional money start a program on digging Grahamstown dam deeper or getting rid of it once Tilegra is built as everyone knows more evaporates out of here in summer than people use. Thank you for the opportunity to discuss.
There is no mention of providing water tanks for existing homes.
Desalination, no new dam as a priority, more costs when you should have been planning for this for a while and one off costs are never one off costs and water is already expensive enough.
I oppose desalination plants.
Waste of money on poor options. Cut the green tape and build new dams for Hunter water consumers.
Desalination plants.
Can't afford to pay for water now, so why make it more costly. Everyone doesn't get the wage of a CEO.
You're not doing your job well. spending time on anything but water delivery or security is not your job. reduce water rates and instead increase price on water, giving more users access while charging more to increase heavy users to be more efficient will give multiple wins. pricing on a scale, first 10kl x price after that price increases to z. rates are too high specially for pensions and low income earners. 1,400 per year just to have a connection when a pension only pays 24k per year!!! and only charging 2.70 for 1,000 litres is madness. I'd rather half connection price and double the water price.

Why oppose draft plan
Desalination plants are extremely energy intensive, we need to be preparing for a future with less energy. Please see the following peer reviewed article – [link provided to 'Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition' by Seiburt, M. and Rees, W.] – How would you deliver water to us if the supply of fossil fuels became smaller? We also need to prioritise farmers, who provide us with food in an increasingly unstable climate. Hunter water should be working with farmers on Indigenous farming practices.
Costs for future residential developments should not be paid for by older generation Novocastrians.
There is not enough information provided to make appropriate decisions.

The reasons why participants supported the draft plan have been thematically coded (shown in Figure 16) and indicate that predominantly people thought that it is a good plan overall (31%) and that they liked the diversity of actions (31%).

Figure 16. Reason why support draft Lower Hunter Water Security Plan overall



What we heard

'I think it represents a sound, effective and efficient approach to providing a secure water supply for the region.'

A full list of the verbatim responses is provided in Table 42 in Appendix I – Open ended guided submission survey responses.

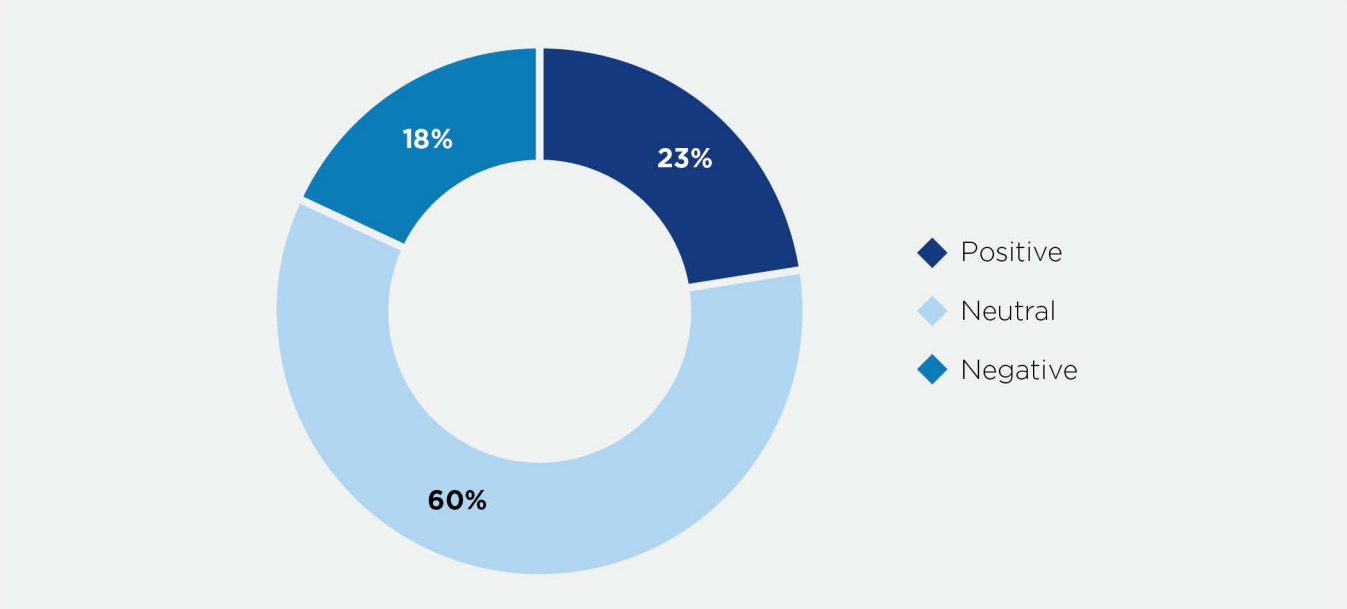
Support for draft Lower Hunter Water Security Plan overall – summary of feedback

Overall, there was broad support for the draft Lower Hunter Water Security Plan. While some concerns were raised about desalination, in general participants liked that there was a diversity of actions included.

General comments about the draft Lower Hunter Water Security Plan

Respondents were also able to make any general comments about the draft plan. These have been coded for sentiment (Figure 17). Negative comments were predominantly around specific aspects of water supply rather than being holistically negative about the draft Lower Hunter Water Security Plan.

Figure 17. Additional comments on draft Lower Hunter Water Security Plan - sentiment (n=40)



A full list of the verbatim responses is provided in Table 43, in Appendix I – Open ended guided submission survey responses.

5. Written submissions

Photography
Image courtesy of iStock.
Aerial view of Newcastle residential and commercial areas and the Hunter River, Newcastle.

Individual submissions

There were 76 submissions from individuals, of these:

- 31 (41%) were positive in sentiment
- 23 (30%) were neutral in sentiment
- 24 (32%) were negative in sentiment.

A summary of these submissions is provided in Table 19, the full text of these submissions can be seen at Appendix II – Individual submissions.

Positive submissions

Submissions that were positive in sentiment generally had the following characteristics:

- there was an overall sense of support for the actions in the plan and increasing water security generally
- people liked that there was a diversified and innovative program of actions
- supportive of no new dams in the plan
- supportive of desalination actions but would like to see renewable energy used.

What we heard

'An excellent plan, don't change anything.

The priorities and actions are very much in line with my thoughts and opinion. The indications given for ongoing work with aquifer recharge and potable recycling mean you haven't missed anything.

The considerations regarding environmental impacts, rainfall independent supply, and ongoing technological advances are what is most important to me. I believe these considerations will prove to be of the most benefit for my local community.'
– Individual submission

'I am writing a submission in support of the Draft Lower Hunter Water Plan released on 9th August, 2021, and in particular, strongly support the decision for "No Dams".

I congratulate Hunter Water for deleting the dams from the plan and progressing towards diversified rainfall and independent strategies to mitigate the impacts of climate change on the current vulnerable supply systems.

Fast tracking of the desalination plant gives all residents in the Lower Hunter security to know our water supply is safe at all times, including drought.'
– Individual submission

Photography
Image courtesy of iStock.
Lake Macquarie NSW.

Neutral submissions

Submissions that were neutral in sentiment generally had the following characteristics:

- they were positive about some aspects of the draft plan but had concerns about others
- there were concerns raised about health of catchment
- there were concerns raised about the Glennies Creek Dam - Lostock Dam pipeline scheme and Paterson river offtake — particularly the perceived effects on the environment and water quality and impacts on water users in the area
- costs were seen as an issue for some
- there was some support for new dams and that not including them in the plan was a missed opportunity.

'I mostly agree with the security plan. As a land holder that has a water title to extract water from the Paterson River downstream from the Paterson Bridge I have concerns regarding the Lostock Dam to Glennies Creek Dam proposed pipeline.'
– Individual submission

'Overall the strategy of the plan is good, however it ignores what is sustaining us today – Dams.'
– Individual submission

Negative submissions

Submissions that were negative in sentiment generally had the following characteristics:

- concerns were raised about the Glennies Creek Dam to Lostock Dam pipeline scheme generally, including Hunter Water's proposed offtake. These concerns were primarily related to perceived environmental impacts such as increased salinity
- the costs associated with delivering the actions in the plan were a concern for some, particularly the costs related to the desalination options
- the environmental impacts of the desalination options were also raised as a negative aspect of the plan by some.

'Desalination must be powered by renewable energy. It is unacceptable that this wasn't made mandatory when the plant received planning approval.'
– Individual submission

'It is my submission that to build these pipelines [Hunter Water connection to the Glennies to Lostock scheme] will have negative social, environmental and economic effect and therefore object to such a proposal.'
– Individual submission

Organisation submissions

There were 23 submissions from organisations, of these:

- 17 were positive in sentiment
- 5 were negative in sentiment
- 1 did not provide any comments on the draft plan.

A summary of these submissions is provided in Table 20, the full text of these submissions can be seen at Appendix III – Organisation submissions.

Positive submissions

Submissions that were positive in sentiment generally had the following characteristics:

- supportive of the plan overall, however, some feel that there should not be big bill impacts
- liked the diversity of actions
- pleased that there are no new dams included in the plan
- while there was support for desalination actions, having them powered by renewable energy was preferred or alternatively having their energy consumption offset.

What we heard

'The process commenced early and has been methodical, evidence-based and transparent, representing a positive example of how long-term strategic planning, shaped by community engagement, should be undertaken'.
– Submission from the Public Interest Advisory Centre (PIAC)

'The HHRG endorses the Draft LHWSP as presented, which focuses on a diverse range of rainfall independent strategies to provide a secure and reliable water supply for the region and generate the highest net benefit to the community.'
– Submission from the Hunter Healthy Rivers Group

Negative submissions

The submissions that were negative in sentiment primarily raised the Glennies Creek Dam - Lostock Dam pipeline scheme and Paterson River offtake as an issue. Concerns were expressed about the perceived effects on the environment and water quality and impacts on water users in the area.

What we heard

'We are concerned that the promise of water repumped back into the Hunter River will be unsatisfactory for agricultural purposes. A concern is that this will impact the salinity and ecology within the river system and be detrimental to the quality of the water required to produce the high value food that is part of the emerging businesses in this sector.'
– Submission from Slow Food Hunter Valley

'The Dam works really well and as it was intended. Do not devastate the Paterson Valley by taking water away from it.'
– Submission from Gresford and District Community Group

Summary of written submissions

On balance, written submissions reflected overall support for the draft Lower Hunter Water Security Plan. Having a diverse program of actions that increases water security for the region and the extensive community engagement associated with the development of the draft plan was clearly articulated. Main concerns raised were predominantly regarding the perceived environmental and economic impact of the Glennies Creek Dam - Lostock Dam pipeline scheme, the environmental impacts/ energy use associated with desalination and the costs required to deliver the program of actions outlined in the draft Lower Hunter Water Security Plan.

Table 19. Summary of individual submissions

#	Key points	Sentiment
001	• Stop overpopulation • Increase size and number of dams, channels and deepen rivers • Replace all pipes in drainage system • If infrastructure is upgraded, desalination not needed	Neutral
002	• Build more dams	Neutral
003	• Cost of plan is not clear • Plan doesn't address water quality • Recycled water and rainwater tanks are not feasible • Plan should include Pindari Creek proposal • Catchment protection makes sense • Need a whole valley hydrological survey and integrated with planning and development	Neutral
004	• Unacceptable to intrude on personal activities and ask people to reduce demand from 199 litres to 155 litres per day • Need to share investment analysis for Belmont desalination • Traditional owners shouldn't influence construction of dams • Should focus on unsewered properties	Negative
005	• Supports all elements of the plan • Would like to know more about renewable energy/offsets for operating desalination	Positive
006	• Objects to increasing rates to build desalination	Negative
007	• Build Tillegra Dam	Neutral

#	Key points	Sentiment
008	• Objection to Lostock-Glennies Creek Dam proposal • Negative impact on Tocal College farming operations • Connect between Maitland and Singleton is a better solution • Community engagement should have been extended due to pandemic	Negative
009	• Does not support desalination • Supports purified recycled water for drinking	Neutral
010	• Plan should be for 100 years • Supports building Tillegra Dam	Neutral
011	• Supports plan and rainfall independent supply options including desalination with green energy, purified recycled water for drinking • Should include rainfall independence supply target for 2060 in plan • Include assumptions, risks about Glennies-Lostock supply in plan • More detail needed for Walsh Point costs and bill impact • Prioritise PRW and make sure demonstration plant can be scaled up • Plan needs more information about stormwater harvesting • Concerned about PFAS in aquifers and paleochannel	Positive
012	• Bill impact is unclear • Will Central Coast customers contribute to paying for the plan or just Hunter Water customers?	Negative
013	• Paterson river offtake – concerns about increased salt content, impact on use for households and livestock, impact on fish/prawn schools, disruption to river flow, impact on Webber's Creek	Negative
014	• Supports proposals except Glennies to Lostock scheme • Greater Hunter Regional Strategy and LHWSP should have same time horizon • Need to address energy implications and carbon emissions • May need higher water prices to address vulnerability to drought • Need to consider links between water and land including catchments, forestry activities • Need to improve water holding capacity of soil and ecosystems	Neutral
015	• Supports plan especially no dams	Positive
016	• Supports plan • Targets for recycled water use should be more ambitious • Bring forward actions and delivery timeframes	Positive

#	Key points	Sentiment
017	• No benefit for Clarence Town and water bills are being increased to service other LGAs	Negative
018	• Supports draft plan especially no dams	Positive
019	• There should be green energy initiatives for desalination and treatment plants	Positive
020	• Supports plan especially no dams and more recycled water	Positive
021	• Supports plan especially no dams and fast tracking desalination	Positive
022	• Supports plan especially no dams, increasing recycling, conserving water, water sharing and desalination	Positive
023	• Supports all actions in plan	Positive
024	• Supports planning for future water security • Happy to pay increase if it guarantees security	Positive
025	• Plan should make rainwater tanks compulsory	Neutral
026	• Supports plan especially diversity of water sources and no dams • We should reduce reliance on desalination and sandbeds	Positive
027	• Does not support Glennies-Lostock scheme • Concerned about water salinity and impact of Paterson River offtake on tidal pools	Negative
028	• Supports progressing both desalination options as soon as possible • Should investigate reinstating Walka Water Works	Positive
029	• Guringai people should be acknowledged in the plan as traditional owners • Substantial documentation provided to support inclusion of the Guringai people in the acknowledgment and future decision making of the country	Neutral
030	• Does not support desalination	Negative
031	• Does not support desalination • Supports recycled water for drinking	Negative
032	• There is a lack of information about Lostock – Glennies Creek Dam proposal and impact on the Paterson River	Negative

#	Key points	Sentiment
033	• Concerned about Glennies-Lostock scheme and Paterson River offtake • Lack of consultation • Concerned about water security and impact on water allocations • Keen to engage to resolve issues	Negative
034	• Should be mandatory for construction sites to use recycled water especially for tool washing	Neutral
035	• Wants to see more SuperTreat systems and rainwater tanks installed with water to be used for drinking	Neutral
036	• Concerned about Paterson River offtake, its proximity to Martins Creek Quarry and the impact quarry discharge will have on water quality • Concerned about the amount of water used for dust mitigation and how extraction of water at Paterson will impact on river flows	Negative
037	• Overall plan is good except there are no dams proposed	Neutral
038	• Unregulated water user – farmer using water for irrigation • Business would be forced to become a regulated water user – concerned about access to water • Concerned about salt levels increasing in the Paterson River	Negative
039	• Supports treated wastewater instead of desalination	Negative
040	• Water quality is getting worse need action from Water NSW to remove impacts that cause erosion and incentives for riparian management	Negative
041	• Need to look at Israel with huge desalination plants used for growing crops	Neutral
042	• Supports desalination powered by green energy • Need to highlight external learnings in plan not just community engagement • How is water from decommissioned power plants going to be repurposed?	Positive
043	• Supports water conservation and recycled water measures – would like to see more focus on household reduction and reuse	Positive

#	Key points	Sentiment
044.1	• Discusses phosphorous and methane capture and reuse during the sewage treatment process	Positive
044.2	• Need connected pipelines across the state rather than trucking water in drought • Air condensation units to produce water • Alternative farming methods • Should protect underground aquifers and investigate underground storage to prevent evaporation • Use drip irrigation	Neutral
044.3	• Supports micro algae farming in sewage management	Positive
045	• Objects to Glennies Creek to Lostock pipeline and Paterson River offtake • Reduced flows have the potential to ruin the tidal pools, increase salt content and ruin the agricultural land	Negative
046	• Generally supportive of the plan • Concerned about Glennies – Lostock and reduction of flows to Paterson for other water users • Concerned about the potential impact of Martins Creek Quarry on water quality	Neutral
047	• Should focus on school education programs about water conservation	Positive
048	• NSW Government should stop approving destructive, extractive industries and focus on better environmental outcomes for communities • All properties should be involved in their own water generation e.g. on site tanks, grey water reuse • Does not support new dams • Does not support water transfers to the Central Coast • Does not support desalination	Negative
049	• Encourage more domestic storage tanks and provide incentives	Positive
050	• Supports desalination • Stop sending profits to Sydney	Positive
051	• Supportive of plan especially no dams, water conservation, recycled water and desalination	Positive

#	Key points	Sentiment
052	• Bore stations connected to Tomago Groundwater should be tested for PFAS & PFOA	Neutral
053	• Plan should include more information about how Hunter Water is dealing with flooding and sea level rise and its impact on infrastructure especially Belmont desalination • Should be incentives for household water tank installation	Neutral
054	• Should have a base fee then user pays for water and sewerage • Supports plan 'keep up the good work'	Positive
055	• Supports objectives and focus of plan	Positive
056	• Supports sources independent of rainfall • Concerned about Glennies -Lostock and Paterson River offtake – impact on water quality and down river water users	Neutral
057	• Supports plan and all of the proposed actions	Positive
058	• Supports plan and all of the proposed actions	Positive
059	• Supports plan and all of the proposed actions	Positive
060	• Supports rainfall independent supply	Positive
061	• Supports rainfall independent supply	Positive
062	• Infrastructure should be paid for by state and federal government • Water sharing doesn't provide any additional security • Little reward in your bill for responsible water use • 100 litres per person per day should be the ongoing minimum supply • Supports desalination and both should be progressed ASAP • Supports recycled water • Consider community owned asset to lease back to Hunter Water	Neutral
063	• Supports plan and all of the proposed actions • Involved in community engagement process and plan reflects discussion at these sessions for water conservation/recycled water • Collaborate within government to make recycled water part of all domestic and industrial assessment and approval	Positive

#	Key points	Sentiment
064	• Hunter Water needs to better manage Seaham Weir, water quality continues to deteriorate • Transport for NSW needs to manage boating activity which is the biggest cause of bank instability and erosion • Don't support any investment in riparian improvement until high speed boating ceases • Hunter Water needs to work better with land owners along Seaham Weir to prevent water impoundment on properties	Negative
065	• Supports plan and all of the proposed actions	Positive
066	• Need to replace Transport for NSW as waterway manager • High speed boats are the biggest cause of unhealthy waterways in the William River weirpool	Negative
067	• Paterson river offtake – concerns about increased salt content, impact on biodiversity, impact on river properties i.e. property value and access to water • Wants to know plan for stakeholder consultation about Glennies – Lostock and offtake	Negative
068	• Paterson River offtake – impact on salinity and access to water for irrigation	Negative
069	• Bill impact is unclear • Infrastructure should be funded from profits	Negative
070	• Supportive of overall plan • Desalination must be powered by renewable energy • Retain earnings to pay for new infrastructure	Neutral
071	• Does not support Paterson River offtake • Impact on home and farming properties including noise from sites and unsightly additional infrastructure • Increase in salinity and impact on river system	Negative
072	• Thanks for the plan • Supports recycled water	Positive
073	• Notes that Seaham Weir stopped tidal flows and irreversibly changed the environment • Need to remove Transport for NSW as manager of environmentally sensitive waterway • Stop speed boats so the riverbank can recover	Neutral

#	Key points	Sentiment
074	• Plan should include pumped storage hydroelectricity system	Neutral
075	• Plan should include new dams • Supports desalination	Neutral
076	• Believes that Glennies to Lostock is one way doesn't help the Upper Hunter • Central Coast water will only service population growth in Central Coast • Desalination is costly • Where will energy be sourced in the long term? • Strategy should include more detail about build and operating costs, ongoing investment etc.	Negative

Photography
Image courtesy of Hunter Water.
Grahamstown Dam, Ferodale.

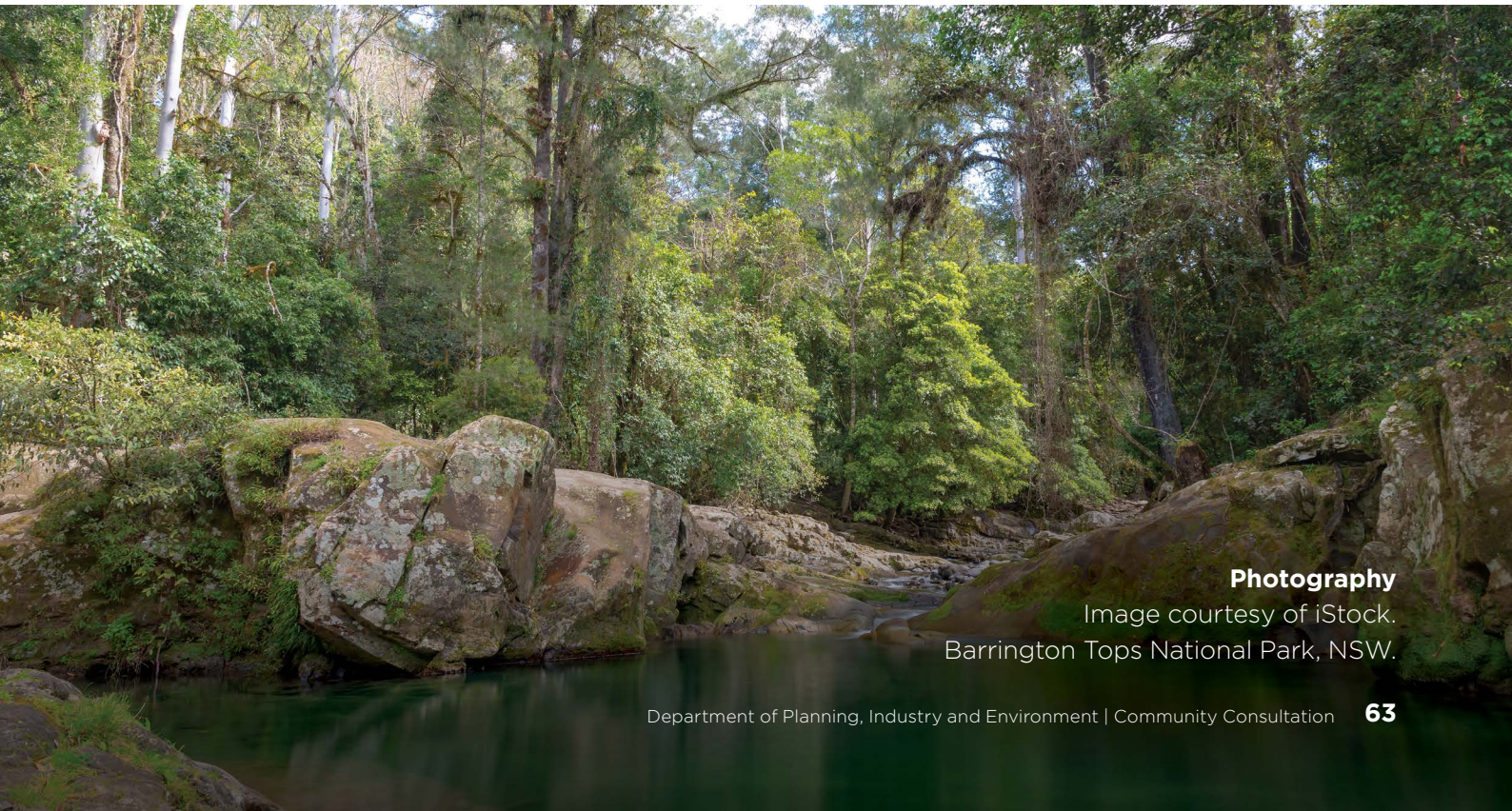
Table 20. Summary of organisation submissions

#	Submission	Key points	Sentiment
1	Public Interest Advisory Centre (PIAC)	• Broadly supportive of the plan, particularly diversified portfolio • Praise for plan development process • Thinks that desalination should not be prioritised over PRW • PRW should be delivered first	Positive
2	Urban Development Institute of Australia (UDIA)	• Supportive of diversified approach • Noted Hunter Water's commitment to engaging with stakeholders and community • Should be more transparency on costs and funding • Supports plan priorities • Continued engagement with development sector, particularly around recycled water and integrated water system	Positive
3	Yasmin Cately MP	• Supports plan overall and Belmont desalination contribution to water security • Does not support any increase in water rates to fund the plan	Positive
4	Hunter Environment Lobby	• Supportive of diversified approach • Pleased that new dams aren't included in plan • Only supportive of desalination unless powered 100% renewable energy	Positive
5	Committee for the Hunter	• Supportive of diversified approach • Noted Hunter Water commitment to engaging with stakeholders and community • Increase involvement of First Nations people in strategic water planning • Water essential to liveable communities and economy of the Hunter	Positive
6	Business Hunter	• Supportive of the plan overall • Feels that new dams should not be 'off the table' for future consideration as part of water security mix • Expand evaporation strategies for existing dams • Should provide incentives for reducing consumption	Positive

#	Submission	Key points	Sentiment
7	CB Alexander Foundation	• Concerned that the plan will place water restrictions on the use of water for the dairy at Tocal college • Any change would impact the future of the farm and its students, particularly in times of drought	Negative
8	St Michael's Nelson Bay Laudo Si Committee	• Supportive of diversified approach • Pleased there are no new dams	Positive
9	Eco Network Port Stephens	• Supportive of diversified approach • Pleased there are no new dams • Supports all actions, caveat with desalination for effect on marine environment and would like more detail about greenhouse gas emissions mitigation	Positive
10	Pindimar Bundabah Community Association	• Supportive of all actions in the plan • Pleased there are no new dams • Community should be more proactive in water conservation	Positive
11	Hunter Healthy Rivers Group	• Supportive of diversified approach • Pleased there are no new dams • Those that use more water should pay more • Non residential and bulk customers incentivised to use more recycled water • Renewable energy should be used to power desalination	Positive
12	Hunter Lakes Corporation *Submission confidential*	• Provides an overview of Hunter Lakes Scheme	N/A – no comment on draft plan
13	Central Coast Council	• Draft LHWSP aligns with draft Central Coast Water Security Plan • Notes the extensive collaboration during the development of the two draft plans • Supports all actions in the plan	Positive
14	Lower Hunter Agricultural Water Users Association	• Opposed to Lostock to Glennies connection • Concerned about increase in salinity • Concerned that pipeline will have negative environmental, social and economic impacts	Negative

#	Submission	Key points	Sentiment
15	Slow Food Hunter Valley	• Opposed to Lostock to Glennies connection • Concerned that will negatively impact farmers/ agribusiness in the area • Concerned about an increase in salinity	Negative
16	Singleton Council	• Broadly supportive of the plan • Would have liked more direct consultation with DPIE and Hunter Water during the development of the plan and would like more going forward • Wants clarity through the business case process that the Glennies to Lostock scheme is not detrimental to water security for the Upper Hunter • Wants clarity that the draft plan covers the entirety of Hunter Water's service area in Singleton LGA	Positive
17	Port of Newcastle	• Commends Hunter Water's commitment to water security • Looking forward to further discussions around Walsh Point desalination locations	Positive
18	City of Newcastle	• Supports the actions in the draft plan • Concerned about price impacts and feels that initiatives should be funded by other sources of government given Hunter Water's profits and dividends paid to State government • Advocates for use of renewable energy for desalination options • Would like more transparency on climate modelling • Looks forward to continued collaboration • Supportive of Hunter Water taking a leadership position in terms of PRW	Positive
19	Dungog Shire Council	• Thinks plan priorities are generally appropriate • Would like a more coordinated independent approach to catchment/river protection/ management • Does not want to see any adverse effects on users/ irrigators due to the Glennies to Lostock scheme • Draft plan is not inconsistent with Council's Local Strategic Planning Statement	Positive

#	Submission	Key points	Sentiment
20	Save the Williams River Coalition	• Supports diversified portfolio • Pleased no new dams • Would like to see more investment in storm water harvesting • Recycling investments should focus more on PRW • Reduce level of fixed charges and place greater emphasis on volumetric charging • Would like to see renewable energy for desalination options	Positive
21	Correct Planning and Consultation for Mayfield	• Plan does not adequately consider all possible uncertainties	Negative
22	Gresford and District Community Group	• Opposed to Lostock to Glennies connection • Concerned about increase in salinity • Concerned that pipeline will have negative environmental, social and economic impacts	Negative
23	Water Services Association of Australia (WSAA)	• Supportive of diversified portfolio and all options approach • Extensive community engagement noted • Supportive of linkages between LHWSP and Central Coast Water Security Plan	Positive



Photography
Image courtesy of iStock.
Barrington Tops National Park, NSW.

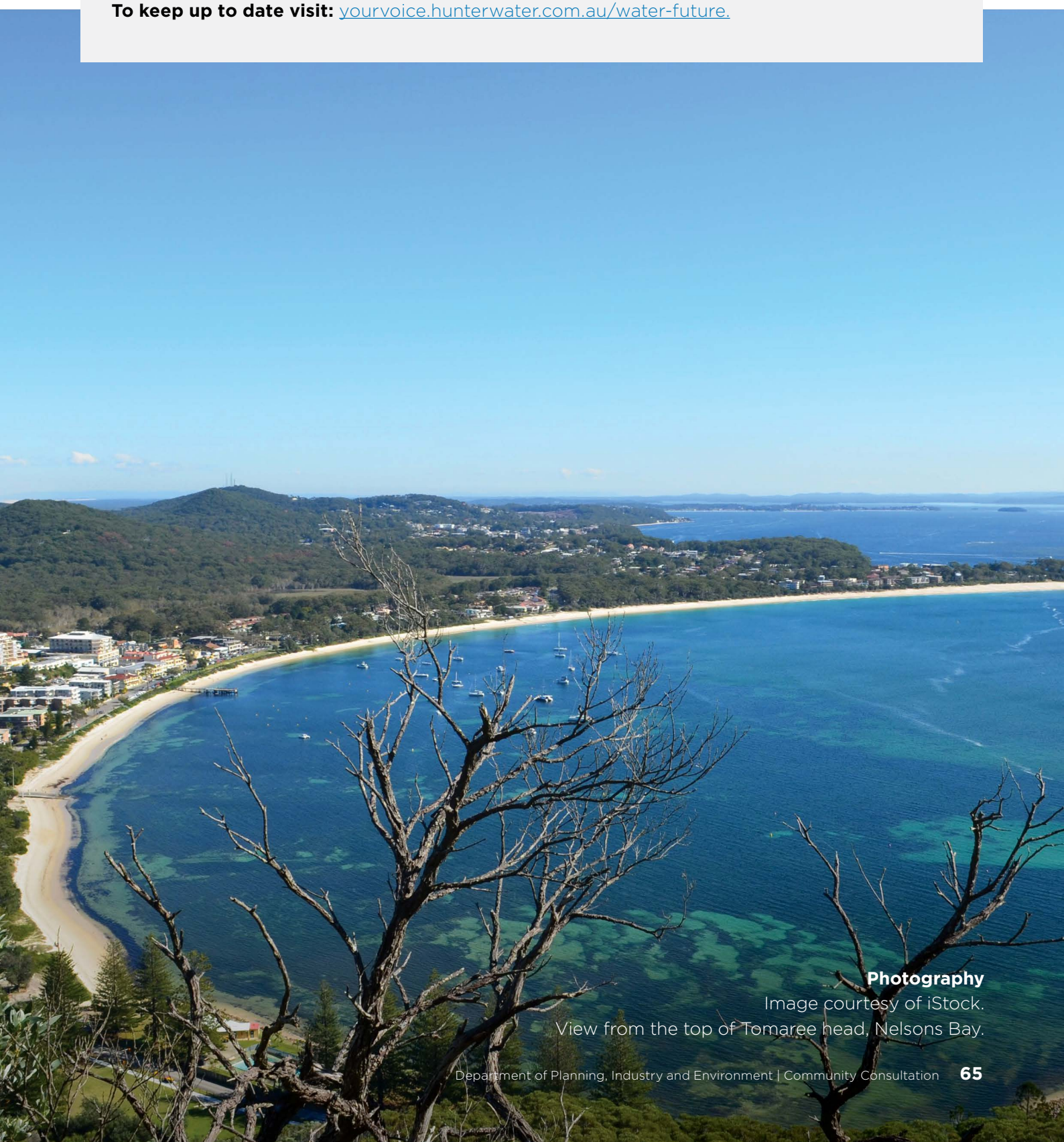
Next Steps

Photography
Image courtesy of Hunter Water.
The sky reflecting on the river.

All submissions and matters raised are being considered as we finalise the plan. The final Lower Hunter Water Security Plan will be released in 2022.

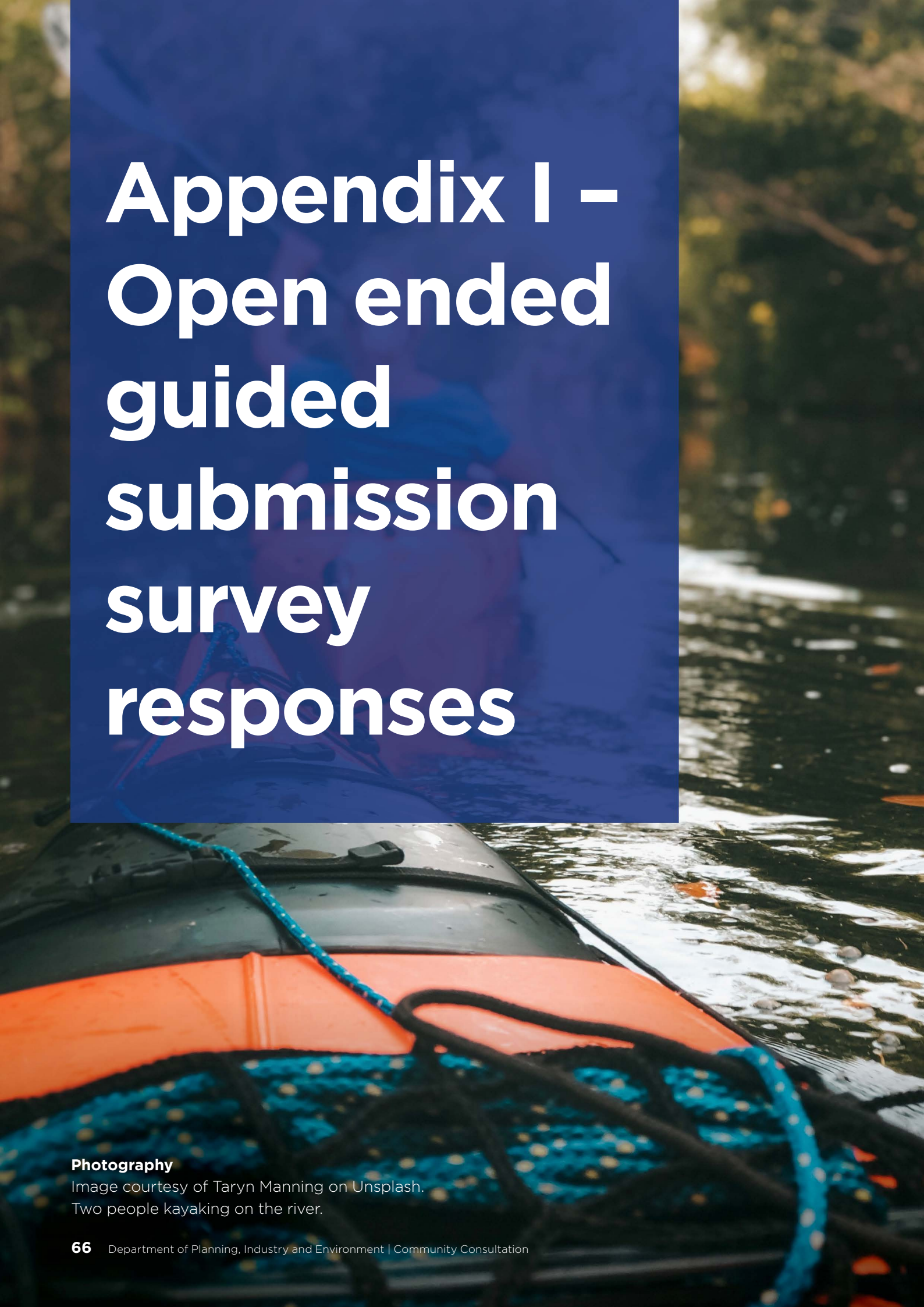
We sincerely thank everyone who took the time to consider the draft Lower Hunter Water Security Plan and to make a submission.

To keep up to date visit: yourvoice.hunterwater.com.au/water-future.



Photography
Image courtesy of iStock.
View from the top of Tomaree head, Nelsons Bay.

Appendix I – Open ended guided submission survey responses



Photography
Image courtesy of Taryn Manning on Unsplash.
Two people kayaking on the river.

Table 21. Why agree that we need to plan differently

We need to plan differently
We need to focus on reducing environmental impacts, making the changes sustainable, for all effected.
Because we've ignored the basics!
Sustainability needs to be more prevalent across the board.
At least one of your proposals has great potential problems.
We need to make sure that agriculture and food production is prioritised when domestic needs in the growing population are taken into consideration.
Yes because nature is variable.
More priority on recycling and less on desalination.
Because the old ways of planning are obsolete.
Different planning is needed to protect the environment.
Traditional planning doesn't work during times of unprecedented uncertainty and rapid change.
There are too many houses being built without sufficient recycling built into the approval process.
Water is a limited and valuable resource.
The current long term storage is not effective long term with the climate that we are facing long term, and we need more than band-aid solutions.
Because the current set up is too reliant on a steady replenishment of resources by nature.
Extra supply has been neglected while the population has grown.
I think there have been a few events which drought events which have emphasised the value of the water supply. This situation can only be exacerbated by climate change. I think the need to plan differently is driven furthermore by the recognition that there are now realistic options with home water tanks, while, equally, MORE large dams can be seen by some as unacceptable.
Climate change.
Need to be able adequately manage the inherent water security uncertainties.
Without provision for a new dam the proposed plan is pie in the sky.
Keep all options.
Water storage has been ignored for way to long and this submission does not address it.
There is increasing pressure on the water quality in our catchments – there is diminishing concern for the quality of the water in the catchments – we are relying on the end treatment process to deliver drinkable water – if this continues we can do away with the burden of Catchment Areas on Dungog.

We need to plan differently
I think your planning for all possible scenarios is a good thing. Should look at worst case scenarios and risk rank.
We need to respond to climate change and to minimise carbon emissions.
Our world environment and population is always changing.
Dams are a waste of space.
The security of water is our first priority however the continued agricultural businesses in the lower hunter need certainty in relation to the quality of water in the tidal pool should a pipeline from Lostock to Glennies Creek go ahead.
Every business needs to think outside the square to make them a contemporary and evolving business that responds and actually considers grassroots requirements.
Because our climate is changing and we need to change the way we plan.
We can't expect our dams to remain full during extreme heat periods.
Every water usage should be built into every planning approval and required as retro fitting prior to all property sales.
Because planning to date, if there has been any, is ad hoc.
Relying on rainfall is short sighted.
To utilise all the different ways to use and recycle water.
There are plenty of options for reducing water use and loss, not just dams.
Yes , but not desalination, I have run those money consuming contraptions.
The previous plans have clearly not achieved their objectives.
Hi Please go back to Tilegra dam option it will provide approx 150 gig being 7 1/2 times what Chichester holds and is the best long term solution. The desalination plant at Belmont will supply approximately 120 meg per day which is a waste for the damage and energy it costs. I know it will get green votes but please do the right long term solution. If you want to spend additional money start a program on digging Grahamstown dam deeper or getting rid of it once Tilegra is built as everyone knows more evaporates out of here in summer than people use. Thank you for the opportunity to discuss.
The old planning seemed to be build more dams. need to use different solutions (e.g. recycling, interconnect existing dams, etc) but especially catching stormwater.
Resources have been wasted on plans such as Tillegra due to poor planning.
To conserve water.
Because water source quality is getting worse.

We need to plan differently
We need to look to better commercial and residential water management (tanks/grey water) and recycling.
Well prepared during a drought.
Too much emphasis on Desalination A highly toxic (oceans) & energy user.
Need to plan without relying on large dams.
Historic planning has proven to be not adequate in providing sustainable, drought proof water supply.
To be adaptive.
Prior strategies such as dams will become less reliable due to ensuing climate change and requires investment in desalination for water supply and increased recycling for water conservation.
Rainfall is unpredictable and evaporation high in our changing climate.
We need to rely on sources of water other than rainfall.
Planning is currently short sighted and reactive.
Over reliance on river systems and a local of recycled water – showed clearly during drought that this had a significant impact on our water reserves. Relying on dams for 90% of our water supply is a disaster waiting to happen.
Use current technology and science.
We seem to be experiencing less rainfall and need to find ways to conserve water with the population increasing.
I feel there's a lot of things that we could do differently that would make a massive outcome to our water resources and what we could save. If you made it mandatory that every single house needed to have adequate guttering, storm water and down pipes. there's a lot of towns like my own in ellalong that don't have kerb and guttering so water to see the spills over people's yards or worst case in people's houses. There's a lot of things like this it is quite small that can make such a massive difference.
The world is changing, so doing things as they've always been done isn't really appropriate.
It makes total sense that we should diversify our water sources and do more with our existing water.
We cannot reply upon rainfall alone any more.
We need to plan for drought and energy shortages as fossil fuels, a limited resource, become more expensive to extract.
While many of the elements of the draft plan already exist in the current LHWP – we do need to take bold moves to ensure our regions water supply can meet future needs.
Because we continue to suffer through droughts.

Table 22. Why agree we need to act now

We need to act now
We need to act with pace but care and proper consideration.
Because we don't have drought proof water security.
The Environment is important.
Planning is key to avoid hasty conclusions.
Yes because we have improve our knowledge of historical data.
It takes time to educate the community on the benefits of recycling.
Because we are vulnerable to drought & Hunter Water have an obligation to the people of the Hunter area.
Because if we wait, it'll be too late.
Climate change is going to affect water availability.
The sooner you start the more time you have.
Too much development in the Hunter takes no account of climate change. Housing developments with no green space, no footpaths, dark grey rooves, no use of recycled materials.
More sustainable supply options need to be developed.
Climate change is a scientific fact. Politicians our future has already set is back. We're already playing catch up.
Increase in regional development and climate change.
We have to have things in place and working properly if we have another severe drought.
Extra supply has been neglected while the population has grown.
Because dams take years to complete.
See previous comment.
Climate change.
Currently the system is not sufficiently robust against potential drought conditions.
Give the lead time for a new dam now is almost too late.
Most tasks require a lot of time to implement.
Proactive.

We need to act now
Because we know that water and possible flooding will occur again and we need to capture it.
There has been little action to protect the drinking water quality – politics overtaking science – action needs to happen now to try to stop the acknowledged decline in the quality of the water from the Catchment.
Population is booming in the hunter valley region and construction only ever get more expensive as years pass and land is used for housing.
More efficient use of water should have happened years ago.
Increasing population creates greater demands that must be accommodated in all seasons, including droughts and floods.
A new dam would resolve that issue.
As the population increases in the Hunter Region, we need to be more considered in how you respond to water demand and supply.
Because climate change is happening now.
Technology is at the ready, cost effective to act on climate change now.
Obviously this is a dry continent and global population increase, climate change and our threatened habitats for flora and fauna, make our moral duty clear for future generations.
Well you need to start somewhere.
Water is not something we can do without while we come up with a plan.
Water preservation and recycling has always been important, now and forever.
The climate crisis.
Yes, but for goodness sake there are other options available to us at far less cost to run and maintain.
Increasing pressure on water resources due to lower annual rainfall, warmer temperatures and increased population.
Climate change won't wait.
Due to long lead times plus droughts may become more frequent (climate is changing).
Population growth and climate change are changing the needs of the catchment.
To conserve water.
Because we can, we already know causes and effects.
To prepare for projected future drought and fire emergencies.

We need to act now
So Hunter water will be prepared during a future drought.
It is always best to make a start.
Look at more sewerage recycling rather than desalination.
Drought has shown that we will run out of water in severe conditions.
The effects of climate change are happening now and, I think, will be more consequential into the future.
Cheaper the sooner we begin.
Building the infrastructure will take time, further adjustment and reassessment.
The rate of water use is unsustainable.
Take advantage of current favourable conditions as whatever methods are chosen will take years to implement.
Small steps now will set us up better for the future, rather than trying to do something huge which will be ineffective by the time it is needed.
Planning should be long term.
Other non dam options and i.e. desalination to put infrastructure into place to reuse water as much as possible for industry and separate system for drinking water.
Start educating the population about rainfall independent options such as desalination and recycling.
We act now before it's too late. It's takes time to work out new strategies and put in place.
We don't act now we're going to end up running out of the main resource to keep us alive.
The recent drought showed us how vulnerable we are, and how quickly our sources can deplete.
Drought could be around the corner. Acting now is the responsible thing to do.
It's better to plan for the future while dam levels are high so we have time to act when we experience the next drought.
When most of us our a pension. I need to be on top of all accounts.
Water is a life source, we need to be prepared.
It is critical to act now – especially given many options require time to implement / deliver. Waiting until a draught is simply not possible.
Climate change and the impact of more frequent and intense climatic events is real.
Delays will affect the results.

Table 23. Why agree we need to remain adaptive

We need to remain adaptive
We need to be able to adapt and pivot in these changing times.
Because we've listened to 'progressive's' for too long.
New research and tech should mean a reassessment of procedures.
All possible scenarios need open consideration.
Climate change and drought as recently experienced and articulated in the climate change and farm adaptation report are taken into consideration for continuing on farm production of fresh food for the region.
Yes because we have to combine the proven with the unproven to learn and evolve.
As technology improves HWC needs to adapt to best practice and provide real savings for the community.
Provide a varied approach to water storage starting with a big Dam.
Proactive is best.
Circumstances are constantly changing.
To a certain extent. Circumstances change and plans can quickly become obsolete, but this is not a valid reason to be fickle.
The Hunter is in transition & water will come into the system through the closure of coal fired power stations & mines. Recycling processes are becoming better very quickly.
More dams are not the answer – water re-cycling and desalination are better options.
Our future has a lot of unknowns, we need to be as proactive as possible but know when to adapt an existing plan.
Climate change.
Adaptive doesn't JUST mean throwing money at the issue. Your pamphlet, The Fountain is just 6 pages of flowery words and phrases that says your building desalination plants and pipelines to move water around. Nothing indicates initiative on your part.
That's life – things change.
No special comment.
Climate change.
Need to be able to respond to changing circumstances – climate, technology, social, economic.
To face and overcome opposition to a new dam.

We need to remain adaptive
It is important to consider all options available.
Change to increasing climate change.
We need to adaptive and avoid political decisions and go with the science.
As above.
Technology and efficiency gains are advancing.
To maintain the agriculture in the lower hunter.
There are many contributing factors that are always evolving for when and how much water we use.
Ecology is being destroyed.
We need to look to new ways of doing things. We have to make hard choices where non sustainable practices must be phased out.
Technology may change and we can adapt to different desalination infrastructure.
Apart from being a currently expedient political stance, we should be responding to science and technology developments as they contribute to understanding g and managing waters.
Always.
New technologies are being developed and refined all the time. Our climate is also changing requiring adaptive behaviour.
Dams aren't the only answer to maintaining efficient and clean water conservation.
In this changing environment where different factors including human, economical and environmental.
Correct.
Innovation and utilising new technologies is a must.
Who knows what future challenges will evolve.
See differently above. old solutions often expensive, disruptive & harm environment.
Change in the future will ensure that today's solutions will not necessarily be appropriate in the future.
To conserve water.
Based on evidence.
Keep assessing renewable energy technologies that have no/minimal environmental impact, as they are developed.
As weather is always changing.

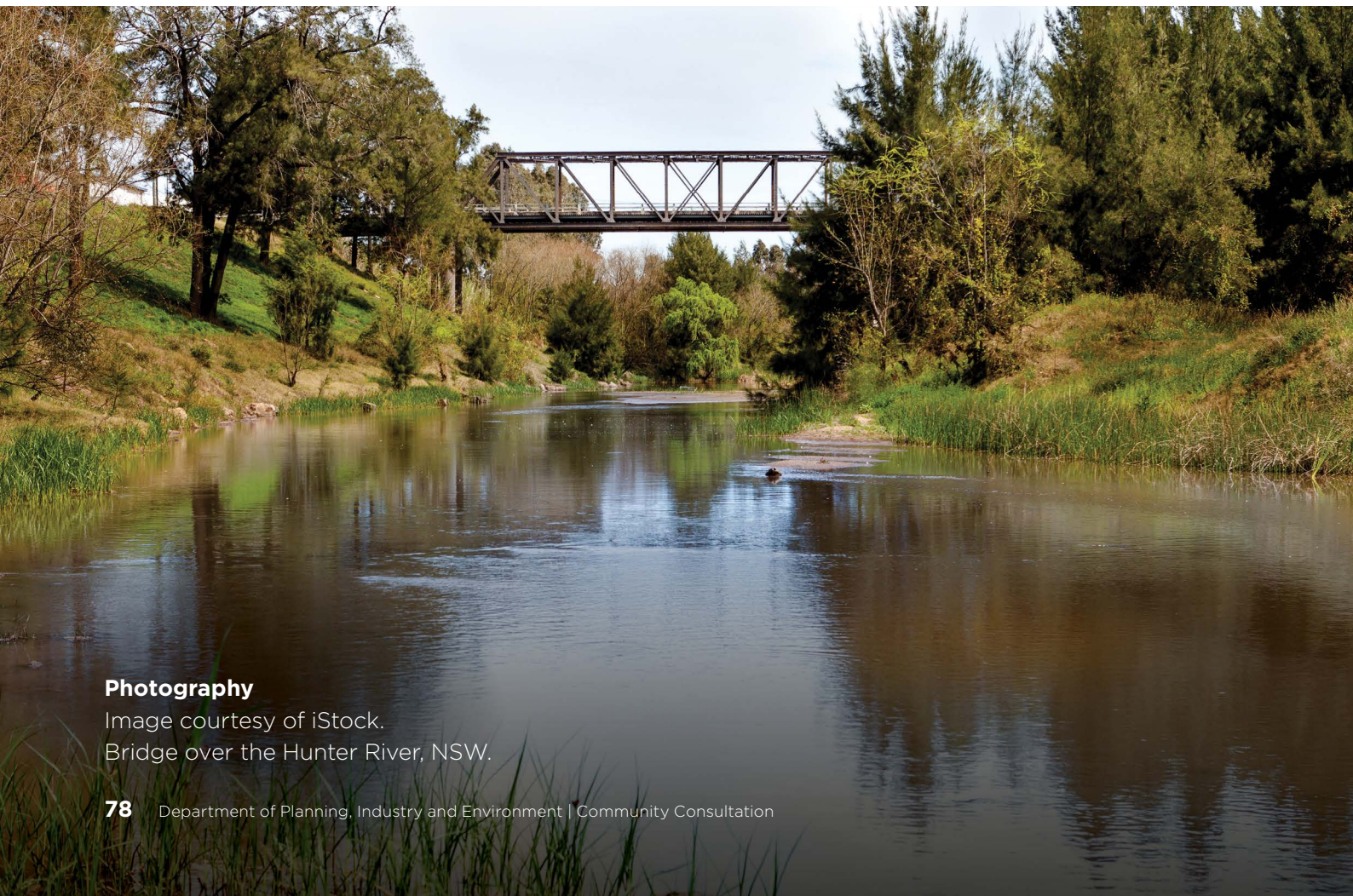
We need to remain adaptive
By looking at the way previous generations including aboriginal forefathers made use of the natural ways of water use.
Technological change occurs so quickly.
This is required and being prudent to allow for climate effects that may not be able to be predicted with certainty into the future.
New ideas and methods always developing.
We need to consider that technological advances in renewable energy and farming, all well as change in water use and population growth may influence strategies more than currently anticipated.
We live in a changing world, climate wise and technologically.
Embrace new technologies, stop thinking of old "this is how we have always done it". Be agile and open, customer centric not political short sightedness.
Absolutely.
We need to not rely on the environment providing it through rainfall particularly as this is predicted by climate to change to be ever more severe changes either flooding or drought.
Following science and using latest technology requires adaptive practices.
As above.
That is in the way we might have to look at grey water even utilising a lot of dams and lagoons for storage. We all have the same attitude as people on tank water more people would have an understanding of just how far you will this is.
We do, but decisions need to be made so things are ready when they're needed.
As COVID and the bushfires of recent years have shown us, we can't predict the future perfectly, so we should plan to be flexible.
Things change.
So we can take fast action if needed and we are not stuck with a set of solutions that don't meet the needs at the time.
Because we are living through the collapse of our global industrial civilisation as a result of fossil fuels (the energy of our civilisation) becoming more expensive to extract and polluting our planet.
Our world is constantly changing. New challenges present themselves. Water is a critical natural resource. Any plan we create must be flexible to whatever challenges that occur in the future.
Because the pace of change is only increasing; technology, social, economic, climate.
When we have new information we should consider acting on it.

Table 24. Why support draft Lower Hunter Water Security Plan priority 1

PRIORITY 1 Safe drinking water
Essential for all life.
I'm unconvinced that second-hand sewerage is good for us.
It's a necessity for healthy communities.
Health considerations are paramount.
This is a must, we have great quality water and should aim to keep it that way.
Without it we perish. Build Tillegra Dam for our future generations, so they will be comfortable knowing that we will Not run out of water.
Essential.
Safe drinking water is a prerequisite for modern life in a 1st world country like Australia.
We are not a "third world" country. Everyone needs safe drinking water.
It's essential for our lives.
No water, no life.
It's all in the title .... SAFE DRINKING WATER.
We live in Australia in 2021 – why is this a question?
Need water to live.
Obvious.
Not negotiable.
Critical to public health and a functioning society.
A no brainer.
Essential to have.
Basics of life.
Important.
Safe drinking water is obvious – Hunter Water is just playing lip service to this in the Seaham Weir Pool –
It's the essence of life.
Necessary for community health.

PRIORITY 1 Safe drinking water
We need safe drinking water to sustain life.
Clean water and sanitation is UN Sustainable Goal No.6. Imperative to quality living.
No water we die.
Human and environmental survival.
There is no life without safe drinking water.
This is vital for life.
Number one on Maslows hierarchy of needs.
It's vital to our way of life.
Because I do not wish to drink non potable water.
Public health paramount.
Common sense.
Health.
Our population has enjoyed this in urban areas and continued availability is most efficiently provided by a public utility.
It's the basis of life.
It's what you exist for.
Hard not to support something humans need to live a healthy life.
Obvious reasons.
Health.
Protection and enforcement is important.
Well why not?
Required for healthy living for all!
Safe water essential.
Safe drinking water is an essential requirement to assuring a healthy population, economy and region.
Obvious.

PRIORITY 1 Safe drinking water
A basic human right.
Needs to be safe.
Safe drinking water separated from the recycled or dirty water which can be used for industry/ watering / toilets ect.
Essential for all of us.
We all need water to survive and it needs to be safe and clean for drinking.
It's essential.
All of the other plans are useless if the drinking water isn't safe.
For human health.
Water is life – it also needs to be prioritised for farmers, who grow our food in increasingly unstable climates.
This is critical. Ultimately, nothing else matters.
Life.



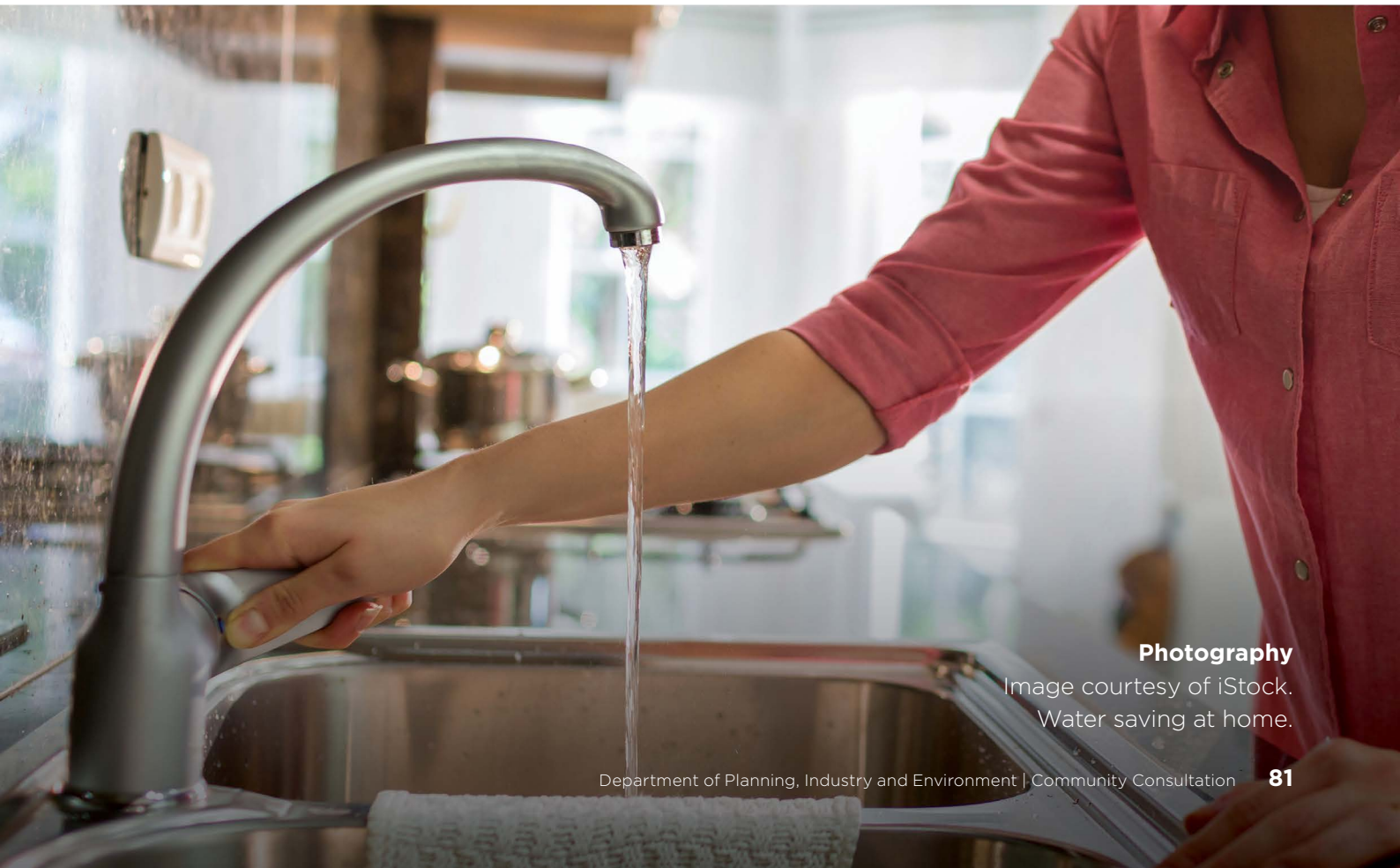
Photography
Image courtesy of iStock.
Bridge over the Hunter River, NSW.

Table 25. Why support draft Lower Hunter Water Security Plan priority 2

PRIORITY 2 Making the most of what we've got
We need to work within the parameters of what is available and sustainable for all.
Waste is never the answer.
Existing supplies need to be used as efficiently as possible.
Dumb question!
Encouraging conservation going into summer no matter what the water levels makes good sense.
Reduces risk.
No new dams, which destroy agriculture land and native vegetation are not the answer.
There's no use putting more money and water into a system where water is prevalent.
Increasing demand – reduction in supply.
Society is becoming less "responsible" and more self centred. Conservation of a resource is imperative.
Obvious.
There is currently still too much waste.
Significant investments have been made in the past that can continue to contribute to a safe secure water supply. (Maximising efficiency of previous financial and resource investments. Also avoiding new environment impacts).
Efficiency using available items.
Common sense.
Review of BASIX is important – use of rainwater for potable use should be allowed not just for toilet and laundry- the argument that this water is unsafe to drink seems unjustified – there are plenty of cheap purifiers available – many of us have been living off tank water with no filters – purest water you can get – is Hunter Water just trying to increase it's sales and resist this option?
Should use resources efficiently.
Efficiency gains are always possible. Evaporation of stored resources could be improved. Recycled water must be used for environmental flows and as technology improves it can provide volumes of high class drinkable resource.
This is first and foremost of importance. Using and revamping the Grahamstown and Chichester Dams more effectively, continuing to stop the Hunter Water leakages (that's a greater water saving than residential use). Using the infrastructure we already have and own is one of the best sustainable living goals.

PRIORITY 2 Making the most of what we've got
Makes sense.
We allow industry to spoil water, use it wastefully, we waste storm water and use treated water when roof run off would do.
Doesn't mean we shouldn't increase what we've got.
Maintaining and maximising of the present infrastructure is cost effective.
We're got plenty of water. We need to ensure we are using the more appropriate methods and devices to actually access it.
We're a dry country, we need to be adaptive and smart about our use of water that we already have including more recycling.
Sewerage, it is far less expensive and a lot easier to refine into water as safe and safer than rain water , but people cannot get past the thought in their head . Yet so many travel overseas and unknowingly drink refine sewerage water there.
To get best value for money.
We are a valley with mountains and rivers but back Tilegra land and take a proper long term approach I know there's opposition but it's the right long term option.
Often cheaper & less disruptive.
Natural resources provide the most efficient source of water and should be relied upon to the full extent while ever they remain so.
Saves money n new infrastructure.
Because Dams work. We should build another one and catch the rain when it falls and also to support the growing population.
As a community we are still wasting water, better management of grey water and recycled water is a high priority.
While we still have what we have got.
We have natural resources that are being eroded and wastes- fix old infrastructure, preserve assets like the Williams river from degradation e.g. from power boats.
We have plenty in reserve, look at the last big drought.
Leads to minimizing waste when there is surplus.
Cheaper and better for environment.
Balance approach is the best way to make the most out of what we have.

PRIORITY 2 Making the most of what we've got
Obvious.
Look at the big users, not punish the small users to stop washing their car.
Most cost effective.
Use our natural resources – i.e. we are surrounded by water! Do not damage the environment further by building and dating our water ways which will choke our waterways down stress in times of stress and drought and have an unknown risk to our wildlife.
Climate change means water is a precious resource, we have to use what we already have.
Use what we have and try to get the most out of it.
Being wasteful isn't smart, ethical, or good for the planet.
I believe we have adequate resources already but are not utilising it efficiently.
To save water and benefit the environment.
Repurify the waste water we already dispose of.
Conservation and recycling is critical to extending the capacity of our limited water supply.
Don't waste.



Photography
Image courtesy of iStock.
Water saving at home.

Table 26. Why support draft Lower Hunter Water Security Plan priority 3

PRIORITY 3 Improving the resilience of the system
We need to look at innovative solutions to create resilience.
Fast growing communities, need water security.
As above.
Rainfall can be finnicky. Different source locations are important.
Another dumb question.
Still a lot to be done regarding water leakage. Extra pipe routes required for resilience.
Build a decent sized Dam which will provide the basis of drought proofing the Hunter.
Protects the community.
Increased resilience by embracing all feasible options is a necessary risk-mitigation measure during times of great uncertainty.
By re-cycling water and desalination.
We have to be able to have some reliance on an ever changing world.
So as to maximise what is available.
Desalination plants are extremely costly and disposal of the resultant brine is an ecological problem but there are few alternatives for us.
Australia has always had drought. Water restrictions every time there is a drought means the job wasn't done properly.
Build more dams.
Obvious.
Diverse sources are critical to meeting any contingency.
Need to be able to provide adequate water supply in light of climate uncertainties.
No brainer.
Flexible actions are important.
Critical to climate change.
Obviously supported – no brainer.
More desalination ideas. Retro fit old coal fired power plants as desalination system. Boilers turn water into steam to produce electricity, possible way to recycle that steam into drinking water?

PRIORITY 3 Improving the resilience of the system
Water is an essential for life.
Glennies-Lostock connection is a no brainer to supplement storage reserves.
Must.
This is unclear to me.
The reduction in leakage over the preceding 4 years is proof of the poor control previously.
With high evaporation rates I'm not sure how resilient the current system can be made.
Proper maintenance and accessibility to all water systems is vital to ensure water is constant and clean.
Creating a self sustaining system which promotes individuals and businesses to recycle and gather their own water.
This can also start with the capturing run off water and sending it back through a system as recycled water for outside use and for toilet cisterns.
The Maitland area is expanding rapidly.
Tilegra dam is common sense long term solution.
Droughts may become more frequent.
We should be prepared to adapt to ever changing conditions, knowledge and resources.
Working with life.
Resilience is reliant on creating and maintaining healthy, natural eco-systems is.
Increasing population.
Desalination plants are our future.
So the system can better cope in times of stress and potential water shortages.
Climate change will require this.
The system needs to consider a variety of stressors that will influence water supply and demand, with pre-emptive planning to manage this.
Obvious.
Climate change is not "changing" our environment. We have always had droughts and floods!
Generally cost effective.

PRIORITY 3 Improving the resilience of the system
Resilience in the face of severe drought with non-rainfall dependent mechanisms.
Rainfall independence in the face of climate change is the only way to be resilient.
I feel we need to plan for a new dam or increasing storage levels with the current dams.
It's a no-brainer.
It makes perfect sense.
So we do not run out of water in a drought.
To prepare for drought and increasingly expensive energy – have you ever asked yourself what would happen if OPEC decided to stop selling the West oil? Think about how fragile our entire way of life is.
Unfortunately our water supply suffers greatly from natural evaporation losses (large surface area of water supplies). This means it doesn't take much for our water supply to fall to dangerous levels. We must make the water network system more robust to withstand periods of drought.
The engineering of the system should allow a variety of configurations.

Photography
Image courtesy of Hunter Water.
Grahamstown Dam, Ferodale.

Table 27. Why support draft Lower Hunter Water Security Plan priority 4

PRIORITY 4 Water for life
All life needs water.
Somewhat support, because it's rather vague.
As above.
As an essential supply, needs to be taken seriously.
If you are talking about "environmental supply" for maintaining the natural environment this should be a priority for flora and fauna also.
Prioritise cheaper source of water, avoid expensive desalination plants.
Essential.
Water is as necessary for the preservation of the environment as it is for human consumption and use. These are not mutually exclusive priorities.
We all need water.
Water is life.
See Priority 1.
Population is growing and still no new dams can't expect to more and more for less.
The time has come for these matters to be appreciated.
As a society we should ensure our activities are sustainable and respectful.
Essential to do.
Essential need.
Important.
Obviously supported – no brainer.
Make water priority for everyone.
Sounds like a nice motherhood statement that all can agree with.
The integration of waterflow and land use by all participants from Mountain to Sea must be carefully evaluated. Any actions anywhere along a stream will have implications for others further down that stream including the estuary and ultimately the coast and nearby ocean.
The ecosystems and culture are more important than facilitating unsustainable population growth.
Aligns with Safe Drinking Water and the UN Sustainable Goals. Not only in recognition of First Nations people but the liveability of everyone in our communities.
No water we die.
Again the peculiar wording suggests pollical motivations. Obviously we.

PRIORITY 4 Water for life
What's the difference between this and 1?
Cultural connection to land and waterways is important for all Australians.
Important to allow communities to access and enjoy water as a key aspect of cultural celebration and life.
Everyone needs water for various reasons and we need to support all of our community.
Our generations to come are relying on our facing today's issues.
One big dam and we're done for the next 50 years.
Better for everyone.
Is an asset for the whole community.
As above, we need to look at conserving the natural ecology.
Increasing population.
Best to work in with aboriginal people.
Water is essential in all facets of living.
Great knowledge for many thousands of years, need to listen.
Strategies should also consider water supply over more than just one lifetime, but plan for the generations to follow.
Obvious. but for everyone not just emphasising First Nation.
All Australians need water, not just first nations.
Indigenous value, community and environment important to point it does not override pragmatism.
This is obvious.
Critical for humans and the environment.
Agree with what has been said.
Restoring equity is well overdue.
Whilst a lot of the knowledge has unfortunately been lost, we should embrace remaining knowledge of our First Nations communities.
For sustainability.
Water is life, without it we all die – in about 3 days actually.
Stakeholder / Community Engagement is very important to ensure all voices are heard and the community understands the decisions / rationales of projects and initiatives.
Sensible engagement.

Table 28. Open ended feedback on draft Lower Hunter Water Security Plan priorities

Further comment on draft Lower Hunter Water Security Plan priorities
It is heartening that the plan focuses on reducing environmental impacts and reuse of water. Although I do have concerns about the potential impacts on the Paterson River and the natural ecosystems of the river. I am also concerned about the potential on going impacts on existing agricultural industries and residents that rely on the availability of this water. I also have concerns for the potential impacts on the river for recreational water users.
Incomprehensively! we canned Tilligra, now we are paying the price.. I've travelled around OZ.. the thriving communities ALL had BIG water resources!
Anything that creates a more sustainable system with minimal waste.
Nil.
The presented priorities are common sense ones. They should require no explanation from the survey respondents.
With only 12% of waste water recycled HWC is missing a huge opportunity to improve water resilience and provide greater water security for the community. HWC need urgent action, projects are taking too long.
Tillegra Dam should be the number 1 priority to increase our water supply. Hunter Water are the custodians of our water supply & they need to act now. Wake up Hunter Water we can never have TOO much water. Build some decent infrastructure for Australia's future. Don't keep dodging the REAL issue. Act NOW.
It says nothing about wastewater or stormwater. Also, they seem to be HW-centric, whereas I thought the Lower Hunter Water Security Plan was a whole-of-government initiative. Re. Priority 2; managing existing resources is a no-brainer, but it need not be to the exclusion of new concepts. It also presupposes HW resources are the only ones to be deployed in the Lower Hunter Water Security Plan.
Our objections relate to the proposed pipelines from the Paterson River.
I am disappointed that Evaporation technologies are considered Horizon 2. When our priority is making the most of what we have, how is losing it to evaporation not considered a priority? Particularly when there are easy effective technologies that exist today – black floating balls are all over social media, why aren't they on OUR dams? Additionally I was disappointed that recycled water for drinking isn't being prioritised higher. The technology is there, it's used overseas and to not use it is a waste of what we have. It's also cheaper and less environmentally destructive than a desalination plant.
Everything comes down to money. As usual, the cost gets dumped on us and there's nothing mentioned about Hunter Water managing their own organisation efficiently or effectively.
We have adds on tv saying if we don't love water and conserve it we wont have it forever. Are you serious, have you thought about that at all. I think this is just to cover up failures of the past. Do you really want your kids to be scared to turn the tap on. Water should just be there it is the number 1 essential service. That's your job – make sure there is enough clean water not make ads to scare people into using less. If there is a problem with how much we have say that and start fixing it.
Building desalination plant at Belmont uses too much electricity.

Further comment on draft Lower Hunter Water Security Plan priorities
Great job! The plan is excellent, based on well researched options and is exactly the kind of forward planning we expect of critical Government Agencies.
The priorities are appropriate.
The questions have been cynically devised to provoke a desired outcome. None of the planners will be around to answer for the inadequacies of the long term plan.
Priorities stated are logical.
Too much emphasis on desal – costly in operation and provides an expensive asset the government will flog off to a private operator further increasing cost.
Priority needed for flood events/ better catching systems needed for litter/pollution.
Dungog is not being compensated for the contribution it makes in souring the water for the Lower Hunter – 80% catchment – there is a real and also perceived cost for being the Water Catchment for Hunter Water. Water from Lostock will now be harvested to supply the Upper Hunter and also water piped to the Central Coast – Dungog needs to be compensated for the burden of being having the majority of the Shire operating as the drinking water catchment for the Lower Hunter and supporting the UH in the future and also the Central Coast.
Retro fit aging coal fire plants into desalination plants for the upper Hunter. Boilers producing steam for electricity and use steam as recycled water for irrigation or filter for drinking water. Not sure if this idea is feasible but making use of an old plant for water could be a great idea. Additionally engaging with mining companies in the hunter to build major works (dams) in the area. We have the biggest earth moving equipment and could easily dig and construct multiple dams for our future. Use old open cut coal mines as dams for water.
I believe we can make enormous gains with quality recycled water that would be available at the point of demand hence reducing distribution costs. Evaporation from broadacre storage areas such as Grahamstown must be reduced. I'd also like to see investigation of the feasibility of excess stormwater/ floodwater diversion into storage forms maybe including open-cut mining voids or other quarries that could be available for pumped hydro and or supplementary irrigation.
Please consider providing free rainwater tanks and other on property water storage.
Keeping salinity levels down by maintaining end of system flows and not a pipeline from Losktock to Glennies creek that would prevent the Lostock dam spilling which aids to the health of the lower Paterson and Hunter rivers.
If this is a 40 year plan, everything is being done and achieved within a 5-10 year time frame. Hunter Water clearly sees the way forward is Desalination plants to curb the problem. Not once did the Plan address how the Love Water programs and Smart Water Choices need to be reviewed for ALL consumers (not just residences) to reduce their water usage.

Further comment on draft Lower Hunter Water Security Plan priorities
Thanks for the engagement.
You do not include state and federal regulations, policy, laws and monitoring as an essential framework for all water security plans.
Where are the priorities for searing currently un sewered areas?
Don't leave it too late to act, and choose the path carefully.
Please continue to protect the Tomago and Tomaree groundwater sources. These underground resources are little known within the community but vital in our water security. More awareness of these resources will encourage community responsibility in caring for the land above and around these.
I hope the funding needs don't take precedence over the benefits.
Please refrain from cowing down to opposition groups when common sense options are right in from of you. Do you think Chichester or many other dams would have been built in the current political environment I think not. Please change to a smarter long term option for your and my children it's not an easy call but it's the right one thank you.
Current new plan mentions stormwater harvest but no actions seem to be planned.
The document provided for public comment was too verbose and dwelt too much on listing Hunter Waters record and too little on the assessment of the costs and benefits of the proposed new works. Not enough research to justify recommended solutions. Cost benefit evaluation.
Give all household a water tank.
Desalination plants address none of the 4 priorities. Conservation of the environment and water use are the simplest and cheapest things to do.
Stop working on utopic green ideas that will cost us more. Build another dam so we have enough water.
No new desalination, end water sharing with central coast. Hunter consumers should not be punished due to government inability to build new dame. Desal is a waste of money in our climate.
More Dams, no Desalination & water recycling including sewerage. New buildings having water retention.
A lot of people struggle to pay their bills now.
Its reassuring to see that the model of just damming up rivers is not a preferred option. It has proven to be not effective in recent times, in terms of cost effectiveness of efficiency as a water resource.
Diversifying water supply to include desalination and rely less on rainwater catchment and open storage such as dams is a wise move forward.

Further comment on draft Lower Hunter Water Security Plan priorities
Fix your failing infrastructure and clean Chichester Dam. Don't just build a new one and let it rot away. Maintain your assets or replace with new ways of thinking. Don't repeat the mistakes of the past. Think long term.
Diversity good, a little disappointed with too much reliance on desal or sand beds could reduce them to 10%.
Support whole heartedly the desalination plant and the dependence on recycled water methods – Hunter region is too reliant on dams making up 90% of our drinking water and is non sustainable in times of drought with the inherent risk to wild life and the beauty of our rivers and streams to plug it up. Keep Hunter dam free and flowing!!! Use and re-use – we waste so much water which just goes down the drain and can be harvested.
There has been a lot of opposition to building a new dam but I think we need to look at putting in a new dam regardless of opposition. There will always be against for building new dam but for the long term water security I feel people will be thankful it was built. The dam would take quite sometime to build and fill with water so the sooner we start looking at this possibility the better.
Your job is to deliver safe water NOT to get involved in race, gender or community based politics. Do your job and stay out of the rest of it.
Resilience of the system is the key priority and it is excellent to see the desalination plant being built for the Hunter.
This survey is biased, only asking me why I agree with statements and not asking me why I disagree with statements. We really need additional water storage if the population is to increase at the same time as droughts increase. Desalination plants are extremely energy intensive and are not the way of the future – we will be living with less energy in the future, please see the following peer reviewed article [link provided to 'Through the Eye of a Needle: An Eco-Heterodox Perspective on the Renewable Energy Transition' by Seiburt, M. and Rees, W.].
Keep the escalating cost of hunter water affordable for poorer residents.
Proactive planning is very important.
I don't see the reasoning for the deprioritising of the dam options.

Table 29. Reasons oppose Belmont and Walsh Point desalination plants

Building the Belmont desalination plant	Readiness activities for a Walsh Point desalination plant
The plant is relatively small and is not good value for money to build or maintain. The amount of water could be sourced by recycling the water outlet at Belmont WWTP.	The capital cost of Walsh Point and access to the ocean plus creating ocean outfit is not well thought out. This does not align with conservation or community values. Also poor value for money for the customers.
Waste of time.	Avoiding the real issue.
Waste of money.	Waste of money.
There are cheaper less environmentally destructive options not being prioritised.	There are cheaper, less environmentally destructive options not being prioritised.
To much electricity to run when closing power plants.	As above
Whilst water has fallen from the clouds, albeit inconsistently, to supply humans with water since time immemorial, it is hard to be sure why energy has to be "actively" expended during a process to extract potable water from sea-water which is 3.5%(?) salt. I appreciate that energy is expended building dams and other water-supply infrastructure..rom hard to see that.	As above.
Unnecessary if new dam built and money better spent.	See above.
Nature can provide the water if we can capture it. Very costly.	As per Belmont.
Impact on sea life.	There will be far greater environmental impacts building and maintaining a desal plant as well as the critical changes to the ocean biodiversity with the salt extraction.
There will be far greater environmental impacts building and maintaining a desal plant as well as the critical changes to the ocean biodiversity with the salt extraction.	Band aid solution as previous comments.
Encouragement of urban spread.	Not required.

Building the Belmont desalination plant	Readiness activities for a Walsh Point desalination plant
Band aid solution to a poor previous decision if you have the right size dams then you're done.	We can manage without.
To expensive, investigate other avenues.	More wasted $$$$ that we get to pay for. It's OP (other people's money).
We can manage without.	As above.
Like the Victorian plant, an expensive boondoggle that we get to pay for.	Inefficient use of money leading to a likely white elephant. Consider similar Australian installations (eg. Tugun).
Desalination plants have been proven to be extremely expensive to build and maintain plus they create major carbon emissions.	Sludge going into ocean 7 high energy costs.
Inefficient use of money leading to a likely white elephant. Consider similar Australian installations (eg. Tugun).	Not required being to costly for consumers.
Sludge going into ocean 7 high energy costs.	Too much reliance on desal.
These are a costly burden that are not needed.	Cost of energy sources to operate.
I believe it at most it should be planned for an emergency. We should focus on water recycling, storm water harvesting and getting better efficiency from our existing assets.	Plant should be deprioritised.
Initial and ongoing costs to ratepayers. Waste of energy sources.	
Running cost and environmental affects seem understated.	

Table 30. Why support action – protecting drinking water catchments

Protecting drinking water catchments
Sustainable water catchment is essential in our climate.
No explanation required.
One has been used to receiving good drinking quality water and this should not change.
Protect what we have.
Dumb question.
Essential.
Essential for the environment.
Reservoirs are a sunk cost which must be recovered by ensuring they remain fit for purpose, including protecting catchments.
Need to maintain clean, potable water in our dams.
It makes sense to protect our seats.
For health.
As opposed to not protecting them.
Clean water.
Obvious.
An essential element in the multiple barrier approach to providing safe drinking water also provides other environmental benefits.
No brainer.
Supply quality is important.
Best practice.
Blindingly obvious – reduces cost of treatment at treatment plants – removal of algal toxins expensive and possibly not 100% possible.
For our future.
Healthy water catchments are relied on to produce clean and reliable water.
Source water from the Barrington Tops is unique.
Important to protect what we already have.
If we don't we won't have water, simple.
All water is connected so catchment areas must be protected.

Protecting drinking water catchments
What a stupid question.
Water catchment areas need to be protected from chemical pollution for health and safety.
Drinking water is important.
So we can have clean drinking water.
Common sense.
To reduce pollution.
Safer.
I believe the benefits outweigh the costs.
First principle of clean and cheap.
We need to show appropriate care.
Protecting water catchments in an environmentally friendly way, if this is what this question means, is simply logical water management.
Obvious.
Health.
They are existing and actions are need to preserve quality.
Dumb question.
Maintains a healthier, longer term and more sustainable water supply.
Essential for safe water.
Restricting activities that will cause significant harm to drinking water seems sensible.
Same rules for big business as well as small farmer.
Important.
Health and safety.
To make sure we have enough water for the future.
This protects/improves water quality, which is much better than relying on fallible treatment processes.
Because it's your job.
For human health and to ensure the highest quality water supplies.
This is critical to ensure the health of the water network and the confidence the community has in their water supply.

Table 31. Why support action – water conservation and reducing leaks

Water conservation and reducing leaks
Water is a finite resource, and in our climate is essential.
Eliminating waste is always good.
Makes sense to use high value water efficiently.
Waste is awful.
Dumb question.
Water leakage is still too high even though there has been improvement.
Saves water and cost.
Surely a key factor in resilience is to reduce if not eliminate waste.
As a way of conserving supplies.
It makes sense to protect our assets.
Maximising the available resource.
I've had experience with Hunter Waters maintenance in reducing leaks and fixing problems and is give you a 2 out of 10.
There will always be losses. We need to have a balance between supply and loss. If conservation is less efficient than supplying more then supply more.
Reducing loss.
Obvious, especially given the high current levels of leakage.
Reduces need to invest in new infrastructure and reduces resource wastage (water, power, chemicals).
See above.
Reducing waste is important.
Needed At rentals.
Best practice.
Obvious – saves water.
Saving water wastage.
This is a no-brainer. Reducing waste is common sense and saves money.
Efficiency is a must.
Important to protect what we already have and knowing how to manage it well.
That only makes common sense!

Water conservation and reducing leaks
Saves $ and water.
Why waste water?
Should have always been a priority.
Clean drinkable water shouldn't be used when a lower quality water or another process could be used. Higher prices for the amount of water people use may dissuade domestic water wastage. Fixing leaks is plain common sense.
Maintaining current water conservation infrastructure is vital to making the most out of our dam. Utilise all the current same, stop building new ones.
Maintaining what we have so that we have the water we need for drinking, household use and agricultural use.
Common sense.
Efficient use of money.
Stop waste.
I believe the benefits outweigh the costs.
Don't need to waste good water.
Keep the system working well.
Better management of what we have is surely the most energy efficient approach.
Good to be efficient.
Common sense.
Leaks due to ageing infrastructure are wasting treated water.
Why not, wasting water is dumb.
Less wastage and more efficient and cost effective use of available water supply.
Simple method of saving water.
This is a priority in an outdated water supply infrastructure.
Maintain your assets, don't just let them run down.
Important.
Use it don't lose it!

Water conservation and reducing leaks
Water is precious.
Every bit of water counts and we lose a lot through evaporations.
Sensible and ethical.
It makes sense.
Because it's your job.
Good for the environment and economically efficient.
This is core community expectation and reduces unnecessary wastage.

Photography
Image courtesy of Hunter Water.
Garden sprinklers watering garden.

Table 32. Why support action – recycled water

Recycled water program
We need to look into reusing this precious resource.
Only maybe!
As long as it's safe, all for it.
Conserve what already have by removing the need for "virgin" water sources.
This needs a significant boost and promote to the community.
Useful in times of drought.
Anytime a precious resource can be economically re-used, it should be.
As a way of making best use of the available water.
Why waste what we already have readily available.
Increase supply.
America and Europe have had this in place for years and it works.
Less waste.
Why wouldn't you.
Where appropriately integrated as part of an integrated strategy makes best use of available resources and increases water supply resiliance.
Extra capacity.
Important!
Best practice.
Same.
Great idea for any new estate going forward , I currently have it and its fantastic.
Reduces waste improves efficiency of water use.
I believe this is virtually an untouched potential resource, after all it's a high percentage of what we consume.
Important to protect what we already have and thinking how we can use it more effectively.
For industry.
Because I think we need to be able to adapt to water scarcity.
Give it a try.
Saves unnecessary treatment of water.

Recycled water program
Water is a finite resource. We need to use it better.
Many cities around the world recycle water we need to take it on.
Recycled water implementation is extremely important to make the most of the water we already have access to irrespective of rain fall.
Recycling water means that our consumption is lessened overall.
Keeps water bill down.
Stop using drinking water where lower quality is ok.
I believe the benefits outweigh the costs.
Save nutrients going into the sea.
We need to look at this. We throw away equitable water.
This approach has been used successfully for eons in the northern hemisphere, much better than building desalination plants in terms of energy use, financial cost and protecting our natural environment.
Common sense.
Recycled water is a reusable resource – its use should be encouraged for non drinking purposes.
I and everyone I know will not drink treated sewage.
Integrates water supply that other wise would be lost to the system.
Why waste it.
This allows sensible use of water.
Better use of drainage system not pouring back in to the ocean.
Diversity.
Should have been done years ago – we are way behind other developed nations in this respect.
Use what we already have.
I feel this is ok but I still think a new dam would help a lot more in the future.
Sensible and ethical.
Most of our waste water is relatively clean. It should be reused.
Because it's your job.
Should be implemented for non drinking only, if it can be shown to be economically efficient.
Reusing water for other purposes ensures we receive the most out of our water supply.

Table 33. Why support action – community engagement on purified recycled water for drinking

Community engagement on purified recycled water for drinking
The more we educate and engage community the more open people are to change.
Sounds good as long as it's healthy.
People need to be kept informed so that they can learn more and provide additional input as to how financial and natural resources will best provide a agreeable return.
Yes, campaign needs to start asap. Too slow to take action. HWC needs to set up and be visible in this area.
Shows people the benefits.
Purified recycled water is but one element amongst a great many trade offs. Community Engagement across all those trade offs is critical for Lower Hunter Water Security Plan to gain its social license.
Need to overcome the fears people have about recycled water.
Why waste what we readily have available.
Address and educate community reluctance to use recycled water.
As above.
Less waste.
Community awareness can make a big difference to attitudes. Surely the pandemic has taught us a lot about community engagement.
While the use of PRW is technically safe it can be concerning to significant proportion of the community. Appropriate engagement with the community is necessary to build trust in this water supply option so that it could be implemented if required in the future.
User acceptance is important.
We need to educate community.
The science is already there – the brain is not.
Important that community understands this and that recycled water is safe.
Don't be scared of media hysterics....after all right across Australia upstream settlements are discharging waste water that becomes a lower down drainage settlements drinking water. Even the seawater that would be consumed by desalination plants will include waste water given that rivers drain into the sea.

Community engagement on purified recycled water for drinking
Understanding what the community wants is critical, as well as providing the unbiased reports of pros and cons.
Education of the community.
A lot of people will say to to recycled drinking water because of a lack of understanding and education. It's not going to be a choice but a necessity.
Drinking recycled water is completely normal in so many parts of the world.
Better knowledge of engagement.
Need to carefully introduce this but is essential long term.
I believe the benefits may outweigh the costs.
Tell the story well and show how we can make this work.
This has to be done well to avoid public hysteria.
Common sense & new ideas.
Keeps community informed and less apprehensive on benefits of recycled water.
Community need to fully understand what it really is.
Community engagement is always important, transparency maintains trust.
Diversity.
Will be good to see.
Essential to get the community to uptake purified recycled water.
Need more community input on this.
If that's what it takes to get everyone on board then it needs to be done.
Education and engagement will ensure the community understands the process, feels comfortable and sees the benefits of this option.

Table 34. Why support action - continued use of the Central Coast connection

Continued use of the Central Coast connection
I feel we need to keep all options on the table.
System resilience.
Central Coast should really sought their own problems out or stop their population growth that cannot be supported by their natural resources. Regardless if our dams are full and theirs has capacity for further storage, and vice versa, then why waste the water if there is a dam below capacity that needs topping up.
Yes, utilise the asset when required.
Some reliance can be beneficial.
Making the most of resources.
Why would you discontinue it?
Provides water supply benefits to both communities.
Flexibility is desirable.
Yes – looks like Dungog will again be doing heavy lifting – would like to see the figures of the two way flow – my guess is Lower Hunter is the main contributor.
If we have to.
Everyone needs access to water.
If through better dam infrastructure we have a surplus then why not assist others.
We're all in this together.
Makes sense.
I do not have enough information to satisfy me that the benefits outweigh the costs.
Sharing our asset.
Maximizing efficient use of an available water resource.
Mutual benefit.
Diversity.
Yes.
Makes sense to share where possible.
Sharing assets makes sense for community.
Good backup for the network.
A 'whole of region' approach is critical. Collaborating with neighbouring regions will ensure water is available to all.

Table 35. Why support action – building the Belmont desalination plant

Building the Belmont desalination plant
We need to make better use of our water.
If you must rather than looking for new catchments. Solar panels could be used to off-set energy and could be placed in the large areas available around dam sites.
I don't know enough about this.
I support desalination as it is a safety valve that provides water when there is little. I do not support it as it will not fix the problem and if sea levels are rising one bad storm could shut the plant down due to being on the coastline. Bit like building a drinking water treatment plain in a flood plain and having no water during a flood.
Good plan.
Belmont & Walsh Point may well be necessary as stopgaps while more sustainable solutions are found. Desal is energy intensive and therefore there are tradeoffs.
To add to the water available.
Where will water come from in an extended drought without it.
More resources are needed now.
Increases the water security and resilience of the system in an efficient and effective manner.
Extra capacity is desirable.
Good backstop but expensive compared to rainwater.
Great idea should build more and use our old coal fired power plants as retro fit desalination plants.
This seems like a feasible back up reserve that is only replicating what occurs elsewhere around the world. Only hope we can incorporate Solar power into the energy consumption to maximize eco efficiency.
Give it a try.
Drought proofing the system.
Yes, not shortage of sea water.
Not all eggs in one basket.
Sensible with newer technology.
A major desal plant is needed in the Hunter/Newcastle area.
A good supplement to available water supplies in times of need.
Additional type of water source, needs to be powered by renewables.

Building the Belmont desalination plant
An excellent decision for making our future water supply resilient.
Already in place so good to improve existing assets.
Some desal good.
Fantastic news!
Not keen on desal plants unless desperation calls.
Climate-independent option is always good to have.
Strongly support this rainfall independent technology, it is the water supply of the future.
This option will increase the overall capacity of the water network while also reducing our dependence on rainfall / unpredictable weather.

Table 36. Why support action – progressing a Hunter Water connection to Glennies to Lostock scheme

Progressing a Hunter Water connection to the Glennies-Lostock scheme
Again resilience of the system. As coal mining is scaled down in years to come the capacity of dams used for mine water will become at least partly available for other use.
Great common sense use of the dams to have them ready for rainfall without the waste of water being lost over the spillways when the other dam remains below capacity.
Yes, improve total water scheme.
A sensible option.
Good for the future.
Some reliance can be beneficial.
Optimisation of resources.
Combining resources.
Makes better use of existing infrastructure and water resources.
Flexibility is desirable.

Progressing a Hunter Water connection to the Glennies-Lostock scheme
Lostock is a small dam with excellent catchment – Glennies Ck is a larger dam with little catchment – Again Dungog will be doing the heavy lifting and a monitor of water flows each way will indicate this assumption.
Not sure.
It is timely to re-visit the purpose of these dams as time and land use has evolved.
Good balance of using what we already have.
Drought proofing the local area NOT the central coast.
Flexibility.
Diversity of supply.
Makes sense.
Use what we've got before building more.
Sensible.
Good to use existing dams.
Makes sense to use what we already have.
Maximizing efficient use of an available water supply.
Mutual benefit.
Linking all existing water storage will facilitate a mechanism of improving the current water supply infrastructure.
Diversity.
Good back up.
If we are going to share water we need to do a lot more to keep dams full.
Makes sense to make use of available resources.
Being able to share water between the two is a great idea.
Good backup for the system.
A 'whole of region' approach is critical. Collaborating with neighbouring regions will ensure water is available to all.

Table 37. Why support action – continued use of water restrictions in drought

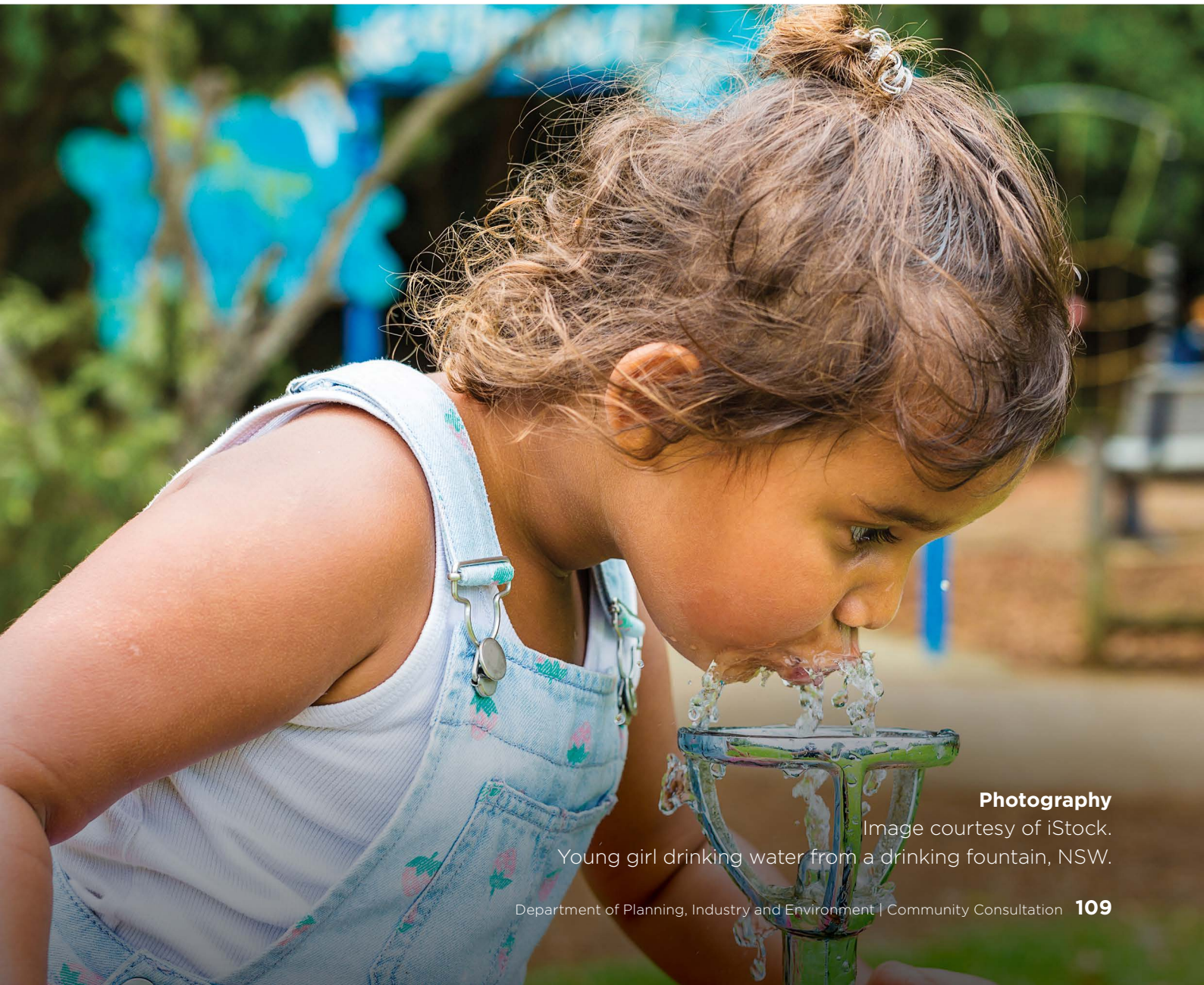
Continued use of water restrictions in drought
We need to conserve this essential resource, and educate community on how precious this resource is.
When we see the way water is wasted (even during cuts).
Encourages use of drought tolerant native plantings.
Absolutely.
Dumb question. Need more (non drought) restrictions to stop people watering gardens before forecast rain and using sprinklers that spray onto roads and paths.
When needed, back continue water education especially leading into summer.
Beneficial.
The community is strongly supportive of this highly effective measure. So it should continue, and not necessarily only during drought.
Water availability is not a right, we should each respect protecting it.
Stage one restriction should be enforced all year with or without drought conditions.
People are wasteful and the majority will only be conservative when they're made to.
Don't waste it when you haven't got much.
Again, why not?
Enables the system to withstand droughts with less infrastructure investments. Is an appropriate response with respect to limited natural resources.
See above but their removal when supply near capacity.
Delay/prevent a water out situation.
Obvious.
Very dry or very wet country it comes in waves.
This reduces the size of storages required and reduces risks.
Consumer awareness and contribution is always necessary.
Imperative behaviour change.
Yes, especially for the central coast they are water hungry.
Makes sense.

Continued use of water restrictions in drought
Impose them on industry at all times to improve global water quality.
Another stupid question.
Restrictions are important. Some people think that the tap is a magic never ending supply.
Encouragement to save water.
Extend available supplies.
I believe the benefits outweigh the costs.
Helps awareness, people don't take for granted.
We can all do better (me included) to use less water.
Understandable.
Previous restrictions have worked. the public are used to water restrictions.
Water should never be wasted.
Better essential allocation of limited supply.
Necessary action.
It makes sense.
Everyone must be mindful during drought and flood times.
Diversity.
Yes we should conserve at all times really and consider our water usage in good and bad times.
Essential. Water is precious not to be wasted down the sink.
Good idea.
No brainer. Being wasteful isn't smart, ethical or fair.
A no brainer. Some people waste too much water.
Because it's your job.
Essential to ensuring we do not run out of water.
A reasonable countermeasure in times of drought.

Table 38. Why support action – readiness activities for a Walsh Point desalination plant

Readiness activities for a Walsh Point desalination plant
Educating community and changing mindset.
You need to ensure the site remains available and viable.
I do not support the location as it is coastal and apparently prone to storm and tide action. IF coastal erosion occurs due to a storm surge or rising sea levels then the plant would be effected.
Future value.
See Belmont above.
To cater for future demand.
More resources are needed now.
Considered appropriate in light of climate uncertainties and having the ability to manage severe drought.
Flexibility is desirable.
Planning is essential.
Should just build it.
A good emergency option if needed.
I suspect we could stall the immediate need for construction of this for some time particularly if we could advance the usage of recycled drinking water. Mind you a contingency predevelopment study would be good to have on file.
Makes more sense than Belmont.
Give it a try.
Drought proofing system.
Desalination uses salt water which we have in large amounts.
Diversity of supply.
Ok.
Cannot hurt to assist in drought readiness.
Good forward planning for another water resource in times of need.

Readiness activities for a Walsh Point desalination plant
Need to know business case, in case it is needed.
This will allow continued growth in our water supply systems.
Yes.
As said before not keen on desal plant.
Makes sense.
Makes sense to have emergency plans.
Strongly support this rainfall independent technology, it is the water supply of the future.
Planning will reduce the time required to create such a facility if/when it is required.



Photography
Image courtesy of iStock.
Young girl drinking water from a drinking fountain, NSW.

Table 39. Why support action – research and development activities

Research and development activities
We need to be looking for new and innovative ideas.
New methods and materials are being developed and should be monitored for possible use.
Useful if we can find more efficient ways to do things without waste or negative environ impact.
Common sense.
Learn from R&D across the world.
Always needed.
Essential to make the most of resources.
Water utilities need a fact-base upon which to make policy and operational decisions. R&D provides this from an impartial perspective and also informs about advancements in the field, technology and otherwise.
Always necessary if a potable water supply is to be maintained.
No money is ever wasted in R&D.
To maximise what we have.
It is smart to use some resources to see if you can do better. We should have some of the best tech in the world if it makes sense.
Being able to identify and appropriately respond to future changes.
Like what.
Keep looking out for the best way to do things.
Best practice.
No brainer.
Agree.
R & D is helpful in implementing cost effective technical and social solutions.
Always essential. Observation of some of the world's drier communities such as California and many of the Middle East cities would be of value. As would some of the monsoonal environments where surplus flooding is a regular occurrence.
Duh!

Research and development activities
Any business need to.
The more we know and can do the better.
Always room for improvement.
We need to be across all available technologies.
Keeps the assets up to date.
Keep up to date with technology & developments elsewhere.
I believe the benefits outweigh the costs.
Do things better, but we do have good solutions already.
As long as they have bang for buck. It's own money you're spending.
Depends on what you are researching and developing, but looking at genuinely green technologies is key to our future.
Good.
Unknown what this means.
Always plenty to do better.
Preparing for future climate trends and developing alternate methods of water security.
The answer to our future R&D.
Technology advances and so should our water strategy.
Agile thinking.
Diversity.
We need to keep the research going for further development ideas.
Always needed.
We cannot advance if we do not research and develop.
Good to plan ahead.
Proactive activities which will ensure Hunter Water is ready.

Table 40. Why support action - integrate land use and water management to support liveable communities

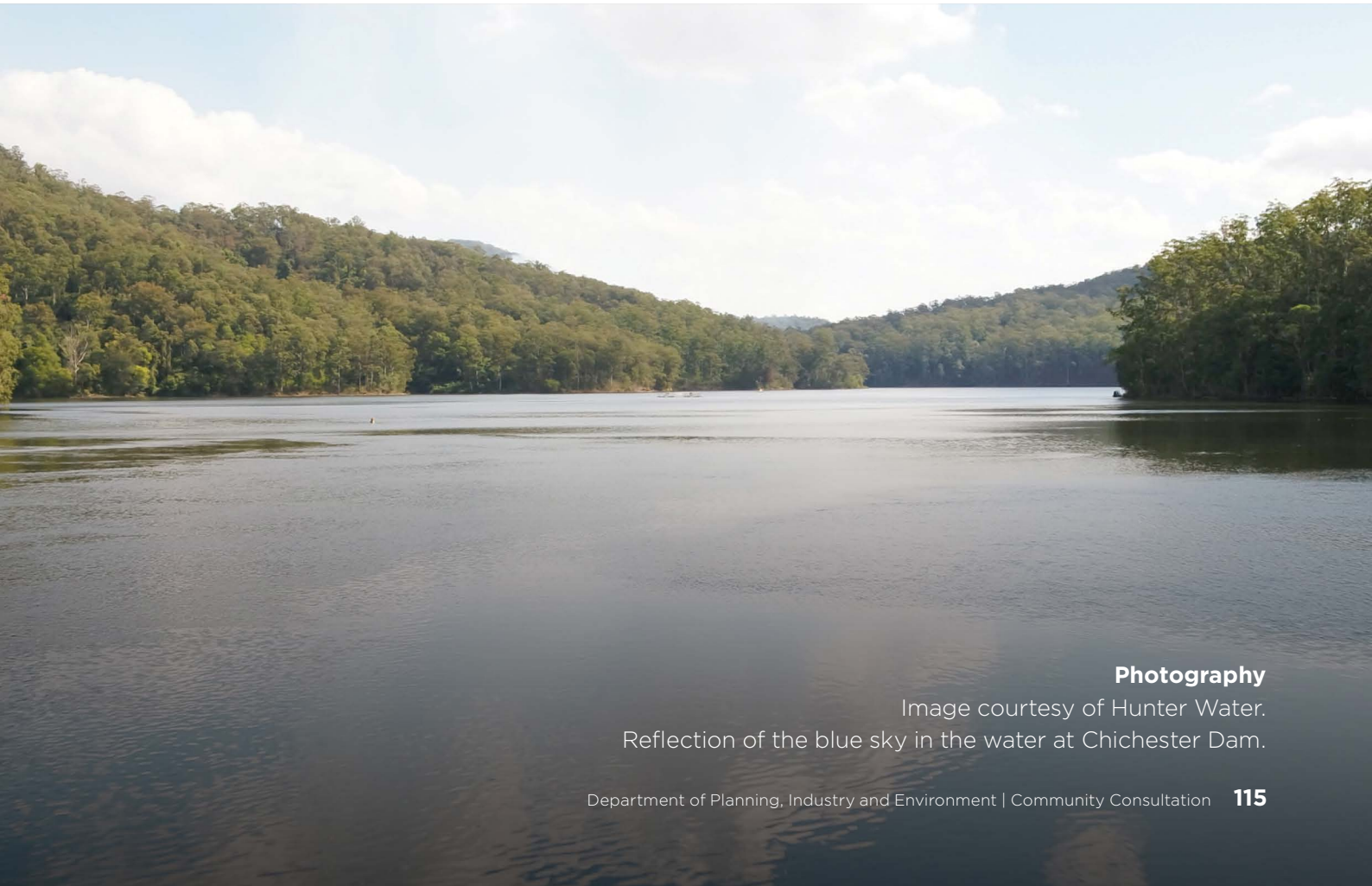
Integrate land use and water management to support liveable communities
Our climate is changing we need to change with it.
Tba.
It's good to incorporate run-off in urban locations to provide water for use locally on lawns and gardens, reducing reliance on high quality water for low quality use.
In protecting the environment you are protecting the water supply, if understand the subject.
Definitely required.
Farmers are the best custodians of the land & its water.
Essential.
Environmental water and land use part of one and the same ecosystem. They must be managed concurrently.
We need to support food production as well as supplying water.
Efficient water use is everyone responsibility.
Not interested.
Such moves must be part of a revised view of water as a resource to be abused, as so many resources have been seen in the past.
Improving the urban environment we live in in a more sustainable manner.
Litter/pollution traps needed. Coordination with Councils re drainage traps even for fine particles and flood events. ...more needed to slow down flood waters.
Best practice.
We are lacking in this – politics always win.
Agree.
Land use and water management go together. Each is essential for the other.
Human lives and all our Flora and Fauna exist around natural terrain and the resulting weather patterns and ebbs and flows. Essentially we cannot favour 1 participant over all users or our whole ecology breaks down.
Imperative to a regenerative and sustainable wholistic system.
Same as above.

Integrate land use and water management to support liveable communities
Makes sense.
Planning for the future has been neglected in the past at great cost.
Another stupid question.
Some farming communities rely on access to waterways for their livelihoods.
Purchase land for future dams in 50 plus years or at least have a long term vision.
Ensures that all sections of the community receive equal treatment.
better planning = better result.
I believe the benefits outweigh the costs.
Community rights above individual and rights of plants and animals without which we cannot live.
As long as this is not a green boondoggle and works without being costly and too restrictive for ordinary people.
I'm not sure exactly what this means, but I support protecting our natural environment in an intelligent, holistic manner.
Good.
Neither support nor oppose.
That's your job.
Land use and water management are integral to each other and go hand in hand for maintaining viable and liveable communities.
Have to view the whole.
The strategy should consider the communities.
Diversity.
We need to look at ideas for water in outback communities. This of course would cost money but in the long term future it would be worth it.
Wasteful water practices on the land affect the wider community. Repairing tributaries and waterways will improve our catchment systems. Natural sequence farming reduces a farms reliance on water assets.
So we can plan ahead for our growing region.
Smart and sensible decisions to ensure the overall health of our communities.

Table 41. Why support action – cultural values

Cultural values
Cultural values are very important.
Tba.
No particular opinion on this subject.
We should not build dams that in 100 or more years from now will not provide any more water security than we have now. Just wasting land by putting it temporarily under water until we again use more than nature can provide.
Your priorities do not align with your culture if conservation and community is part of HWC values. Please review desalination.
Common sense.
Significant.
First Nations people's voices must be heard on matters that affect their country.
To show respect for the original inhabitants of this land.
If it grows more respect for water and it's use why not.
Respect first nation peoples wishes.
Basic respect.
Stated in very general terms, needs specific desired actions.
Also lacking – politics win.
Agree.
I have lived in this valley for nearly 70 years and I am embarrassed and must admit to being quite ignorant of First Nation civilizations in our area From becoming aware of how First Nation mobs have survived over thousands of years across Australia in many drier environments than here, I suspect there is much to learn.
Important to everyone.
Why not, but can we have some inclusivity from the kooris??
Obvious.
Many Australians have strong connections to waterways for recreation, social and cultural reasons.

Cultural values
Everybody is included, nobody disadvantaged.
Proud of our heritage both indigenous & european.
Better understanding of ecosystems from different points of view.
Acknowledges and supports custodial care of water and water ways, through generations of first nation people. Sets a precedent for our obligation to maintain the care -taking of the country's water supplies as it is a core element of life.
Important.
And their cultural values.
All Australians have cultural values.
Important.
Without culture we are drones.
Good take on board the views of our First Nations peoples.
The community values should underpin and inform the decision making.



Photography
Image courtesy of Hunter Water.
Reflection of the blue sky in the water at Chichester Dam.

Table 42. Reason why supportive of draft Lower Hunter Water Security Plan overall

Why support draft plan
I am heartened to see the focus on environmental impacts and recycling of water and community engagement.
At least you're trying! Just restart Tilligra!
We cannot wait until there are regular shortages like they did in Sydney but cost increases should be tapered rather than stepped.
Water security is important, and securing it in advance of a major problem is preferred.
Hunter Water is about the only Government department that has consistently provided reductions in water usage which apparently reflects the customers faith in the planning processes. Why disagree with something that works?
Because fail to plan, plan to fail.
Essential I view of climate change, environmental impact and expanding population.
It's the only plan we have! The reason it's qualified support is because there is insufficient clarity on the specifics. I also fear some options have not been adequately addressed, such as the prospect of distributed rainwater harvesting and on-site household recycling. Rooftop solar revolutionised the electricity sector and will make the system more resilient than otherwise. These options should not be discounted just because they're more complicated or less under the control of the water utilities.
Community water security is very important.
I agree with the priorities, some of the plans could have the priorities shifted but overall in glad that our future is being planned for.
We survived the last few droughts but the next one could be longer.
I don't support all of it but if some of these things don't happen I think the ads will be more oppressive and we won't have water when we need it. I don't love water I drink it. FYI I don't love air or electricity either.
See various answers above. My hesitation about billing costs relate simply to a recognition that this question is not simple; while many of us can afford the extra costs, not everybody can. Simple yes/no answers in this questionnaire do not reflect any complexity.
It is professional, logical, strategic and good government.
I think it represents a sound, effective and efficient approach to providing a secure water supply for the region.
Important actions are listed and time is running.

Why support draft plan
If more of fine particle pollution/litter traps and flood mitigation is included.
The concept and logic is fine – the motherhood statements are disappointing – Hunter Water is driven by political masters – re increased cost of water – there was no option to suggest lowering the dividend to the State Government to pay for the required work – selling water is a licence to print money.
Desalination and recycling water for new estates and dam building.
Planning ahead for what the future is likely to hold is a good idea.
It's a positive effort to move forward.
Need to.
WHERE is vital but should not be considered as a business proposition in isolation from governmental obligations to manage our collectively owned water resources. Much of the plan is admirable but I would like to see it as part of local, state and federal pick and law.
Because without a plan you have nothing.
The plan seems to be looking at new and diverse ways of supplying water rather than staying with traditional water storage that needs consistent rainfall.
Finding alternative water conservation, recycling and management systems is vital to supporting the lower hunter water system. Utilising our current water is the next step forward, recycling water is the answer.
Water is our number one resource.
The future success of Maitland as a place to live and work.
Seems to be well thought out.
If catchment protection is given high priority.
It is needed - the plan strikes a balance between improving what we've got and providing new infrastructure.
The plan incorporates measures that I support, such as recycling, storage, alternate water sources etc, instead of dams, which I think are not cost effective nor efficient long term solutions given the real potential effects of climate change. It is a plan incorporating more progressive features that are being implemented in other countries.
Support the concept of no new dams.

Why support draft plan
It's a well considered, robust plan, aimed at long term security of water supply and optimal usage of our resources.
It encompasses a new approach to water security other than relying on rainfall and building dams.
No more dams!
Diversity.
So happy that we will be preserving our nature and not opting for the easy option of dam building when we can reuse and build a system less reliant on rainfall to secure our water sources from climate change which has already affected us so much.
Utilizing technology to implement rainfall independent water supply options. Ensuring a safe water supply for a growing population.
We need to look at increasing our water consumption to the maximum with the increase in population and for businesses.
Not sure if I'll have an opportunity to state my concerns, so I'm doing it here. The Lower Hunter Water Security Plan has some really good features, but I'm very concerned about drinking recycled water, and the bill increases seem quite large, and may adversely affect many customers.
The majority of the plan makes sense in regards to sustainability and future proofing.
Good to plan ahead. I support all initiatives in the plan apart from putting recycled sewage into our precious drinking water system.
The plan is reasonable and well balanced. The plan has incorporated the values, expectations and overall community feedback to date. Hunter Water undertook extensive community engagement to ensure the plan fully represented the region for which it is designed to serve. The plan has a range of elements which increase overall capacity, while also making better use of our existing supply.
We need to do something now, not later.

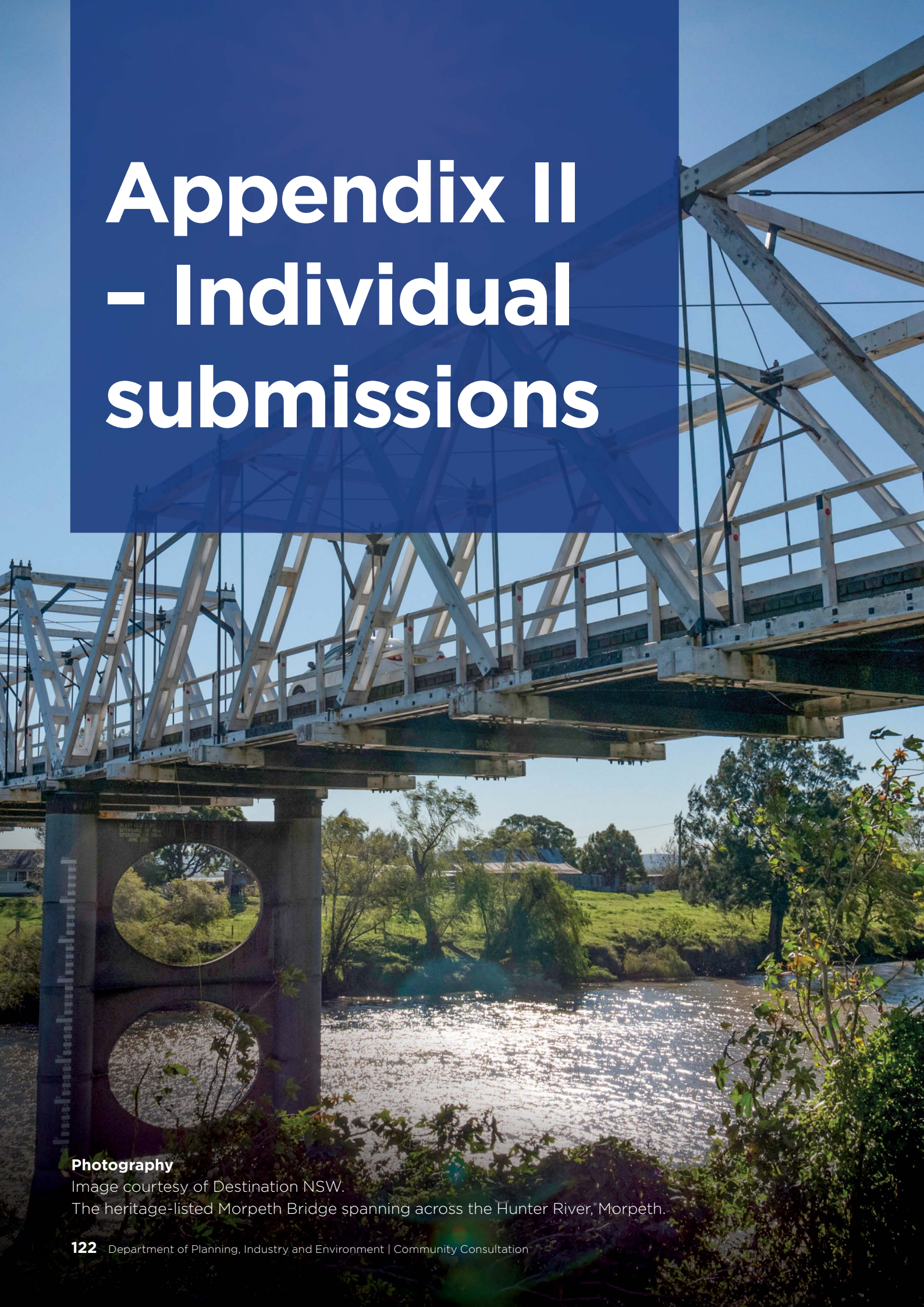
Table 43. General comment on draft Lower Hunter Water Security Plan

General comment
Your plan shows 60% of your treated water is for residential use and 20% of this is used on gardens. Therefore 12% of your total water (1/8th) is used on gardens. It may be in your interests to offer incentives to customers to install rainwater catch tanks and pumps to reduce garden usage. I installed tanks and use much less water from you. It is suitable for washing cars as well as gardening. You could offer one-off refunds for tank and pump installations that could vary depending on tank size and land block size, as well as demonstrated reduction in water usage over previous equivalent quarters.
Use the extra money efficiently and effectively, unlike council who seem to not have the best use of funds.
Keep up the good work but move the desalination plants away from places that could erode during storms or become part of the shoreline with rising sea levels.
Bureaucrats trying to justify their existence does not solve the problem. Build Tillegra Dam should be priority number 1.
For many years, probably close to 30, Hunter Water has gone out to the Community asking them if they would agree to higher water costs if it meant water security and quality. Every time, Consumers have said yes, they would support the increase in cost – why does Hunter Water continue to ask the same question and not execute the expressed wish of it's customers!
See previous answer. Also, regarding this survey. I find it difficult to complete coherent paragraphs when only present with a single line window to type in.
It's all about Hunter Water looking proactive and us paying more money to fund everything. There's no accountability on Hunter Waters part. An extra $30 to $40 million dollars a year with no firm plans in place and accountability to use the money "wisely".
Waste of time your already made your minds up these surveys are all smoke and mirrors.
See last answer re costs.
Keep up the great work Hunter Water. I trust your advice and recommendations.
See separate emailed submission.
Lobby to make Rainwater tanks compulsory for new developments which would generate some more supply that can be used for the gardens.
Litter and fine particle pollution effects our water and our waterways! Must be included.
In one word – DAMS we know it will flood again or high rain events, lets catch and deliver.
As stated above, old coal fired powers plants retro fitted into desalination plants using the steam as recycled water. Using old open cut coal mines as dams. Engaging with mining giants to all pitch in make a giant dam in the hunter valley.

General comment
Most can't afford to pay any more money for pie in the sky frivolity's.
No details on possible off take from Paterson River.
Dredging of the Chichester Dam has never been mentioned in the proposed plan even though there is a treatment plant downstream. I feel that Hunter Water money destined for general state revenue should be used locally in the first instance and any left over goes to State coffers. Why impose an increase in rates?
Little too much reliance on desal and sand beds, would reduce both to 10% each in worse case.
Smart thinking not to take all the water from the one catchment area Williams Valley.
I fully support recycling water, but NOT for drinking. I think it would be much better to stop wasting potable water on activities that don't need it, like flushing toilets, watering/irrigation and industrial uses (where not essential). The Plan puts a large cost burden on residential customers, but they're not the ones using most of the water. I FIRMLY OBJECT to putting recycled water into Grahamstown Dam – if something goes wrong with the system, you're contaminating all the other stored water, and, frankly, recycled water is just icky. I would be open to considering purified recycled water if it was put back into the environment (groundwater aquifer or back into the Williams near Dungog), but not if it's going straight into Grahamstown or into the distribution system.
I think it should include a floating solar farm on Grahamstown dam. The solar energy could be used to power water assets, whilst reducing the high evaporation rate of the dam. It would also utilise the man made wasted space, rather than solar farms being built on arable land.
The plan is comprehensive and a good start, it will now be good to see some of the initiatives rolled out. The planning for desalination is the key to a safe secure supply in the Hunter.
It's not good enough. End population growth ffs.
Engaging the community during COVID restrictions and ongoing limitations is no small feat. Demonstrates Hunter Waters desire to ensure the community was involved in the process from start to finish.
I feel this survey has a few questions that are biased to a desired outcome.
It should have included more about the Upper Hunter water supply context, and opportunities to progressively use water currently allocated to AGL for Bayswater and Liddell Power Stations for alternative uses as these power stations shut down. Also, it is silent on impacts of the proposal on Singleton local government area.
Any off take at Goswyke for hunter water can only affect end of system flows in the lower Paterson and Hunter rivers.

General comment
What were they stats. on the number of community members that supported the desal plants? Seems to have been omitted from the report.
GIVE US BACK SEAHAM WEIR PARK!
I agree that the system should be drought proofed etc but what I don't agree with that it necessarily comes with higher water bills.
Users paying for the volume of water they use is essential. Many people are quite shortsighted in the way they use water. Having to pay more may make them think more carefully.
Short term political response to a greater problem created by poor decision making previous. I think it was the minister Kristina Keneally that stopped the Tilegra dam which effectively caused our current situation please bring it back. Thank you for my opportunity to comment.
Don't let political parties interfere.
Include stormwater harvesting.
I seek further information re use of ground water resources such as Tomaree before embarking on substantial expenditure involved in desalination and pipelines.
Not all avenues have been explored. Give every home a water tank. It would be cheaper and easier to implement.
The Williams river provides 50% of Hunter Water source it needs more active protection by regulation and incentive.
As a resident of Dungog Shire, it is concerning that water resources are always stripped from the area with little to know recompense to the local land managers e.g. the Council and large property owners and local residents. There is an opportunity to provide some infrastructure improvements which are ancillary to the water security plan such as the provision of Sewer to Paterson, Gresford and Vacy. Lack of sewer in these towns is a threat to water quality and although the water drawn will be treated, sewer would be a long term investment by Hunter water aimed at minimising the costs of water treatment from the Lostock-Glennies project draw off location in the Paterson River near Gosywyk.

Appendix II – Individual submissions



Photography
Image courtesy of Destination NSW.
The heritage-listed Morpeth Bridge spanning across the Hunter River, Morpeth.

Individual submission 001

Thanks for the information. My ideas are "stop overpopulation". Build bigger and more dams and channels, deepen all rivers, clean out silt and rubbish.

The delivery of the water is through a drain system so 100 years old, replace all pipes. That's looking at my area and LGAs in [Editorial note: Last word in sentence was illegible]. Desalination plan would not be required. Thank you and workers, stay safe.

Individual submission 002

The trouble with Hunter Water is your got to many thinker and not enough doers. Just Build More Dams.

Individual submission 003

My first comment is that the board appears to be managing a Water Supply collection and distribution system, rather than collecting and sharing a valuable commodity. Your public relations people have had to much influence in preparation of the document. Where are the costings of the proposals.? "funding the Plan" claims a cost of $75 to $120 per residential property annually. It then contradicts this by the statement "a one-off increase of between 6 and 9% for the average residential customer" Which is it?

The Plan does not address water quality. As someone qualified to give an opinion, at times the water I receive is undrinkable, due to test and odours from algal blooms and over-chlorination. Yes when I moved here 5 years ago I had to fit a charcoal filter for drinking water. This occurs after rainfall at the end of a dry spell. I am sure your people understand this. The plan concentrates on water security.

Please don't be offended, I am a former board employee and am a supporter of your organisation, and pay rates on 4 different properties. I have always received good service from your people. However, it is necessary to address the questions of supply.

My first comments the popular subject of re-cycled water. Why is it that everyone forgets that it has to be collected in the first place? The concept of turning sewerage treatment works effluent into drinking water is absurd. The dry weather flows from inland waste water treatment works, is more important to inland waterways for their environmental health, than trying to turn it into drinking water.

Your pie chart lists rainwater tanks as a supply options, currently contributing 2% of supply. From my experience, one needs 130,000 litres of storage per dwelling to be self-sufficient. Even then a tanker delivery will be required, in a drought. Again Hunter Water, how can you justify a 5% contribution in 40 years' time, with 1000 litre storage tanks, in drought conditions.

Next, I want to tell you that I think Hunter Water made a serious error in dropping the Pindari Creek proposal. Why, because all of your water collection is surface water run-off from unprotected catchment of predominant agricultural land use. The opportunity to collect upland surface water, with deeper water body storage, was lost. Both NSW Liberal Government and Labor opposition and the Board dropped the Dam, substituting reasons for doing so. Many people regret this today.

As someone who grew up in the valley and left the Board for Local Government senior managers job, including 5 years looking after a water supply at Glenn Innes in 1968/69 drought, I know the collection of water from agricultural landscapes is not easy. Invariably, shallow water temperatures increase and algal blooms occur, this is in addition contamination to removal of bacteria and sediment, that require filtration and chlorination. Algal blooms will require activated carbon treatment. None of these issues have been mentioned in you plan.

Nothing has been said about the Tomago sandbeds/surface water contamination problems. How long will they yield water of an acceptable quality? When will You have to turn the pumps off?

Although there is no costings, the engineering works in your catchment plan makes sense (Where our water comes from) What you have put out for comments appears to be a justification for a rate increase to a pricing tribunal and I have no problems with that.

Conclusion.

In simple terms we are running out of easy collected water. Our water in the future will be harder to collect and more costly to treat and distribute. I would class this plan as an Interim Plan, part of a 40-year plan.

In priority 3 you refer to research and development. The whole valley needs a hydrological survey, not just the lower hunter. The impacts of drought, Coal mining, gas extraction, soil moisture, evaporation/water temperature/ algal blooms, rainfall distribution/rainfall intensity, all have an impact.

Perhaps the Commonwealth Government could help with a grant.

The final point I would make is that Hunter Water can not continue to act unilaterally. Decision making must be integrated with Planning & development. I note new residential development is now close to Metford Treatment Works. This is crazy!

I would advise an upgrade of qualification for Board Members appointments. Only technical people.

I would also question the location of the reserve desalination plant, due to contamination from the run-off from the coal loader and hulls of overseas shipping.

I hope these comments are of help.

Individual submission 004

Firstly, thank you for the invitation to submit the input, ideas and comments in the program of options proposed in the draft plan. It is a most comprehensive Publication of some 97 pages, no doubt entailing detailed investigations and analysis over the time period mentioned of some three years. Apart from stating, and may I say restating the obvious of the importance of a reliable and safe water supply, I think the Plan address the psychological approach of the importance of working with the community, of a monopoly supplier of a particular product. Anyone familiar with the study of economics understands that monopolies may not necessarily act in the interest in the support of the product/s they supply and at the take or leave it price at which they will agree to supply it.

The Lower Hunter Water Security Plan aims to ensure water security for the Lower Hunter for the next 40 years. Knowledge is stated that the system's ability to meet demand is increasingly at risk in times of drought and that new ways have to be found to conserve and recycle water.

I have identified a number of priorities from the document.

Priority 1 – To supply safe drinking water

Priority 2 – Making the most of what we've got

Priority 3 – Building and commissioning the Belmont Desalination Plant

Priority 4 – Water for Life. Meaning to provide an enjoyable, environmentally friendly re-creational experience that is enhanced by water use.

I also note that the 2036 Hunter Regional Plan's vision is for the Hunter to be the leading regional economy in Australia with a vibrant new metropolitan city at its heart. All from the perspective of current supply sources in 2021 as a base of meeting current population needs to a projection to the year 2036 and the feasibility of selecting possible water supply sources to meet community demands.

I note that in 1915 – 26, the Chichester Dam was built. In 1955- 65 the Grahamstown Dam was built. In 2006, the Grahamstown Spillway was increased to further provide 190 billion litres these dams were supplemented by the Tomago Sand Beds and the Anna Bay Sand Beds.

My responses to the Draft Plan Priorities in order that they are suggested in the presentation are listed below.

Are the priorities and actions appropriate? To respond it is necessary to identify them first.

To Supply Safe Drinking Water.

Anyone who has travelled in Asia in particular, is familiar with having to walk around with a purchased bottle of pure water for drinking. Travellers are usually provided by their travel consultants with the knowledge to avoid eating any fruit or vegetables that have been washed in the local water but rather to only eat what can be peeled or washed in the purchased water. As many Australians travelled, it became humorous that almost everybody was walking around in Australia with a bottle of water in their hands. I have found that many of them that had not travelled in Asia and didn't know except they thought it was just the fashionable thing to do.

Making the Most of What We've Got.

Because the priorities and actions address a wide range of options, I find some are inappropriate. The first is under the heading "Making the Most of What We've Got."

It is an expected duty of each resident in the community, that as a consumer of a valuable resource, minimising each personal off-take is a personal responsibility. To be reminded of this as a note in the Water Rates Notice is not objectionable. Its cost is negligible. However, to publish almost a million copies (or even 0.5 million) of Making Waves to tell me how often I am to wear and wash various items of clothing, or to tell me to reduce my personal demand from 199 litres 155 litres in any given period then I find this unacceptable.

While it was circumspect to bring people's attention to the concept of saving water and then justifying it by the fact that four years ago that you discovered that meter leaks were a major problem relating to water use, begs the question of responsibility. Even having made the observation and attesting to the achievement that has been evident means that this has constituted a one-off saving in both instances. While the number of leaks should be the responsibility of Hunter Water, do you really think that nominating the percentages of proposed waste by the consumer by the sink, the shower, the cleaning of teeth is appropriate. If I were to be extreme I could say that if half of the population suffered from COVID and subsequently died, then this would be a remarkable contribution to lowering their demands for your precious water to zero. Too extreme? Unfortunately, that is how I view your intrusion into the consumer's personal activities. By the way, I don't see any mention of the consumption by pets, or by farm animals. I think I make my point.

Building and Commissioning the Belmont Desalination Plant.

It appears the last dam was built in 1955 – 65 when the population supplied with water was (in 1970) 345,987. The increase in the spillway level occurred in 2006 when the population in the area was 589,240. Projected population in 2036 is 860,000. Simple mathematical extrapolation indicates that if the Population increase is 45.95%, to maintain the current level of expectation of water security and supply, the community expects the supply would have to increase by the same percentage. Obviously plus a margin for anticipated drought and hotter climatic changes and events.

This means that Hunter Water would have needed to provide an Investment Analysis Study to project the need for more infrastructure to supply the increased demand. It has been shown that the community expect that another dam/s be built. It appears that the response is that the Belmont Desalination Plant is the best option because it is not rain dependent. It does not suffer evaporation losses and from the surrounding Lake is a ready supply of water to be treated.

There is speculation that the reluctance to build dams is related to either environmental objection or the objection of what is termed "the traditional landowners". Much is made in Government circles and in this Draft in particular of the Aboriginal and Torres Straight people rights and contributions to the supply of water.

Obviously as part of the Lower Hunter Community, their opinions are to be canvassed and to be respected yet they do not own the land as a group because it is my understanding that the Commonwealth of Australia owns the land. There is much made of the statement that they are of the Aboriginal Nation. If that is the case they are not members of the nation of the Commonwealth of Australia which history states became a Federation in 1901. If it is to be maintained that an Aboriginal Nation exists where is their Parliament, Governing infrastructure their financial institutions their police force the medical providers and the welfare system. They are estimated to be 3.3 percent of the population in the Hunter region and in number in 2036 to be some 28,380 people. Whatever rights they have, real, realised or unrealised, they are in a minority of 28,380 compared to 830,000. I suggest we either live in a democracy where the majority rules or in a minority with a minority interest prevails. I think the question needs to be asked what can their community add to water science, availability, conservation and supply. Are not your Engineers/ Hydrologists capable, independent and reliable? If the Aborigines and Torres Straight people had the solution, Hunter water would be sourcing their water from them instead of the other way around. I find this to be Simple Logic versus Tokenism.

Turning to the Belmont Desalination Plant.

I don't believe that I have seen any figures relating to the cost to build the plant, the daily/annual cost to run the plant, the cost of maintaining the plant whilst on standby or the cost of recommissioning the plant from standby before production. Is there an anticipated increase in the cost to the consumer of an addition to their current Hunter Water charges and levy's?

Some figures that have appeared relate to the Desalination Plant in Adelaide and indicate that it cost $1.8 billion to build, incurs $500 million annual running costs and has the effect of adding up to $100 per household supply account.
The question is will Hunter Water publish their Investment Analysis figures which compare the building and maintaining of other dam/s and their running costs in comparison with the Belmont Desalination Plant.

The most important priority to me is for Hunter Water to provide the demands of the community at whatever population level is accepted in the projections to 2036. To do this by building extra water storage capability based on the worst-case scenario of consumer usage (again reiterating not sinks, wash basin, less shower time and cleaning teeth) and choosing that Investment that utilizes the best use of available investment funds, combined with the lowest level of running costs.

Hunter water, as a monopolistic supplier of a necessity for life commodity needs or, if it is not already charged to be activated to achieve a similar outcome and not to justify itself by acting in a pious manner selecting actions their staff or consultants consider appropriate and that the volume of such use is the responsibility of the consumers.

Water for Life.

The proposed concept is increasing integration of land-use and water planning to contribute to livable communities. To provide green spaces and healthy waterways for Lower Hunter communities to enjoy. Are we talking here about public parks and gardens.? One would hope that the local Councils have this responsibility and interact with their communities accordingly. This would be in consultation between Hunter Water and the various local councils to achieve a desirable outcome. Perhaps a better focus would be the elimination of septic tank storage in unsewered Industrial areas particularly in Lake Macquarie and the provision of connection to sewer mains by Hunter Water. To continue to ignore what would be unacceptable sewer arrangements to the majority of the inhabitants of the Lower Hunter and in particular in the Foreshore offices of Hunter Water, does nothing to contribute to healthy waste disposal. It seems easily forgotten that in these Industrial areas there are many people working who are office workers, production workers, forklift drivers, cleaners, not to mention management

who are putting up with inappropriate Sewerage arrangements of a modern working community. It would be a refreshing approach to address this aspect in particular.

The other aspects considered include: -

- What do the priorities and actions mean to me and by local community?
- What priorities and actions are most important to me?

Hopefully answers to these questions have been incorporated in the re-sponsor above. It has been stated in discussions in which I've been involved, that it is a common Australian cultural characteristic that, for whatever possible reason, Australians like to ask the experts as to their advice and in turn to provide input. Having paid lip service to the highest of ideals that this would seem to address, then completely ignore what is submitted and to do exactly what they intended to do right from the start. Hopefully this will not be a criticism of Hunter Water.

In summary I believe Hunter Water should publicise the projected costs of their Investment Analysis of the options to improve water storage and supply together with the associated comparative running costs and the added cost to the consumer by way of fees or levies of the various investment courses being considered. It could well be Belmont Desalination Plant will need to be scrapped as is the history of another dam in 2010 that was decided not to be built. I look forward to the responses of Hunter Water in the coming days.

Individual submission 005

I strongly support the draft Lower Hunter Security Plan (LHWSP), which dispenses with the building of new dams and instead relies on a diverse range of rainfall independent strategies to provide for current and future water needs of the region.

Water a most precious resource, and traditional planning approach for drought including dams carries too much risk and uncertainty. I agree the new approach must take account of the effects of climate change, as articulated by LHWSP: reduced flows in rivers and streams, changing rainfall patterns, higher temperatures and more frequent extreme events including droughts and fires. Thank you for deciding against more dam building, as they can have a damaging impact on catchment ecosystems, extending all the way to the coast by changing freshwater river flows and impacting plants and animals in terrestrial, freshwater, estuarine and coastal marine ecosystems. Also, as they are reliant on rainfall, dams are an unreliable source of water supply during long and severe droughts. Other options including recycling, stormwater harvesting and desalination don't rely on rain.

I support the plan's water conservation program based on maintaining and building on the behaviour change and efficiency gains achieved in the 2019–20 drought, notably the 10-year plan to reduce total customer drinking water use by 17% and the five-year plan to reduce connection leakage as well as water loss from leaks and breaks in the distribution network, and support re-using highly treated wastewater from treatment plants for non-drinking purposes including industrial processes, irrigation of green spaces, residential use (such as for toilet flushing, garden watering and clothes washing), agricultural use and operational use at Hunter Water's treatment plants. Community feedback from surveys indicates a majority supports consideration of adding purified recycled water to existing water sources, and this concept has our full support. I hope the NSW Government will provide the necessary legislative and regulatory pathways required to enable a safe and efficient transition to the use of treated wastewater for storage and aquifer recharge, as well as for direct potable re-use.

I support desalination as an important rainfall-independent water supply option, with environmental caveats. The plans should include eventual use of renewable energy to drive the plant. Intake design should minimise impacts on marine life and the discharge of brine effluent should not be allowed to contribute to a 'dead zone'.

The site at Belmont, already owned by Hunter Water, is a good option, but I would like to know more about how Hunter Water will mitigate greenhouse gases emissions using carbon offsets.

Finally, I support LHWSP's engagement with First Nations people and its view that there is considerable scope to revitalise and learn from Aboriginal custodianship of waterways.

Individual submission 006

I object to increase water rates. To pay for desalination plants. Especially when nature supplies waves. The building of plant should be coming out of profits. You waste money on high CEO and executive fees. And don't blame the shareholders. WA paid for their own desalination plant and paid for the main pipe line. They were not greedy for profits.

Individual submission 007

Please go back to Tilegra dam option it will provide approx. 150 gig being 7 1/2 times what Chichester holds and is the best long-term solution the desalination plant at Belmont will supply approximately 120 meg per day which is a waste for the damage and energy it costs. I know it will get green votes but please do the right long-term solution. If you want to spend additional money start a program on digging Grahamstown dam deeper or getting rid of it once Tilegra is built as everyone knows more evaporates out of here in summer than people use. Thank you for the opportunity to discuss.

Individual submission 008

Objection to Lostock-Glennies Creek Dam Proposal.

I wish to lodge an objection to this proposal proceeding.

This is a personal objection but I am associated with a number of local organisations. I have lived in the area for over 40 years working at Tocal College [Editorial note: redacted as could identify author of submission].

I lived through the various droughts in particular the 1980 drought when water availability was critical.

I object on the following basis:

- The future water security of all those in the tidal pool will be decreased dramatically and these established enterprises will suffer long-term damage.
- The impact on the long-term future of Tocal College's farming operations will be considerable. Implementation of this proposal by the NSW Government and its agency, Hunter Water, is effectively cannibalising itself. Tocal is a jewel in the crown of the NSW Government and is of national and international significance.
- The Paterson River will be turned into a cold-water drain impacting on all aquatic life.
- The amount of water gained will be small compared to other current and possible sources.
- Use ought to made of the water in Glenbawn Dam, especially with the closure of power stations within the foreseeable future. Installation of extraction and water treatment infrastructure between Maitland and Singleton is a much better long-term solution to the water sourcing issues which Hunter Water faces.
- The record of water transfers between valleys in the Hunter region is poor. The failed *Barnard River Scheme* ought to be analysed before embarking on another such project. That scheme is a white elephant and this proposal looks like a similar folly.
- This community consultation has been undertaken during a pandemic lockdown.
- Community meetings are currently illegal. The consultation ought to be extended. Not to extend it is a betrayal of the values of trust and inclusion which Hunter Water promotes on its website. https://www.hunterwater.com.au/about-us/our-commitment-to-you/ourvision-and-values

I am attaching two publications which should be mandatory reading for those considering this project.

Archer, C. (2019) *The Magic Valley. The Paterson Valley – then and now*, ACABooks, Chapter 18.

Wetherall R.S. (1993) *Aspects of water quality in the Hunter and Mid Coast region of New South Wales 1960-1975,* NSW Agriculture, Tocal Paterson.

Individual submission 009

I cannot support the use of desalination systems. I know there is legislation that prevents recycling processed grey water for potable use. This needs to be changed. That water is being wasted.

Previous discussions with Hunter Water revealed that there are no technical reasons for not recycling grey water.

Individual submission 010

Thank you for the opportunity to comment on the Hunter Water Security Plan release September 2021. My comment is that the Draft Plan as prepared for the needs of the community of just 40 years is far too short sighted.

As we saw in the Tillegra Dam debacle, decades are needed to obtain agreement and then build a new dam. I suggest the time period to be in the draft plan should be 100 years.

Sites for a new dam in just a few short years will become even more limited and fought over. I would like to see Tillegra Dam reinstated. and if not then plans for new dams be brought forward asap.

Individual submission 011

Overall, a balanced approach to water supply and demand management. Moving to rainfall-independent supply sources (ie desalination plants and purified wastewater treatment) is supported. Some of the non-traditional supply options have the potential for further development to become greater than planned contributors to water supply.

It is suggested that a rainfall-independent 2060 (average conditions) supply target be set as a percentage of forecast total demand and be included in the water security plan.

Connection to the Glennies-Lostock Scheme

It seems that the proposed new Glennies-Lostock two-way pipeline would primarily serve the needs of the Upper Hunter, including Singleton and surrounding towns, which depends on the Glennies Creek dam for water supply. This implies that the flow direction would mostly be from east to west (ie away from the Paterson River), particularly during periods of drought, reducing Paterson River downstream flows. Any water off-take below the Lostock dam would rely on sufficient minimum level river flows above that required for existing users and environmental obligations. This is further compounded by an expected reduction in river flow arising from the impacts of climate change. The anticipated increased variability in the Paterson River flow below Lostock dam could result in times when off-take water removal will not be possible making it an unreliable supply option.

What are the assumptions, risks, and level of confidence in achieving a supply of 12-13 billion litres/year (from Figure 27, page 82), and achieving 13% and 14% water supply in the two forecast 2060 demand scenarios in Figure 29 (page 84)?

Belmont Desalination Plant

Changing the approved Belmont plant from a drought relief water supply source to a permanent supply source is supported as a means of achieving the previously suggested rainfall-independent supply target.

The green energy option is preferable to carbon offsets (ref page 70, paragraph 2). The use of green energy should not result in an increase in non-renewable energy in other parts of Hunter Water's operations. The green energy used should be from a new source, preferably a purpose-built energy facility similar to the approach adopted with the Kurnell desalination plant.

From the forecast 2060 average conditions demand scenario in Figure 29 (page 84), the Belmont desalination plant supply option only

contributes 2%. Notwithstanding that supply from the approved Belmont plant will be low when the dam storages are high, the 2% supply contribution seems to be out of balance when compared to the supply contributions from the Glennies-Lostock scheme option (13%) and the potential purified recycled water option (11%).

Proposed Walsh Point Desalination Plant

While there is very little detail provided, a proposed second desalination plant to operate during drought conditions is supported in principle subject to satisfactory resolution of the issues arising. The proposed Walsh Point location issues include the lack of an adjacent wastewater outfall facility to dilute the returning post treatment brine concentrate (which would be available at Burwood Beach, or by expanding the approved Belmont facility), the route of the intake and discharge pipelines, the aquatic impacts from the release of full concentrate brine, and the pre-requisite condition of using renewable energy to operate the facility.

The supply capacity of the proposed plant should be provided. An estimate of capital investment, and the impact on Hunter Water consumer billing needs to be included in the water security plan.

Purified recycled water for drinking

From Figure 29 (page 84), 11% of the forecast 2060 average conditions demand scenario will be met by the recycled water purification supply option. As a rainfall-independent source, it should be an early priority for further work to be undertaken to move beyond just exploring it as an option. The experience of other cities who have adopted the use of purified recycled water should be drawn on in designing and implementing education and incentive campaigns in the setting of an ambitious community engagement timeframe. Assuming this option will gain community acceptance based on the experience of the current user cities, early community engagement will facilitate implementation prior to the proposed 2046 timing (ref Figure 27, page 82). This may become critical if the Glennies-Lostock scheme business case does not support the proposed Hunter Water connection achieving its intended supply of 12-13 billion litres/year (from Figure 27, page 82). Any purified recycled water demonstration project should be able to either be upscaled or incorporated into a future plant operating at the planned 10 billion litres/year capacity output (from Figure 27, page 82).

Including this option suggests that at least some initial feasibility work involving the Grahamstown dam and water treatment plant has been carried out. The cost to implement this option will be significant. An estimate of capital investment, and the impact on Hunter Water consumer billing should be included in the water security plan.

Rainwater Tanks

Is the 2021 to 2060 (average conditions) doubling of rainwater tanks supply from 2% to 4% (from Figure 29, page 84) based solely on BASIX requirements for future new housing, or are there other stormwater harvesting initiatives being considered to achieve this target?

Tomago Aquifer and Paleochannel Investigation Area

The probability that part or all of the Tomago aquifer is contaminated by PFAS renders this supply option as somewhat risky. It also places some doubt on the aquifer being a possible option for storage for purified recycled drinking water if/when this proposal is implemented. Future migration of PFAS contaminant into the lower depth paleochannel is also a risk assuming that it has not already occurred.

Individual submission 012

My wife and I are writing in response to the draft lower hunter water security plan that was recently raised to us via a leaflet dropped in our letterbox. While we both agree something needs to be done to secure the future of our water supply in the region, we have concerns over the funding structure for the proposed project and the enormity of the cost.

The draft plan nominates an annual increase of between $75 – $120 per residential customer, however we note the following:

1. Working off our current bills, a 9% increase would equate to at least $144 increase annually. Given that the funding structure is not due to begin until June 2024, and the constant annual increase in charges from Hunter Water, by June 2024 a 9% increase will be well over the $75 – $120 you are advertising and this depends on the cost of the overall project which cannot be defined as yet and is very misleading.

   Are we expected to pay the 6-9% increase for the foreseeable future? or will you reduce bills once the project is complete?

   How long are we expected to pay? Decades?

   Also what will the additional lower hunter water security plan service charge be after the initial increase to bills?

2. The funding structure is based on Hunter Water customers, however throughout the 98 page lower hunter water security plan it is clearly written that water will be provided to the Central Coast. If the Central Coast is to benefit from this lower hunter water security plan, will all central coast residents contribute to the cost? And if not why?

   It is also written that the lower hunter water security plan includes repairs/improvements to the Central Coast dam and infrastructure to provide water to the Central Coast dam, why will this be paid for by Hunter residents who do not use it?

3. Previous projects to secure our water future have fallen through after the customers were already charged for the works. What security or plans are in place to ensure if this project also falls through that the customers will be reimbursed in full for any payments made?

4. Also written in the 98 page draft it states that in the future an increase to water rates will occur during times of drought. Isn't the point of this lower hunter water security plan to secure water during droughts at the cost of residents and then you'll increase water rate charges again when the droughts occur, this seems to contradict the whole point of the plan.

We appreciate you taking the time to read this and respond, however currently we do not support or agree to the financial burden with the current plan as made evident by our concerns above.

Individual submission 013

Thank you for the opportunity to provide feedback.

I wish to raise the following concerns relating to the Paterson River offtake:

- Will raise the water table subsequently increasing salt content in water bored which many residents rely on for household and livestock use. An increase in salt content will restrict the use of many of these boors.
- Given Paterson River is tidal to the point of Gostwyck Bridge the proposed project will adversely impact the fish and prawn schools which inhabit this section of the river.
- Will disrupt the flow to creeks which join Paterson River and subsequently raise the salt content eg: Webber's Creek which is heavily relied on for livestock use.

Individual submission 014

Following a review of the Draft Lower Hunter Water Security Plan currently on pubic exhibition, I make the following comments.

It is welcome to see a strategy to guide future directions for water resources in the Hunter region. However, the draft plan is unclear as to the relationship between the Greater Hunter Regional Water Plan and the Lower Hunter Water Security Plan, noting that the former has a 30 year time horizon, whereas the Water Security Plan has a 40-year time horizon.

This is significant when considering major industrial, social, and water use transitions that will occur in the region as a result of climate change adaptation and mitigation, including the closure of major water users such as Bayswater and Liddell Power Stations. Also lacking in the plan is a clear link to future strategic land use directions and the regulation of land use through planning processes under the Environmental Planning and Assessment Act 1979.

The proposals identified in the draft plan are reasonable, with the exception of the proposed connection to a Lostock – Glennies Creek Dam scheme. Linking to a significant cross catchment water transfer represents a significant risk before a feasibility study of this proposal is completed. Importantly, cross catchment water transfers are generally undesirable in principle, with high potential environmental risks and adverse biodiversity impacts.

Other comments on the draft plan are as follows:

1. Water infrastructure planning must take into account energy implications and carbon emissions. This does not appear to have been addressed in the plan. Specifically, the plan should include a commitment to zero carbon emissions in both the construction and operation of water infrastructure, as well as no net loss of biodiversity.

2. Addressing regional vulnerability to drought requires a range of social and institutional responses in addition to the matters identified in the plan, including higher water prices.

3. Links between land and water should be given more attention, as land use and water planning cannot be undertaken in isolation. The plan fails to recognise the role of catchment protection in water storages, impacts of native vegetation cover and forestry activities on water catchments, and the importance of recognising national parks and their management in maintaining catchment quality. There is no clear mechanism for integrating the water plan with land use planning strategies.

4. At a regional scale, measures are needed to improve the water holding capacity of soil and ecosystems, to reduce evaporation from landscapes, and to increase localised rainfall. This requires extensive natural regeneration of native vegetation within the regional landscape and represents an important climate change mitigation measure that complements other water security planning measures.

The above matters should be taken into account in finalising the plan. In particular, planning should not rely on a connection to a proposed Lostock – Glennies Creek Dam scheme.

Thanks for your consideration of this submission.

Individual submission 015

I fully support the implementation of the Draft LHWSP as it addresses the need to reduce water consumption and develop a diversified range of climate independent water supply options to meet the regions demand for the next 40 years and beyond, as well as provide an ongoing supply in a long and severe drought.

The current supply system is highly dependent on rainfall, sourced from the Williams River catchment. This leaves the reliability and safety of the water supply system highly vulnerable to drought and water quality issues due to the lack of diversity of climate independent water sources.

The supply side risk for Hunter Water of the Williams River catchment is a major issue which requires an urgent shift to climate independent supply sources and to improved water conservation and efficiency measures as outlined in the plan.

The dramatic effect climate change is having on our current rainfall dependent water supply is reflected in the continual and dramatic reduction of nearly 40% in the supply system yield in the last 14 years from 90 GL to 55 GL per year which is well below the 2020 consumption of nearly 65 GL.

This highly dependent and vulnerable river system has become an unreliable water supply and the consequences are recognised by Hunter Water with the following statement in the plan: *"It is also important to appreciate that an unreliable water supply has economic impacts. Running out of water would be a catastrophic event that would impose very substantial financial costs on Lower Hunter households, businesses and the regional economy."*

I fully support the omission of any new dams from the plan and the decision of replacing them with the reliable, climate independent major supply options of desalination and purified recycled water.

In the words of the Draft LHWSP, *"the dam options could not be justified economically, financially and for the environmental and social impacts that would result from their construction and operation".*

AND

"Dams rely on rainfall and don't ensure an ongoing supply of water in a long and severe drought compared to the alternative options considered in the plan."

No dams mean improved environmental outcomes – Environmental assessments completed for HWC highlighted that the dam options could potentially have devastating effects on many species of endangered and threatened flora and fauna in the dam and pipeline areas as well as on downstream aquatic ecosystems and nationally and internationally recognised wetlands. Threatened Koala populations and critical koala habitat were identified in the dam areas and platypus at one of the dam option sites.

Individual submission 016

As a resident of Dungog and acutely aware of the strains on the current main catchment for Lower Hunter's water supply, I commend Hunter Water Corp. (HWC) for its careful planning with respectful engagement with the whole community in developing the draft Lower Hunter Water Security Plan (LHWSP). Listening to the community is the key to achieving sound, acceptable solutions with longer vision to secure the regions water needs whilst balancing the other conflicting issues (environment, social, financial etc.).

My summary response to the LHWSP is as follows:

Support for a range of diverse rainfall-independent strategies

I endorse the general intent of the Draft LHWSP as it appears to recognise the clear need to diversify Hunter Water's range of security strategies to provide a safe and reliable water supply for the region, focussing on rainfall independent sources.

Support for the concept of valuing water as a precious, scarce resource and *valued accordingly*

Water should be priced to reflect its true value, with those using more water, paying more. Industry and mines should be incentivised (negatively – increased cost of using potable water or positively – subsidised connections to recycled water / appropriate pricing of recycled water) to discourage the use of potable water for manufacturing/processing and transition to recycled water as soon as possible. HWC has the slogan "Love water" but this is too trite, we should **CARE** for water:

Concern **A**ppreciate **R**espect **E**njoy

Support for HWC's recognition that climate change will greatly influence the way we *plan for water security*

As recognised in Priority 3, however the timeframes should be shortened with increased priorities of many actions in the Plan.

Support for the decision that no new dams should be a part of any LHWSP

For all the reasons in the Cost Benefit Analysis and the simple facts that dams are rainfall dependant and inefficient with considerable evaporation losses.

Support for improved environmental outcomes

Not only for water quality and system operation but for broader environmental benefits and specifically for the Dungog Shire, this is important for our tourist values and resident's amenity.

Support for increased recycling needs to occur to match community expectations

The strong endorsement by the Lower Hunter community for recycling as a priority for water security planning and its clear rainfall independence means it should be prioritised higher than the Plan proposes. The proposed increase of 1.3GL is just not ambitious enough, and nowhere near trends occurring in other regions worldwide.

Support for potable re-use

Engaging with the Lower Hunter community about purified recycled water for drinking, again needs a higher priority and shorter delivery timeframe.

Support for increased demand management and water conservation

The Plan's action to Implement programs targeting leakage reduction to achieve a target of 50 litres per connection per day over 5 years is a minimum target. This should be a higher priority.

All measures to encourage the community to reduce demand (i.e. NOT WASTE WATER) is very important and will always be ongoing.

Support for stormwater harvesting

With strong community support for stormwater harvesting the priority for this should be increased in the Plan and timeframes for action shortened.

Support for water sharing between regions

Regional water sharing is a critical strategy for future resilience, potentially ensuring maximum storage contingencies (under times of high rainfall) for relatively little cost – especially if the pricing of these contingency transfers could be made equitable.

Support for desalination as part of the mix of water security options

This technology is proven and is continually becoming more efficient and cost effective. It is a critical part of rainfall independent security.

Support for continued exploration of ground water sources

Continued research for additional water sources by whatever means is critical in a changing climate and increasing population and other demands.

Support for circular economy principles

The circular economy approach in the Plan is to be commended, but LHWSP's actions need a higher priority and shorter delivery timeframe.

Individual submission 017

We are residents from Clarence Town. There is no benefit for us. The only beneficiaries are Newcastle and Lake Macquarie residents. We have our Hunter Water service charges increased to provide service to more populated LGA's of The Hunter NO THANKS!

Individual submission 018

I want to let it be known that I fully support the draft LHWSP. In particular not building new dams.

It is a well-known fact that large dams are not economically viable, they are environmentally damaging and not great as a sustainable water supply in times of drought.

The fact of climate change and the uncertainty of weather conditions only adds credibility to the main thrust of this draft. Thanks for this opportunity.

Individual submission 019

Further to the Draft Plan my comments are as follows:

Are the priorities and actions appropriate?

In general the draft appears to be well thought out. However, I would have thought that fixing leakage of pipes is "business as usual works" and should be covered by existing funding. Any Increase in cost to the hunter water customer should cover funding for "new works" only.

Have we missed something?

Desalination plants use the reverse osmosis process to separate the salt and impurities from seawater to produce freshwater. This process is generally considered high capital cost with an ongoing O&M cost when not used & high energy consumption when used.

It is noted on Pg 90 "Consider using Green energy or carbon offsets to mitigate the environmental impacts of the operation for the Belmont desalination plant". Can you advise me what "green energy" initiatives Hunter Water is currently using around the many water/ waste water treatment plants to offset energy usage and potentially reduce the cost to the hunter water customer over time. Will this same approach be utlilised for the new facility at Belmont ie. using green energy to offset energy usage & reduce costs to the Hunter Water customer over time.

What % funding allowance has been made for "Green energy" as part of this new project assessment to offset energy usage and what % of energy is proposed to be offset by green energy.

What do the priorities and actions mean for you in your local community?

Future water security.

Which priorities and actions are most important to you?

Belmont desalination plant and associated energy offsets.

Individual submission 020

I agree with the draft HWLHW PLAN in that NO dams are included in the plan. Dams evaporate, it saves endangered ever decreasing native flora and fauna, also the dozen or so farms with urban sprawl that is ever increasing that will be saved (food has to come from somewhere and local is preferred).

Recycling is the way forward, harvesting water (20,000 litre water tank on all new home builds although not in your plan) would be an impressive amount of water and use of ground water would add substantially to the collective.

With new technology always improving, all the time, desalination (being able to be turned on and off) can only be a good thing in times of drought or high usage.

All in all I think Hunter Waters plan is good and quite sensible.

Individual submission 021

I am writing a submission in support of the Draft Lower Hunter Water Plan released on 9th August, 2021, and in particular, strongly support the decision for "No Dams". I congratulate Hunter Water for deleting the dams from the plan and progressing towards diversified rainfall and independent strategies to mitigate the impacts of climate change on the current vulnerable supply systems.

Fast tracking of the desalination plant gives all residents in the Lower Hunter security to know our water supply is safe at all times, including drought.

Individual submission 022

Having read the Draft Lower Hunter Water plan and having taken a keen interest in the future of water strategies being considered for the Hunter area, I am pleased with the current draft plan. I am particularly supportive of the decision that no new dams are being considered as part of the future water needs for the Hunter Community.

Given that the area is serviced by two dams, namely Chichester and Grahamstown they together with a focus on water efficiency should provide adequate supplies for the future. The other measures that have been considered in the Draft Plan that future proof the Hunters water needs are also worthy of support, namely:

- INCREASED RECYCLING
- DEMAND MANAGEMENT AND WATER CONSERVATION
- STORMWATER HARVESTING
- WATER SHARING BETWEEN REGIONS
- DESALINATION DRIVEN BY NEW TECHNOLOGY.

In summary, I believe it is important to provide a suite of options for our future water needs, the draft plan provides that. Rejecting the idea that a dam is the only solution is a very positive step, considering the environment and protecting our rivers and estuaries is paramount to this process.

Individual submission 023

An excellent plan, don't change anything. The priorities and actions are very much in line with my thoughts and opinion. The indications given for ongoing work with aquifer recharge and potable recycling mean you haven't missed anything.

The considerations regarding environmental impacts, rainfall independent supply, and ongoing technological advances are what is most important to me. I believe these considerations will prove to be of the most benefit for my local community.

Individual submission 024

Kamala Harris admitted that wars of the past were fought over oil and wars of the future will be fought over water.

I didn't read the entire 98-page document, only the flyer which was in the mail. I simply wanted to express my support for the planning for the future of our water security.

Paying the $120 instead of $75 after 2024 is a small price if it guarantees security in the future, I fully support this so long as the funds are used appropriately.

Individual submission 025

I am surprised that the water security plan doesn't include making rainwater tanks compulsory for ALL houses and businesses. Why is this so?

Individual submission 026

I am an owner and resident in Chichester Valley where a proposed dam option was. I am naturally happy about your draft plan because I am definitely not threatened anymore. Trying to be as unbiased as possible and putting aside my agreement with your draft plan I want to make two comments:

Positive: I am really impressed by the diversity of water sourcing in your report.

Negative: I would reduce the reliance on desal and sand beds in drought conditions (page 84). I don't think the science of the large long-term use of these on the long-term impact on the environment is in yet. Ideally so desal is less than 10% and sand beds less than 5%. I would increase other sources slightly if possible.

Individual submission 027

Being an irrigator on the unregulated tidal pool on the Hunter River I find your environmental claims about the proposed Lostock to Glennies Creek Dam taking up to 50million litres of water / day detrimental to water quality. Water salinity will increase to the demise of our vegetable cropping enterprise. The proposed Paterson River offtake will further affect the tidal pool water quality especially when the Dept of Planning, Industry and Environment are looking at cease to pump triggers based on salinity values at Greenrocks. The viability of rural enterprises in the lower Hunter will be seriously compromised by this extraction of water from the tidal pool by these two proposals. The Lostock overtopping, spills are environmentally beneficial to the water quality and help push salinity wedges away from the current productive river flats in the Maitland area. The wetlands and lower estuaries will further be affected by this proposal. Thank you for allowing my feedback.

Individual submission 028

My thoughts on future water supplies for the Hunter are as follows.

The proposed Desalination plant at Belmont should proceed as soon as funds allow it to happen.

I note a second Desalination plant at Fullerton Cove is also proposed for the future. I would suggest that approval for this should also be gained & put on the books to proceed with this project as well.

Walka Water Works used to be water supply for Maitland, Cessnock & Newcastle. Even though the storage area is small compared to other storage sites every drop counts in time of drought. I would suggest this water supply could be looked at as future reserves to help supply the system.

Thank you for the opportunity to register my thoughts.

Individual submission 029

Ref: Attachment Upper Chichester from Darren Cleary Managing Director Hunter water response I have had no reply.

You said "I have asked that your detailed email be considered as a formal submission to the draft Plan. The draft Plan contains a range of actions which we would welcome your views and comments on. Further information is available at: www.hunterwater.com.au/waterfuture The public exhibition period on the draft Plan extends to Sunday 26 September 2021."

Will my Aboriginal history and Culture and connection to this area be considered as a formal submission and accepted in the plan? Planning our water future | Your Voice Hunter Water

I noted that **there is no mention of the Guringay, Gringai, Guringai** or spelt Gooringai and other spellings **in the acknowledgement**. To many people are speaking on behalf of country that they have no connection to and have no knowledge of the Guringay,-(Gringai. Guringai or other spellings). We are a separate Tribe and are not a sub clan of any other tribe.

The fresh water species are only a few as mentioned below and many secret places around the Upper Chichester, area the kabook and Watoo people are the traditional owners of this area not the Wonnarua, karuah, Worimi or Biripi aboriginal land councils.

The East coast from Sydney to Newcastle is not Guringai, Guringay, Gringai Country, Nation, Tribe, Language, Clan or Sub Clan.

The Office of the Register Aboriginal Land Rights Act 1986, National Parkes NSW, 7 Aboriginal land councils, Destination NSW – Government and Councils have acknowledged Guringai are not from this area this including Wonnarua Plains Clan aboriginal people. **See letters PDF attached to the Premier NSW, Australian Newspaper Bloodlines.**

National Parkes NSW have removed all Guringai Signs from the east coast from Sydney to Newcastle – See attachment – Australian Newspaper "Bloodlines".

I am **a Registered Aboriginal Owner "through the legal process" Office Of The Register Aboriginal Land Rights Act 1986**, Australian Rwandan War veteran 1994-95/ Meritorious Unit Citation and ANZAC Peace Prize 1995 and Descendant of Aboriginal (Jack Cook-Malookut lightning) and (Jessie Cook – Nee Brummy) from the Barrington West Road the old camp as it was called Registered Aboriginal owner of Worimi / Guringai Lands Port Stephens, Dungog, Gloucester NSW. I am also A Descendant of Robert Clarke and other Aboriginal family's.

My aboriginal Grandmother Born 1911 on the Barrington River NSW and my Aboriginal Grandfather Born 1907 Nabiack NSW, My Aboriginal father Born 1941 and his 16 brothers and sisters Born Gloucester. I would say I have the credentials and knowledge to have a voice in regards to the true Guringai, Kuringgai people culture and history. Our clan would gather fresh water crayfish, mussels, catfish, Perch, Herring, Eels, Mullet from various rivers from the Williams, Dungog, Patterson, Hunter, Barrington and the Gloucester rivers.

Kangaroo, Wallaby, Paddy melon, Opossum, Jew lizard, Porky pine, wombat, emu, wonga, Bush turkey and Swan, where only some of the favourite foods and some eaten by elders only.

My family The true Guringai people and location – The kabook and Watoo people [link provided to Hunter Living Histories 'The Kabook and Watoo People of the Gringai Barrington River Gloucester, NSW'].

Guringai language [link provided to Guringai Port Stephens NSW by Worimi, B.].

The Guringai

The word has been spelt kuringai, Kuring-gai, Cooringay, Guringai, Gooreeggai, Goreenggai, Gourenggai, Gingai, Gooreenggai, Gringai, Corringorri, Guringay and Goringai.

We were also the first aboriginal people **to win in Land and Environment Court New South Wales regarding "The Rocky Hill open-cut coal mine Gloucester the first land mark ruling in Australia for aboriginal people".** The EDO represented us as aboriginal people and the community.

You can read the **court transcripts "Ref the Cook Family"** Gloucester Resources Limited v Minister for Planning – NSW Caselaw

The Land and Environment Court New South Wales has acknowledged at 121. "The Gooreengai people belong to the Significant Buckan Valley in Gloucester"

The Guringai people were first recorded 1820s with many different spellings and located from the North of the Hunter river Port Stephens NSW. (see below)

The word Kuringgai was a word made up by John Fraser 1892 when the government wanted to find a name for Kuring-gai Chase taken from the Guringai or as **he spells it Gooringgai 1890** North of the Hunter river.

Kuring-gai and Guringai are two different words **Gringai also spelt The Cooringay, Guringai, Gooreeggai, Gourenggai, Gingai, Gringai, Corringorri kuringai, Kuring-gai and Guringay on our language dictionary – Guthang).** Whatever way it has been spelt is not from the southern side of the Hunter River NSW we are from the North side of the Hunter river NSW recorded in the 1800s.

The Guringai.

Please read attachments

"NNTT" 7 Aboriginal land councils are in support and this is not including 4 more Aboriginal land councils North of the Hunter River NSW who are also in support that the **Guringai are North of the Hunter River,**

"Syron" Koorie mail newspaper"

"The Office of the register Aboriginal land Right Act 21082020 with their concerns over the registration of the **"Private"** land use agreement including an undetermined Aboriginal Land **Claim made by Metropolitan Local Aboriginal Land Council, Claim group are not registered through the legal process as Aboriginal Owners in NSW**, The native title claim for the Awabakal and Guringai People (NC2013/002) was discontinued on 28/06/2017 and more."

"King Bungaree decedents Book" Page 4 the discovery of aboriginality, page 7 **"Sarah may have been the daughter of Bungaree"**

"The Hon Ken Wyatt AM MP minister for indigenous Australians"

News papers

"Guringay voices heard as City of Sydney removes references to Ku-ring-gai/Guringai"

[Link provided to aforementioned document].

Daily telegraph "Misunderstanding: The historical fiction of the word Guringai that has filled a void in our knowledge of the original inhabitants by John Morcombe, Manly Daily February 20, 2015 2:41pm."

[Link provided to aforementioned document].

Filling A Void, by the Aboriginal heritage office [link provided to aforementioned document] **(Funded by the Tax payer).**

Native Title claim snuffed out

[Link provided to aforementioned document].

"The state government recognised the claim group as the descendants of the original inhabitants of the land, but found they were **"unable to prove they had followed their traditional laws and customs continuously since the time of white settlement."** So how did "tribal elder leader of the Guringai tribe" Laurie come to the conclusion he is from the Guringai Tribe and Language group?

Kuringa-gai is in fact a place name and not a tribe, clan, nation or language

[link provided to 'Aboriginal names and words of the Cammeray Tribe, [between 1884-1907] - page 1' by Mann, J.F.] **see attachment "1842 Mann"**

Dig deeper and look what you find.

The word **Kuring-gai** change to **Guringai** and again later changed to Guri-**Nagi**

Some individuals are Claiming the English words for Guringai "linguistically broken down" is Guri-**Ngai** – **Guri** – Aboriginal man and **Nagi-** Aboriginal Woman it is Interesting what I found when I did some research on language, taken from Bungarees son named Long-Dick. See "1842 Mann attached"

You will see the words in the attachment 1842 mann **"Black fellow – Koorie", "Woman-"Nugan or Nugon", "Mother- Niae".**

The word "Nagi – woman" has just been clearly invented and none of the language groups on the East Coast has the word "Nagi" for woman.

The word **"Kuringa Gai"** also recorded from Bungarees Son named Long-Dick as a place name and not a Tribe, Clan, Nation or Language.

TRANSCRIPTION

Aboriginal Names by J.F. Mann 1

Australian Aborigines – A few notes on their language etc

Information obtained from Long Dick an influential native of the "Cammeray Tribe" a son of Bungaree and Queen Gooseberry

Now that England has enjoyed for more than a hundred years her possessory title to Australia inquiries are being made by certain scientists and others, as to their habits and languageIn my journeys through this country I have remarked that the **languages used by the aborigines differed in the several localities** in a manner somewhat similar to that prevailing in the various counties of England: **Also that place names were given in accordance with the natural formation or product of the locality;** whether the items which originated the name were geological animal or vegetable.

Some few words were in common use throughout this territory and extended into Queensland. For instance 'Budgery' – good, satisfactory, pretty. "Bell or Bail" a negative – "Murrum or Murry" plenty, many, great, large etc. "Bong" out of sight and others. The word "Budgery" in connection with "Gar" gives a name for the beautiful miniature parakeet now so frequently seen in cages. Gar **Gai** Galie Galla or alla **refer to pleasant camping places as "Kuringa Gai"-"Bong Bong" is suitably applied to the locality,** as the River Wingeecarribee here loses itself in a swamp.

References to the Guringai, Gringai also spelt The Cooringay, Guringai, Gooreeggai, Gourenggai, Gingai, Gringai, Corringorri kuringai, Kuring-gai and Guringay on our language dictionary – Guthang) Whatever way it has been spelt is not from the southern side of the Hunter River NSW we are from the North side of the Hunter river NSW recorded in the 1800s.

The Guringai

In the 1883 article John Fraser "I owe special acknowledgments to Mr. C Naseby, Maitland (for the Kamilaroi tribe) and Mr. J. W. Boydell, Camyrallyn Gresford for the Gringai tribe. Both of these men have had an intimate acquaintance with these tribes for more than thirty years (1882:199). Mr. J. W. Boydell and William Scott in the book "The Port Stephens Blacks" would have known each other.

Written by JOHN FRASER 1890. This story was long before his print in 1892 totally contradicts his later work 1892-93 and is proof of where he got the idea from that the kuring-gai were one super tribe and "&c, of Mr Oliver's letter", John Fraser said in 1892 " "I assured myself" that the country thereabout was occupied by subtribes of the Kurring-gai." Fraser has spelt it "Goringai, kuring-gai and Kurig-gi on his map 1892."

Sydney Morning Herald (NSW: 1842 – 1954), Thursday 12 June 1890, page 4

TO THE EDITOR OF THE HERALD.

Sir, — When the municipalities of the North Shore combine and adopt the native name of their district, as Mr Oliver very fitly suggests, it is to be hoped that the spelling of the name will receive attention. For, although Cammeray is not a monstrosity like Woolloomooloo or Woollahra, yet the spelling of it might be improved. **The C should give place to K, for C in English is a redundant letter, representing the sound either of K or of S, and should not be used here in our native words.** The termination "eray" might, I think be written "arai," for "ara" and "arai" are established forms in the aboriginal languages. The whole name would thus be Kamarai, which, certainly, is prettier and easier to pronounce than St Leonards. But as our blacks make the **"a" and the"o" sounds to be nearly alike,** the name might also be written Komaroi; to this we have a parallel in the name Kamilaroi. Mr Oliver is right as to the location of the Kamilaroi tribe. Many years ago I had the privilege of long and interesting conversations about that tribe with a gentleman who had been one of the pioneer settlers in their district 50 years ago. He could speak their language "like a native," was called by them Charley Murruba, "Charles the Good," was never molested even in those days by any men of the tribe, and his property was always safe in their hands. He had often travailed the main road from Maitland to the Lower Namoi, and know the country well. The limits of the Kamilaroi dialect, he said, were then the River Gwydir on the north, on the west an irregular line drawn from Walgett, southwards through Coonabarabran and round to Scone on the Hunter, and thence east and north along the Dividing Range to the sources of the Gwydir. Beyond the Gwydir was the Ualaroi dialect, akin to the Kamilaroi, but yet considerably different from it; to the west the Wirrajery, or Wirradhuri, quite different **and to the south and east the Goringai,** also different from the Kamilaroi.

I know that the Goringai tribe occupied the whole of the east coast from the Hastings and the Manning down to the Hunter, and had several subdivisions named from particular localities in their territory.

These subdivisions correspond with the Cammeray, Cadi, Gwea, **"&c, of Mr Oliver's letter"**, which were only local portions of one great tribe stretching along the coast from the Hunter, **"probably"** as far south as the Illawarra district. (LOL)

The language of this tribe was distinct from the Kamilaroi, although, like all the Australian dialects, they had many words in common and the same root-word used in different forms or with different applications. For instance, one would say murra (hand), another would apply the word to the whole of the lower arm, including the hand; so also, mir or mil, the eye; mir, the face. The Kamilaroi says kara-ji for wizard, doctor, medicine man, but the **Goringai** says kara-kal. Of course, variations like these are common in all languages.

The kal, of kara-kal, leads me on to say that cadi-gal is neither the name of a language nor of a tribe the gal or kal in this and similar names

is merely a suffix equivalent to "belonging to" or "they of," just as we say a Sydneyite, a Londoner, an Aberdonian, an Englishman, in the local aboriginal dialect, would be called England-kal, and an Englishwoman England-kalin. Those who imagine that our aboriginal languages are only rude gibberish, are vastly mistaken. These languages or dialects are one of the unsolved problems of ethnology, but enough is known of them to prove that they have well defined principles of formation and of grammar which cannot have been the invention of mere savages.

I am, JOHN FRASER.

Mr Oliver's letter did not give this "one great tribe" a name in his letter. It would seem this is how John Fraser "assured himself" it was all Goringai / koringai, kuringgai now called Guringai country.

In John Fraser's work 1882 – 83

"I assured myself" that the country thereabout was occupied by sub-tribes of the Kuringgai Fraser 1892 Fraser came up with the name Kuringgai to describe a people, our peoples."

John Fraser reported on Gringai 1882 and 1892, he noted the **Gringai/Kurig-gai**, with the latter possibly being a language and the former a group, **had country in the area of the Paterson and Chichester/Williams Rivers.**

John Fraser published what he said "Re-arranged, condensed, and edited" version of Edward Threlkeld's essay" on the Aboriginal language spoken around Lake Macquarie. Ten years prior to this, Fraser had announced that: **"The tribes with which I am acquainted are chiefly those of the northern half of our territory, the Gringai,** the Kamilaroi, and the Ooalaroi, and to these I add a slight knowledge of the Wiradjery and Yuin tribes (1882:199-200).

During the 1820s Threlkeld gathered some language from Broken Bay Aborigines, identified as 'Karree'.10 That is now recognised as representing the **Cari'gal, Kari'gal or - Gari'gal group of the south Arms of Broken Bay (Pitt Water and Cowan Water).** If the location was known as Gari, then Gari'gal were a local Broken Bay Clan. **Language was collected also through Birraban an aboriginal Boy Thelkeld, whose work was on the Awaba ,AKA- Awabakal of Lake Macquarie (recorded as Awaba on the original map).**

We-pohng or Biraban was born at Bahtahbah (Belmont, New South Wales) c.1800. During his childhood We-pohng was kidnapped by the British and raised within the military barracks located in Sydney. Subsequently, We-pohng was assigned to Captain J.M. Gill, a member of the 46th Regiment. We-pohng remained with Captain Gill from February 1814 until Captain Gill departed Australia in December 1817. It was at this time We-pohng became fluent in English and was bestowed the name M'Gill (and its derivatives) as an indication of Captain Gill's "ownership".

We-pohng commenced assisting Captain Allman in 1821 with the establishment of a penal colony, assuming the role of regional guide, interpreter and a special constable, with We-pohng utilising his tracking skills to apprehend convicts escaping from Port Macquarie. Prior to his return to Newcastle in 1825 We-pohng married Ti-pah-mah-ah, with which he had one son, Ye-row-wa. From 1825 Biraban served as an informant to the missionary Lancelot Edward Threlkeld teaching him the Awabakal language and cosmology.

Maps by R.H. Mathews – 1897-1917

Initiation Ceremonies of Australian Tribes Author(s): R. H. Mathews Source: Proceedings of the American Philosophical Society, Vol. 37, No. 157 (Jan., 1898), pp. 54-73 Published by: American Philosophical Society Stable [link provided to aforementioned document].

Surveyor and dedicated amateur ethnographer R. H. Mathews published several papers that included consideration of the hunter Valley and adjacent areas, with a particular focus on the Kamilaroi. The map shown below as Map 3-5 information from Mathews (1898)." Accompanying an article on male initiatory rites, Mathews 1898 had a map (see Map 2) "defining the areas representing the country occupied by each tribe which he numbered 1 to 9." He also in 1898 in addition noted "the people speaking the different dialects prevalent in each district". He indicated that:

"No. 2 includes the country of the Kamilaroi [and others]" (1898:67),

"68 MATHEWS--INITIATION IN AUSTRALIAN TRIBES. [March 18],

No. 4 represents the country occupied by the tribes speaking the Darkinung, Wannerawa, Warrimee, Wannungine, Dharrook and some other dialects. Their country commences at the Hunter river and extends southerly till it meets and merges into that of the people of No. 3. Their ceremony of initiation is known as the Narramang, which is described in a paper published in Proc. Roy. Soc. Victoria, Vol. x, N. S., pp. I-12. Their totemic system is dealt with in Journ. Roy. Soc. N. S. I4ales, Vol. xxxi, pp. 170-171 .

No. 5. Within this area, which extends from the Hunter river almost to the Macleay, the initiation ceremonies are of the Keeparra type described by me in Journ. An/hrop. Ins/. London, Vol. xxvi, pp. 320-340. This tract of country is inhabited by the remnants of the tribes speaking different dialects, some of the most important of which are the following: **Wattung, Gooreenggai,** Minyowa, Molo, Kutthack, Bahree, Karrapath, Birrapee, etc. North of the Hunter river and extending along the sea coast to about Cape Hawk there is an elementary ceremony called Dhalgai,

NOTE: Map image removed from submission.

Ref

Initiation Ceremonies of Australian Tribes Author(s): R. H. Mathews Source: Proceedings of the American Philosophical Society, Vol. 37, No. 157 (Jan., 1898), pp. 54-73 Published by: American Philosophical Society Stable [link provided to aforementioned document].

The Origin, Organization and Ceremonies of the Australian Aborigines Author(s): R. H. Mathews Source: Proceedings of the American Philosophical Society, Vol. 39, No. 164 (Oct. – Dec., 1900), pp. 556-578 Published by: American Philosophical Society Stable [link provided to aforementioned document].

Mirranen archive – Ceremonial 1894-1900 [link provided to aforementioned document].

Reference Type: Journal Article**
Record Number: 43
Author: Mathews, R. H.
Year: 1897
Title: The Burbung of the Darkinung Tribes
Journal: Proceedings of the Royal Society of Victoria
Volume: 10 (new series)
Pages: 1-12
Keywords: Ceremonies – initiation

Abstract: This article describes the male initiation ceremony practised **by the coastal tribes of Darkinung people in New South Wales whose territory spreads 'from Newcastle southerly to about Sydney.'** Mathews acknowledges the existence of other language groups within the stated area, naming the Wannungine and Darrook (Dharug) people. Given the inter-communal character of initiation ceremonies, it is possible that the Burbung described here was common to all these tribal groups. Mathews obtained his data when visiting a 'small remnant of the Darkinung Tribe' who resided on the Government Aboriginal Reserve twelve miles below Windsor on the Hawkesbury River. Two old initiated men—Joe Booburra and Charley Clark—were his informants. The description of the ceremony, which involved tooth avulsion, is organised under the following headings: 'The Main Camp and Burbung Ground';

'Gathering the Tribes'; 'Daily Performances at the Camp'; 'Taking away the Novices'; 'The Watyoor Camp'; 'Ceremonies in the Bush'; 'Return of the Novices'. Mathews believed that the Darkinung ceremony had been influenced by the larger neighbouring communities of Kamilaroi and Wiradjuri people.

Notes: TRIBES

1. Darkinung
2. Wattung
3. Wiradjuri
4. Kamilaroi
5. Darrook
6. Wannungine.

LOCATIONS MENTIONED

1. Hunter River
2. Jerrys Plains.

G. E Ford responded to "The Kuringgai Puzzle" before it was even published.

84 Although in 2006 Lissarrague published about Darkiñung as a foreign language, this was contrary to what she published in 2008 with Wafer, although they did note: 'There may be some systematic phonological differences between Darrkinyung [language] and HRBB [Threlkeld's language(s)]',footnoting that: **'We have set these out in a paper forthcoming called "The Kuringgai Puzzle". This article 'forthcoming' has not been available at the time of completing this chapter.**

"The Kuringgai puzzle. Wafer, Jim and Lissarrague, Amanda."

Languages and dialects on the NSW Mid Coast.

"This interpretation of the data fits with the information we have about the location of this language variety and its speakers. **The Carigal were a Broken Bay tribe, and Karr,eē was, we have argued above, the dialect spoken at Brisbane Water,** which is the northernmost of the large geographical 'breaks' that make up Broken Bay. There is some debate about how far south this dialect extended. But our contention is that the present state of research does not provide unambiguous support for the notion that it reached further than Brisbane Water. **Capell gives no other justification for calling this dialect 'Kuringgai' than the fact that it was 'convenient'.** We suggest that this nomenclature has several major weaknesses. **The name appears to have been invented by John Fraser,** using morphemes from the Sydney language. There is no evidence that it was ever used by the speakers of the language variety to which the name was applied by Capell, or by their neighbours. And its original use, as the name of a super-language of the central NSW coastal belt, makes it ambiguous.

To avoid ongoing confusion about the referents of this term, we suggest dropping it as a name for the southern dialect of HRLM.

There are two obvious alternative names that would probably have a degree of **authenticity: Kari and Karikal** (spelt here in the orthography Lissarrague has developed for language revival in HRLM). We have decided to adopt the latter as a more **appropriate name for the southern dialect of HRLM than 'Kuringgai' (cf. Smith 2004:93).**

9.7 Conclusion

We propose the following (hypothetical) picture of the dialectology of the region attributed by Capell to 'Kuringgai'. The language of Brisbane Water, extending north through Tuggerah Lakes, was the southern dialect of HRLM (Karikal), and the language of the north shore of Broken Bay, to the west of Brisbane Water, was the coastal dialect of the Hawkesbury-MacDonald River language.17 The language of the south shore of Broken Bay was the Sydney language. Broken Bay appears to have been the area where the three languages converged, and was thus probably a linguistic transitional zone.

The three languages in question here (the Hunter River-Lake Macquarie language, the Hawkesbury-MacDonald River language and the

Sydney language) are the central members of the supposed 'super-language' for which Fraser invented the name 'Kuringgai'. But contemporary research distinguishes as well another language to the north, which we call the 'Lower North Coast' language, and another to the south, called 'Dharawal'.

There were thus five languages spoken in the area attributed by Fraser to 'Kuringgai'; moreover, comparative research suggests that they belong to three distinct language groups.

18 In other words, there appear to be no grounds whatever for grouping them under the single term 'Kuringgai'.19"

Howitt and Fison Papers [link provided to aforementioned document].

Howitt – Refers to a **tribe he calls the Geawegal**, as inhabiting part of the valley of the Hunter River extending to each lateral watershed and from twenty to thirty miles along the valley on each side of Glendon. On one of 'the maps illustrating his work he shows their territory as lying along the north bank of the Hunter from about Tomago to Glendon. **Howitt also applies the name to the aborigines of the district around Dungog on the authority of J.W Boydell of Camyr Allyn NSW**, who was noted for his keen interest in the natives, (Geawegal, with the evidence recorded would be a clan of the Gringai and of the Kattang language group).

James Boydell 1820s Identified – **Greengai** (I have on map as Geawegal) he refers to them headquartering at Camyr Allyn.. that I have as Alamongarindi Clan (Camyr Allyn)...

William Scott born 1844 identified **Gringai** Carrington NSW.

Donald Mcrae identified the **boundaries of the Tookala – Gringai** [link provided to aforementioned document] (the first one has been transcribed to Yookala but a month later it is clear it is just a badly written script.). This was knowledge was achieved and taken from local knowledge and family's – Mr Hook and others from the Barrington Gloucester and Dungog areas NSW.

Extracts- "Gringai "From the Barnet River to karuah River – North and South to Myall River to Mount royal ranges East and West."

William Anderson Cawthorne, ca. 1865-187-?, including family details of the **Coringoori Tribe, Patricks Plains, Singleton District, New South Wales,** 187-?

Mathews on his map, mentions the **Katthack,/ Gathang** and the Warrimee or Worimi (145-150), and he did mention the Darkinung. **His mention of Gooreenggai were the people "Fraser earlier recorded as Kurig-gai / Gringai." Frasor has noted/ spelt it kuringgai, Goringai and kurig-gai** and the Wannerawa were the Wonnarua- (Same word spelt differently).

Fraser's map shows Kamalarai the pink area occupying the Hunter Valley and more, and extending off into lands to the northwest. As far as the Hunter Valley is concerned, the Kamalarai are shown as ranging in the east to what appears to be country along Glendon Brook, in the west to the watershed beyond Cassilis. in the north to the watershed beyond Murrurundi and. in the south to the watershed beyond Barigan. Outside the Valley the Kamilaroi meet the Wiradjuri in the southwest and the **Kurig-gai (Gringai)** in the east the **Paterson and the Chichester/Williams Rivers are shown as flowing through Kurig-gai (Gringai?) country.**

Enright described Worimi country extending from the coast westerly to the area of Glendon Brook. **W J Enright 1932** Identified the **Giringai** "The suffix "gal," however, shows conclusively that **"the Geawegal was only a horde, and Kattang was the language," at any rate as far west as Maitland and Paterson.** The Geawegal, he **(Howitt)** states, spoke the language of and intermarried with those of Maitland and also of Paterson. **The Gringai,** according to the same author, intermarried with the Paterson River natives and those of Gloucester."

Tindale described Worimi country running from the coast inland to about Glendon Brook.

Brayshaw had Worimi country lying east and southeast of **Gringai lands. and Brayshaw also described Gringai country in the area of the Paterson and Allyn Rivers.**

Arthur Capell in 1970 identified the language **to 'more conveniently be called *Kuringgai (Gurigai)*'**, and *Guringai* is the name applied for use by descendants of the Broken Bay Aborigines" **from 1970"** to the present day.

In 1970, Capell made the following comment: **—Karee, or Kuringgai, is the language of the Pittwater people**, and included the well-known Cammeraygal on the extreme south, along the northern shores of Port Jackson, and stretched as far north at least as Broken Bay. This is the basis for the statement above that the "Sydney" language did not cross Port Jackson (1970:24).

Capell's 1970 paper was not complete, he called it **'this initial report'** and wrote about 'the monograph that is intended to follow'. He had retired from the Sydney University in 1967, and his last work on Aboriginal languages.

Gordon Bennet Identified the Giringai Dungog, Williams and Patterson Rivers.

James Boydell 1820s Identified – Greengai (I have on map as Geawegal) he refers to them headquartering at Camyr Allyn.. that I have as Alamongarindi Clan (Camyr Allyn)...

William Scott born 1844 identified Gringai Carrington NSW.

R. H. Mathews 1898 Gooreenggai North of the Hunter River No. 5.North of the Hunter River Within this area, which extends from the Hunter river almost to the Macleay, the initiation ceremonies are of the Keeparra type described by me in Journ. An/hrop. Ins/. London, Vol. xxvi, pp. 320-340. This tract of country is inhabited by the remnants of the tribes speaking different dialects, some of the most important of which are the following: Wattung, **Gooreenggai,** Minyowa, Molo, Kutthack, Bahree, Karrapath, Birrapee, etc. North of the Hunter river and extending along the sea coast to about Cape Hawk there is an elementary ceremony called Dhalgai.

NOTE: Map image removed.

John Fraser 1890 "I know that the **Goringai Tribe occupied the whole of the east coast from the Hastings and the Manning down to the Hunter,** and had several subdivisions named from particular localities in their territory."

Howitt – Refers to a tribe he calls the Geawegal, as inhabiting part of the valley of the Hunter River extending to each lateral watershed and from twenty to thirty miles along the valley on each side of Glendon. On one of 'the maps illustrating his work he shows their territory as lying along the north bank of the Hunter from about Tomago to Glendon. Howitt also applies the name to the aborigines of the district around Dungog on the authority of J.W Boydell of Camyr Allyn NSW, who was noted for his keen interest in the natives, **(Geawegal is a clan of the Gringai and of the Kattang language group.**

Dr. Elkin at Port Stephens recorded "Worimi are a clan of the Kattang".

W J Enright 1932 Identified the Giringai "The suffix "gal," however, shows conclusively that "the Geawegal was only a horde, and Kattang was the language," at any rate as far west as Maitland and Paterson. The Geawegal, he **(Howitt)** states, spoke the language of and intermarried with those of Maitland and also of Paterson. The Gringai, according to the same author, intermarried with the Paterson River natives and those of Gloucester."

Howitt and Fison Papers [link provided to aforementioned document].

EDITORIAL NOTE: A portion of this submission has been removed as it referred to other individuals who may not have provided permission for their information to be shared in a public document. The remaining portion of the submission provides enough substantive context without requiring this information to be included.

Bungaree

Born **1775** in **Garigal Country, Australia**

Son of Unknown Garigal and [mother unknown]

[sibling(s) unknown]

Husband of Matora (Awabakal) Gariga — married [date unknown] [location unknown]

Husband of Cora (Gooseberry) Bungaree — married [date unknown] in Sydney, New South Wales Australia

DESCENDANTS

Father of Bowen Bungaree and Sophy (Bungaree) Webb

Cora Bungaree formerly Gooseberry

Born **about 1777** in **Sydney, New South Wales, Australia**

Daughter of Moorooboora (Maroubra) Gooseberry and [mother unknown]

[sibling(s) unknown]

Wife of Bungaree — married [date unknown] in Sydney, New South Wales Australia

Mother of Bowen Bungaree

Died **30 Jul 1852 in Sydney, New South Wales Australia**

Sophy Webb formerly Bungaree

Born **1810 in Brisbane Water District, New South Wales, Australia**

ANCESTORS

Daughter of Bungaree and Matora (Awabakal) Garigal

Sister of Bowen Bungaree [half] and Sarah (Bungaree) Lewis [half]

Wife of James Webb — married [date unknown] [location unknown]

DESCENDANTS

Mother of Charlotte (Webb) Ashby

Died **1877 in New South Wales, Australia**

References Linguistics & Languages

Lissarrague, Amanda. 2006. A Salvage Grammar and Wordlist of the Language from the Hunter River & Lake Macquarie. Nambucca Heads: Muurrbay Aboriginal Language and Culture Cooperative.

Wafer, Jim and Amanda Lissarrague. 2008. A handbook of Aboriginal languages of New South Wales and the Australian Capital Territory. Nambucca Heads: Muurrbay Aboriginal Language and Culture Cooperative.

Lissarrague, Amanda. 2010. A Grammar and dictionary of Gathang: The language of the Birrbay, Guringay and Warrimay. Nambucca Heads: Muurrbay Aboriginal Language and Culture Cooperative.

Wafer, Jim, and Amanda Lissarrague. 2010. The Kuringgai puzzle. In Indigenous language and social identity: papers in honour of Michael Walsh, eds B. Baker, I. Mushin, M. Harvey & R. Gardner. Pacific Linguistics 626. Canberra: Pacific Linguistics.

The Sydney Language by Jakelin Troy [link provided].

Registered Aboriginal owner of Worimi Guringai Lands

Australian Rwandan War veteran 1994-95, ANZAC Peace Prize 1995, Meritorious Unit Citation

Guringai language [link provided].

Kabook and Watoo people [link provided].

We acknowledge the Traditional Lands of the Worimi, Guringai or spelt Guringay and Biripi people of the kutthung language the Custodians, spiritual and cultural owners of these lands.

We acknowledge our Elders past and present to all Aboriginal and Torres Strait Islander people. The Gringai continue to practice Culture and have a strong connection to our lands and secrete sites where our ancestors lay in the Barrington/ Gloucester Manning Valley area.

Attachments: Letter to Premier, various news articles and historic documents.

Individual submission 030

You may consider it strange I have contacted you personally instead of speaking with your unlinks who are below your pay grade and therefore not qualified enough to make such an important decision as required of you personally this day.

The matter concerns that dreadful salt water treatment said to be suitable and safe for human consuming as drinkable clean water. Sorry but NO! … At least not in the current means it is provided to end-users/consumers whom, know nothing too little about water.

Now, that I have raised your interest to know why?, let us speak plain as men. The problem with treated salt water under testing at the end point of processing may well test clean enough for drinking and therefore receives a stamp clearance to be pumped throughout the existing infrastructure. But what do you know about the water quality once it reaches the actual end-user/consumers drawing point of collection? … Consider a tank system or well of old, people drew their water and carried to their homes in an era done past for our nation. We called that hard water am I correct?. Whereas we call treated water soft water. Both still contain chemicals to a degree which may or may not be promising for the body's natural level of health. That aside, in which I hope has generated thought to you returns me to desal water (treated salt water), from a simple chemistry point of view. Salt water even with the smallest amount of salt remaining in the water will turn the rest of the water salty during the course of time naturally, I believe you should already know that point. However; what about the water moving through the infrastructure after it has been cleared as drinkable? …. Ah: now the point raised has been declared. Yes, this water does turn to being saltwater due to unknown factors "Which states", the length of time the water has sat inside the system before drawn by an end-user/consumer to stagnate again or by the salt deposit natural lining of the systems infrastructural delivery system.

Perform a test and see if my own understanding of this point is correct. Pour one glass of your treated saltwater from the end treatment process and test it daily for 7 days to see how salty or not the water has changed. NB: I own a saltwater testing unit and have used it on your supplied tap water. NB: you would be surprised what a non-smoker can taste and smell.

Now, I am allowing you 10 days to get your results in before replying to me as I believe that will grant you time to get your water sample and run the test as I stated above. Then, when you have found your answer, I am wondering if you would be interested in talking about an idea that I have to clean up the end-users/consumers water in a way that would be time recovered return of cost to you making the project 100% zero cost to you? … I also expect naturally something in return. Again, that cost outlay will also become 100% zero cost to you across time return. I believe this is what people call a win-win for both you and I and a win-fall for the end-user/consumer whose health and wellbeing would also improve instead of the current high-blood pressure issues that are plaguing our society and the effects which are many including what I call "The Angry Ant syndrome".

Individual submission 031

Have scanned Hunter Waters future policy. Not impressed. I cannot support desalination Projects. Expensive, energy hungry systems. They should only be considered as last resorts.

I have discussed the Tilligerry Sewer Treatment system with Hunter Water. I wanted to know if the treated water could be returned to the sand beds. I was informed there were no technical reasons to this.

The issue is Legislative. N.S.W. law prohibits the reuse of grey water to potable water. I see this as being restrictive and wasteful.

Many countries treat their effluent and return it as potable. The processes exist and are effective.

I would like to see the grey water reused before any desalination systems are installed.

At Tilligerry, the treated water could be pumped back to the sand beds and be distributed to a sprinkler system and then reticulate back to the water table.

Individual submission 032

The information supplied in regards to the water transfer from Lostock Dam to Glennies Creek Dam does not provide local communities with enough information about the potential and real impacts on Paterson River. It is also concerning that very few people seem to know about this proposal. Given that it could have a significant impact on the local ecology of the waterways and also tourism in the area, with many people enjoying the Paterson river for recreational fishing, boating and swimming, all local community members should be involved in the consultation process. Farmers and property owners with easement rights to the river should also be consulted in this water security plan process.

More detailed information and expert studies on the ecological effects on the Paterson river with the introduction of this twin pipeline need to be completed. This proposal lacks detail and concepts outlined need to be clearly set out. It is also difficult to understand from a layperson's viewpoint and specifics including effects on our local waterways, need to be clearly defined.

Individual submission 033

I am writing this submission on behalf of our family business.

We have operated a 300-cow dairy and beef enterprise for over 75 years on 300 hectares located on the Paterson River at Vacy. We are the largest water user on the regulated Paterson River with an allocation of 1000Ml. We have extensive irrigate infrastructure and irrigate about 200 Hectares.

I am also a member of the Coastal Customer Advisory Group with NSW State Water and have chaired the group for the past 2 years and both my brother and myself have been involved in other water committees!

As our livelihood is dependent on the high water security that we have been accustomed to over the years. This proposal is a huge worry.

We have a number of concerns about the proposed pipeline transfer of water and the offtake of water at Gostwyke!

I don't think it necessary for me give a wordy detail of concerns but I will give concise details.

Lack of consultation.: Although this is in the planning stages there has been limited feedback to stake holders. It would have been prudent to have met with those effected to gauge problems that may arise if it were to go ahead.

Lack of water security: From the scant details I have seen the model suggested seems to run Lostock dam too low before water returns. At the levels suggested I can't see how water users security can be guaranteed.

Land use: There would need to be some written guarantee that land use restrictions won't be placed on farmers above the offtake at Gostwyke! We don't want restriction like the Williams Valley.

Running costs: This is a very expensive project to run and although government will pay to construct current water users will do not want to get burdened with the running cost.

Need to be upfront! does Hunter Water intend to take over Singleton water supply. If it did this would more make the transfer of water back less of an option.

Guarantee that there won't be a buy up of water allocation: Hunter water could affect water security if it was able to purchase existing water allocations!

As these are proposed plan there needs to be more consultation from HW, NSW Water, DPIE and State Planning and hopefully you can engage with us to resolve issues arising from this proposal because at the moment we have a number of reservations about it.

Individual submission 034

How about making it mandatory for construction sites to use commercially available and cost effective solutions to recycle water during construction saving around 500,000 litres per year on a commercial site. Why are construction site allowed to use drinking water to wash paint brushes and other trade tools when there is no need?

Individual submission 035

It is with interest that I read the document sent via mail, about future plans for water supply in the lower Hunter. I totally agree that a plan needs to be in place – not just a plan but action.

We moved to the Cooranbong area in 1980 and have lived here ever since. Back then the population was much lower than what we see now. Back then, Cooranbong was just a small sleepy village. Now we have had several large developments not just in Cooranbong but in the wider area also. Today there are more and more housing developments in progress all over the Hunter area and I have often wondered how the water supply is coping with the huge increase in population and business.

There has been no increase in the water storage facilities to increase water capacity. However, we have coped quite well even in times of drought. I was actually disappointed when the Tilligra Dam proposal was dropped years ago as I think that with the huge population explosion currently happening, we will run out of water if we get a prolonged drought. I think some people do not see the big picture but only see what affects them right now. We do need to plan for the future.

However, I do have some interesting comments.

When we built our home in Cooranbong in 1983, our plans were stamped – NO RAINWATER TANKS.

Back then I would have been happy to have installed a tank to supplement watering on our half acre block but was not allowed.

For a few years, we were on a pump out septic system where the big blue skunk would take our waste water away every two weeks. We decided to save that water and installed a SuperTreat on site treatment system. That system worked great. That meant that instead of the Blue Skunk removing around 3500 – 4000 litres of water every two weeks, that water was now used to water our trees and gardens keeping the yard green and lush. You mention that saving just 4 buckets of water would make a difference. We were saving 3500 – 4000 litres every fortnight!

We would have to pay for the water coming through the meter, use it in the house, have it treated in the Supertreat system and then it would pump out to various places around the yard. I had, and it is still in place though now unused, a pump out line going to a manifold with many taps connected to piping and microsprays to various places around the yard. I could send that treated water to all sorts of places around the yard keeping the gardens nicely watered and making a second use of water we had already paid for. Problem is, I can't use it any more.

Down the track the sewer system was installed and we were forced to connect making the SuperTreat system redundant.

Now,

We buy the water through the meter.

Use it in the house

Pay for it to go down the sewer

and then – have to pay for more water to water the gardens and yard which includes a levy assuming some of that is also going down the sewer!

This has never made any sense to me. Now, ALL homes built HAVE to have tanks installed BUT, you can only use this water for watering the yard, washing the dog etc. – not for drinking!. This also makes no sense to me as just over the hill from my home is a road not serviced by Hunter Water and the only water supply they have is tank water! That is also what they drink! Out our way there are many homes that only have tank water.

In the proposed plan, there is talk about using recycled water. What a great idea! We were doing that 30 years ago but are not allowed to anymore! They told me that the treated water from the SuperTreat system was good enough to drink. Never did I test that theory but yes, it certainly kept our yard nicely watered.

IF, we had been allowed to keep using the SuperTreat system, we would have:

Had a much cheaper water bills.

Saved heaps of water being used from the main water storages.

Recycled all the water coming into our property.

Imagine, if all the SuperTreat (or similar) systems were still in operation and even more had been installed where possible, just how much water would be saved from the main water storages, and, how much less waste water needs to be treated in the sewer systems. Hmmmm! Food for thought!

Individual submission 036

This email is to outline a serious concern about the proposed LHSWP. This concern is specifically about the extraction of water from the Paterson River at Gostwyck Bridge. This point of extraction changes the existing use of water of the Paterson River from irrigation to potable water. Accordingly this places considerable emphasis on the quality of the water that is in the Paterson River.

There are three main concerns that relate to this extraction and they all relate to the position of this extraction point below the proposed Martins Creek Quarry. This quarry has a State Significant Development Application (SSD6612) lodged with the Department of Planning. This email is not about this application but rather the effect of the quarry on the water quality and in particular the aspect of potable water extraction. The application is to expand the output to over one (1) million tonnes of commercial product per year. Whilst the quarry has been restricted in output recently this one (1) million tonnes is 2 to 3 times the average output. The expected life is 25 years. This involves extraction, crushing and loading aspects which all create dust. Further to this the quarry is also involved in tertiary treatment of the product through the use of pug mills. These pug mills involve mixing the gravel with fly ash. Fly ash is a known toxin and is the source of much debate in the Lake Macquarie region with power station discharges. All discharges from the quarry go via open drains into the Paterson River.

Because the Paterson River has been utilised as an irrigation/ agricultural river, the discharge from the quarry has not been of major concern to the community. It is my contention that if Hunter Water is considering an extraction point for potable water there should be a review of the quarry discharge.

The three main aspects are;

- the quality of discharge from the quarry from the general operation associated with quarrying and the product being quarried
- discharge that specifically relates to tertiary treatment using fly ash and other chemicals
- the ability of the quarry to meet future standards and levels of compliance.

The base material that is extracted from Martins Creek Quarry is Andesite. This is a particular rock has a high content of silica. There has been little information as to other minerals soluble or otherwise that are contained in the rock. The rock is removed by blasting and then moved to

a crushing plant. All of this create dust that is not contained. The quality of the dust is of some concern as it would contain silica dust. The raising of silica is being highlighted as it is now identified as the major contributor to silicosis, a serious and preventable infliction. It is a known fact that the quarry pumps water out of the quarry into the Paterson River. It has always been considered that this water is due to surface collection associated with rain events. It is not known how much water is used in the processing aspect of the quarry.

The tertiary preparation plant (pug mills) uses additives to combine with the gravel to use primarily as road base. The major additive is fly ash. Again this is a known carcinogenic. Water is used in the process to minimise dust. All of the trucks are sprayed before departing to minimise the dust enroute. It can be concluded that there is contaminated water on site which is then discharged into the Paterson River. My expertise is limited regarding water preparation but having water that has both silica and fly ash as constituents is not and ideal situation. There are concerns with Myuna Bay and a near-by tailings dam that contains fly ash residues, so it assumed the potential for health risks is high.

The third and most important issue is the ability of the operators of the quarry to comply with any directions. The Daracon group are the current operators and have shown their disregard for legal process and compliance over the many years of their control. In the original SSD6612 it was noted by the Department of Planning that there was not enough detail in the application in regards to water management and discharge. Further to this the EPA has issued fines and orders for compliance on the operators in regard to illegal discharge form the quarry. This is evidence that the operators are not to be considered as good corporate citizens. Further evidence from court proceedings have shown that the quarry was operated legally and that Daracon knew of the lack of consent. The illegal operation was carried out over a number of years and the quarry operated without official consent. This ensured that the quarry could operate without any controls such as discharge management. Court proceedings show that it was a conscious decision to not see consent. Hunter Water should be cognisant of the fact that without governance measures the management of the quarry will do what suits them.

The quarry has been in caretaker mode for the last 2 years and previous to that the quarry had a much lower output and its effect on the Paterson River was not as critical. My concern that the effect of the proposed quarry operation has not been fully factored in to this water strategy.

I submit this email as a concern for the future of water extraction. It appears that the extraction is not compatible with the operation of the quarry, especially given its lifespan of 25 years. This combined with altered flows in the Paterson River due to changes in Lostock Dam output will put further stress on the quality of water to be extracted.

Below is the link to the original EIS to DoP by the EPA and it makes mention of water quality:

https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-825%2120210408T092311.118%20GMT

This second link is the EPA fining MCQ for lack of sediment control:

[Link provided to 'EPA clamps down on Martins Creek quarry' by Bennett, C.].

Individual submission 037

"The Lower Hunter Water Security Plan is a whole-of-government approach to ensuring the region has a resilient and sustainable water future that contributes to regional health and prosperity and is supported by the community".

I don't think this statement is entirely true.

Not sure the whole community, I don't entirely support it. Overall the strategy of the plan is good, however it ignores what is sustaining us today – Dams.

Years of community growth has been supported by the "storage strategy" our grandparents had in the construction of dams years ago. Today we know that the climate is different, but we also know we will have weather events that will result in heavy rainfall and flooding, both minor and major. Capturing large volumes of water and storing it for the future would better. Nature provides it for free, we just have to get clever and catch it.

"Making the most of what we got" is not a way into the future and if we are looking at a green planet, neither is converting sea water into fresh water a "cleaner" way of the future. Education and behavioural changes, conservation and restrictions imposed on customers isn't best practise either.

The plan has a major reliance on desal plant(s) for the hunter region, while ignoring dam construction. I would think that a dam construction would be offset by delaying desalinisation plant construction.

Desalination Plant

- Cost of construction and distribution.
- Cost of running Mw hours energy intensive.
- Cost of running while idle – very expensive for no water produced.
- Cost of offsetting the energy cost & carbon.
- Then the risk of Government selling it to private operator!

Dam

- Cost of construction and distribution.
- Electricity generation – Green Power Mw hours.
- Large volume storage – fire-fighting aerial and RFS.
- Asset the community can use (picnic in a pandemic).

I would recommend that we look at the water storage again. A Dam such as what was proposed at Tillegra would be the best way forward. A million dollars' worth of work has been done just get the politics back on track. There would be around 300 plus jobs building it and it would benefit the community. Also it creates a great place for Boating Camping Fishing, which you can't be done at a desal plant.

Individual submission 038

I am a farmer in the Maitland area. Located on Howl's Lagoon in East Maitland, my business, grows crops which get supplied to the local area. As a small business, we work with other businesses in our area to support one another and provide goods and services to the public. Along with this, we are a part of the Slow Food Movement, of which we donate produce for charitable purposes to further assist the local community. Being a farmer, water usage for irrigation is essential for maintaining our business by producing crops. I am currently an unregulated water usage, and through self-moderation have been effective in appropriate water usage. Current ECU levels (Salt levels) maximize at 3000. If unable to access sufficient water quantity and quality, it will definitely reduce produce quantity and quality also, and thus have financial repercussions on the business and other local businesses that benefit from us. Hunter soils are highly sought after by many due to the quality of them and its ability to produce high quality produce, however, alteration in salt levels and inaccurate measuring will ensure the soil quality is affected. Furthermore, we are one of the largest food producers in the Hunter food bowl, of which the population of farmers in this area and surrounding areas is diminishing. Proposed changes and alterations to the current water system will have detrimental impacts on many small businesses in the area, not just farmers which utilize the water for irrigation purposes.

Under the new plan, my business would be forced to become a regulated water user. The installation process of a meter, usage of water, and maintenance is expensive, especially for a small business. It would also impact on the availability of water and could result in crop failures from insufficient water. If these had to be

installed, I would request that each would come with a meter to measure the ECU (Salt) level for the individual to see the salt levels at their individual site and be able to decide whether to pump or not based on accurate readings. If not for each site, a closer reader would be requested, at a site like the Belmore Bridge, as the proposed site of Raymond Terrace is not close enough and wouldn't provide an accurate reading at my site and the nearby water sites due to distance and tidal changes. Furthermore, currently measuring salt levels cannot be entirely guaranteed during normal periods of water supply, let alone during periods of drought which cause water shortages and increase the salt concentration within the available water. As has been mentioned, salt levels play a vital impact on the sustainability of my crops, and thus my business as well as other businesses. It is strongly believed that suggested methods in the plan would not sufficiently provide enough quality water to maintain crop growth and success to ensure business success.

Individual submission 039

I am disappointed that we are planning on one or 2 desalination plants in the Hunter.

For over 30 years we have had the technology to filter our wastewater to drinking quality.

Treating wastewater to a high standard saves a massive amount of energy compared to desalination, and is therefore a much better option when we are already battling climate change.

The desalination plant in Sydney has also highlighted the high ongoing cost of maintaining such facilities even when the plant is in mothballs and not actually producing any water.

If properly treated wastewater is pumped back into the water sources which supply our existing dams then it will be diluted in the existing rainwater, and therefore present less of challenge for those who are concerned about drinking treated wastewater.

Before spending large amounts of money on a desalination plant I would like to see a comparison between water recycling and desalination, in terms of cost per household over say 5 years, and also quantify the difference in terms of carbon emissions.

Treated wastewater will actually be cleaner than the rainwater which currently enters our dams. So let's explore this option properly before building any desalination plants.

Individual submission 040

My responses to the priorities of the draft Lower hunter Water Security Plan.

In the context of best practice management of the **WILLIAMS RIVER AS A SIGNIFICANT WATER SOURCE** for the community of the Hunter and Central coast regions.

Priority one

Safe drinking water is our highest priority. We will continue to provide high-quality drinking water for the health and wellbeing of our community and the future prosperity of the region.

Response: As stated in the draft protection of water quality at the source is the most important step.

Hunter water monitoring and numerous reports show this is not happening in the best possible way, quality has got worse since the Healthy Rivers commission 20 years ago. Direct action needs to be taken by Water NSW to remove impacts such as power boating which causes erosion of nutrient laden soils and provide incentives to land holders adjacent to the stream to accept best practice riparian management.

Priority two

We will manage our existing water resources wisely, working together with our community and stakeholders to make the most of our existing water resources, particularly before investing in new sources.

Response: 20 years of working together has not worked, a stream of compromise for the sake of stakeholders and indecision has left us with

worse water quality and hence water quantity to be available for extraction. A more forthright and robust process must take place which will demonstrate improved measurable outcome for the whole community.

Priority three

Our climate is changing and the future is uncertain. We will act to improve our resilience to shocks such as drought as well as remaining adaptive to future risks and opportunities.

Response: engagement with the living processes of air water, earth and plant life is the only way climate change can be improved for the better, technology cannot keep up with the change it is causing.

Priority four

Water is an essential part of connection to Country for First Nations/Aboriginal people and supports liveable communities. Our plan will work to incorporate the values and participation of First Nations and Aboriginal people. Water supports liveable communities and our plan will seek to protect and restore our environment and ecosystems.

Response: communities enjoy the amenity and economy of clean healthy rivers, they cannot thrive alongside streams of toxic algae and attendant regulation and control and expensive water treatment.

Water NSW and hunter water need to set a standard and example for water source quality that the community can be proud of and support.

Individual submission 041

I'm sending my suggestion regarding the new plans. Why don't you send a couple of engineers over to Israel where they have very successfully created huge water desalination plants for their desert country. They now have huge irrigated country where they grow an enormous amount of edible crops.

Why can't we do a lot more of these and while you're at it make them so that much more country west of the mountains can be utilized for growing more crops.

We will need much more vegetable farms as our population grows and yet we are now promised plenty more droughts. What we have now won't be nearly enough and yet we are surrounded by water!

It's ridiculous that we don't use more and don't cry that it's too expensive. Go and talk to the Israelis – they are so clever.

Individual submission 042

Thank you for the great effort to produce this comprehensive draft water security plan for the LH.

I would like to provide some points as queries ad suggestions:

It was very obvious to me of the very low level of non-rainfall dependent water sources available to the Hunter region as a whole, when compared to other regions. Specifically, the availability of desal plants. This needs urgent attention. The Hunter is a vital economic zone for the nation and cannot be exposed to the risk of inadequate water supply due to climatic conditions.

As per the recent IPCC report, the priority to decarbonise our energy sources, needs to happen now. So, the new desal plant must be powered by green energy. The statement of giving it "consideration" is not acceptable. Fully understand that we cannot impose on the community for the capital to develop the renewable energy source but we can seek a PPA with suitable green energy provider who may receive government funding to develop their renewable energy project.

I commend on HW's efforts to consult with the community. However, what the community also needs to know are the various external collaborations, consultation, benchmarking HW has embarked on, to bring in the best practices

to mitigate water supply constraints. These external learnings are not obvious in the report. The community may have some clever technical people but their main contributions would be on service levels, water pricing tolerances, water quality, obligations on water use and conservation etc.. However, they would seek HW to provide the world best practices for similar regional environment, as gathered thru collaboration partners.

I am also aware that we are seeing more de-commissioning of water intensive coal fired power plants. These power plants use fresh water for process use and salt or lake water for condenser cooling. As these plants are retired, we need to see what water can be saved, what water infrastructure can be re-purposed etc.. Eraring alone uses 10ML/day of portable water. Bayswater has a significant evaporation from its cooling towers.

The future climate conditions as reported in the latest IPCC report is alarming as they are unprecedented to the best of our historical knowledge. Hence, we need to invest now on the mitigation alternate water supplies. as the lead times to establish these may be too long, should we hit the prolonged droughts in the near future.

In conclusion, your challenge is enormous and I hope I have clearly stated my appreciation of the work that has gone into the draft. I have also shared my thoughts based on a 40 year professional career in critical infrastructure and program/project management. I am happy to assist further if asked. Best wishes and I hope you will give me some feedback on the above.

Individual submission 043

Just a couple of points about Point 2: "Making the most of what we've got" from the LHWSP Draft document. This response comes from the perspective of a household which is already achieving below the stated 10 year usage target of 155 litres per person per day of drinking water. We also enjoy our garden and are always looking for alternative, cost effective ways (additional to a council mandated 2000l rainwater tank) to be more water efficient.

1. Water Conservation

We applaud the move to support the community in adopting water saving behaviours, but find the sentiment a little lacking in details and action. We would like to see households being able to reuse water from bathrooms, kitchens and the laundry for outside use eg garden maintenance, car washing cleaning exteriors etc. To be effective this would have to involve the option of a retro fit of existing plumbing, ie not just new housing stock. If Hunter Water could provide approximate costing, referral to preferred contractors and perhaps a monetary incentive this could give extensive water savings across the region.

2. Recycled water

Why only focus on industrial and public space initiatives for recycled non-drinking water? Households could be subsidised to install extra storage tanks for external use. Our rainwater storage tank, installed when the house was initially built less than 5 years ago, is the minimum required by council. Consequently it only harvests water from approximately one third of our roof, leaving the rest to run off and be wasted.

Thank you for the opportunity to participate in this process.

Individual submission 044.1

I have taken a look at both your water planning for the future & the information provided online about climate change carbon emissions reduction planning. Both plans seem to be quite sound but I have 2 things I wish to add as considerations for a shift towards a more circular terminus for the waste water end of the equation.

Firstly, I'd like to discuss Phosphorus. Phosphorus is an essential element for life & is an important element in fertilizer. Pre-industrial times rarely saw soils depleted of nutrients because both human & animal excreta were recycled back into the soil. The life giving phosphorus that supported crop

& vegetation growth was consumed by humans & animals & passed back to the soil to repeat the cycle.

The invention of the flush toilet [though greatly haled as the invention that improved public health outstandingly] brought with it the loss of precious phosphorus from soils as, through processing, it was washed away out to sea. Post Second World War saw the rise of a new type of farming. It relied heavily on ploughing, pesticides, herbicides, fertilizers produced from fossil fuel & supplemented with mined phosphorus [a very limited finite resource]. It made fertilizers very expensive & very cost prohibitive for farmers.

The subject of poo & wee is difficult for a lot of people to be rational about. But in truth, that poo & wee is in fact a resource. The solids could be dried & turned into organic fertilizer & the water, through your recycled water planning could be filtered & the phosphorus extracted for resale. Whatever phosphorus remains in the solids will be needed for the fertilizer. What this does is creates 2 more income streams to increase value that both assists in funding projects but also keeps costs for the customers down. This also closes one of those important sustainable loops & keeps the extra nutrients out of the sea.

The second issue is the amount of methane that seeps from sewage treatment processes. This can either be an undesirable emission or another resource. What we see today is the federal coalition government using taxpayer funds [$50 million] to help gas companies sink aquifer damaging CSG wells near Narrabri & Coonamble, the Beetaloo Basin in the NT & the rich agricultural land of the Darling Downs, QLD, in an effort to release the very gas, released from sewage treatment, garbage decaying, rotting vegetation & animal dung decaying in anaerobic conditions. So much for the government acting on climate change. If these elements were used in large industrial digesters along with anaerobic bacteria to produce methane, we would have a carbon neutral gas resource to use & sell & millions of tons of currently locked up, ancient methane, would remain locked up. Any solids remaining in the digesters could then be sent on to produce organic fertilizer. This scenario produces another income stream, another use for the effluent resource, a very good reason to not mine for ancient gas because it is on the surface & renewable nor is it destroying the subterranean water systems that brings fertility to our land. A lot of water is used in coal seam gas mining & polluted by it. This is not what any of us want.

It could be that a joint project between Hunter Water, all the councils of the lower Hunter region, a gas company & an organic fertilizer manufacturer, could see the whole cycle of water & nutrient passing from humans & animals through to processing, have 3 more sustainable products to value add, completely stop extra nutrients being dumped in the sea & stop millions of tons of ancient methane being released from mining & sewage processing, thus drastically cutting our emissions. It will complete the circle & return organic waste & precious phosphorus to the soils of our gardens & farms.

I leave these suggestions for your consideration for 1. Significant emissions reduction by capturing carbon neutral gas released by normal sewage treatment 2. Value adding to a freely given resource thus producing new income streams 3. Extracting & selling of an important & limited resource [phosphorus], 4. Sending on the sewage for carbon neutral gas production, thus producing another resource to sell, 5. Cessation of nutrient dumping into the ocean 6. Returning important captured carbon & nutrients to the soil 7. Contribute to closing of organic solid waste & garbage circle, 8. Stop the need for gas mining & releasing ancient methane, 10. New income streams provides income for project funding or lower costs to customers 11. All elements are 100% renewable.

Also a very different concept that will require collaboration between organizations but will also produce more employment & increased economic activity for the Hunter. NB: The CSIRO have just launched a report on synthetic biology. That is using microbial activity as beneficial processors for our benefit. The anaerobic process of methane

production is one such process. In synthetic biology they can sometimes enhance the activity through engineering solutions.

Please consider & put it into action to close the sewage / garbage resource circle. Main aim: stop gas mining, reduce emissions, clean up the ocean.

Individual submission 044.2

I've read through the webpages you've recommended. I have a couple of thoughts I would like to add. Firstly, the thing that stuck out as a glaring failure, was that for those communities that ran dry during that awful drought, the process of trucking water in was both expensive & inadequate. Some areas were more severely affected than others, but what if the state were interconnected with a series of pipelines that could move water to where it is needed at a portion of the cost rather than using trucks. The next solution for regions with a higher intolerance for drought would be to consider moisture from air condensation units that produce quality drinking water. Whether large scale or a series of smaller units, would depend on the size & needs of the community.

One of the biggest changes to be made for agricultural communities is the shift towards restorative farming. It involves not turning the soil when ploughing [no till ploughs] & leaving a vegetation cover on the ground [even if it is dead] to protect the soil. Returning cellulose vegetation to the soil which then decays [thus providing a food source for microbes] & the cellulose holds moisture in the soil. When a drought breaks, soil that has been protected using regenerative or restorative farming techniques bounces back more quickly. Plants left on the surface protect the soil & microbes from the sun & hold the soil in place so it can't be blown away. Reducing stock so they don't eat the cover vegetation is the aim. Building the fertile topsoil by putting valuable nutrient & carbon rich waste into the soil provides an excellent spot to return human waste, animal waste, decaying vegetation waste [including algae] & food waste so carbon [that could quickly be converted to methane in landfill] can be composted aerobically at shallower depths & locked up for quite some time. In inland areas protection of the aquifers [which behave like underground rivers] is essential for agricultural activities & helps protect against desertification. Activities like coal seam gas mining [that uses hundreds of litres of water per hour needs to end ASAP] for it damages aquifers, can destroy these natural underground repositories of vital water & the natural recharge points where rainwater makes its way to these aquifers must be protected from activities that disrupt the aquifers.

As far as more dams goes, I have one observation. "Dams don't work if it does not rain". Water storage is essential, but in a severe climate change future, underground water storage will produce less evaporation. The sandstone caverns beneath the lower Murray Darling Basin could provide significant sustainable water for use during sustained droughts but the type of broad acre irrigated crop being grown on the edge of a desert will have to change. Drip irrigation saves thousands of litres of water & produces higher yields. The lesson for the Lower Hunter in regards to community parks, domestic gardens, sports fields etc is to encourage drip irrigation systems be the primary watering systems utilized. New builds could all include grey water systems which could deliver a drip fed watering system & make use of every drop purchased.

Individual submission 044.3

I was running short of time & forgot to add that micro algae farming could be a good way to start the process of atmospheric carbon draw – down. Algae grows very fast on nutrient rich water like effluent. A continuous harvesting of the algae that now holds captured carbon can then be used in 2 ways. Firstly, dried algae can become an element for fertilizer production or it can be composted & used in commercial compost. Both these pathways return carbon to soil in products for money. It is also a measurable form

of carbon draw down that could potentially earn carbon credits. A second income stream if sold. Secondly, algae could be a feedstock for organic biodigesters for the production of methane for bottled gas. Gas made in bio-digesters is carbon neutral, but by adding a small "carbon charge" [where the collected funds go directly in sequestration projects], the gas becomes carbon negative. Any waste from the biodigesters could also be dried & sent on for fertilizer production. Adding micro algae farming into the process of sewage management & returning carbon to the soil produces 3 more pathways for manufacturing by using waste & producing 3 different products for sale & potentially carbon credits that polluters can buy as well. Fertilizer, compost, bottled methane, carbon credits for sale & further funding for carbon sequestration. Now I am done.

Individual submission 045

I wish to lodge an objection to elements of the Draft Lower Hunter Water Strategy, specifically the proposed Lostock to Glennies Creek pipeline & the possible connection from Gostwyck to Maitland or Grahamstown...pp 72 – 74.

I agree that the Hunter needs a sustainable Water plan for the community to thrive – triple bottom line: social, environmental & economic.

The Hunter includes all the rivers & streams within the Catchment. Reading the draft Strategy gives me no sense that the total Catchment has been considered.

The Water Act 2000 separated water from the land.

One sees land without water & the loss of productive prime agricultural land. The proposed pipelines has the potential to ruin the tidal pool & significantly negatively affect the Paterson Valley.

The Strategic Plans for the Hunter & Newcastle (2015) proposed significant growth in population, there was consideration of housing & roads. Yet no consideration of renewable energy, recycling of water or public transport. The Paterson Valley is being made the scapegoat for the ineptitude.

I see the Draft Water Security Plan as an effort to correct the fact there's limited water but at whose expense & what long term consequences?

I have attended a consultation session where the Lostock to Glennies Creek pipeline was canvassed – it was not favoured by any participant & the negative impact on the Paterson Valley was acknowledged by all.

The water coming through the end of system, at Goswyck on the Paterson is what keeps the salinity in the tidal pool for the river environment & our crops at a tolerable level.

The 10ML end of system flow at Gostwyck, is not sufficient for the health of the tidal pool & estuary...but no data has been collected, numbers are plucked from the air.

The spills from the Lostock dam are not wasted – they are extremely important for the health of the river system – the Paterson & the tidal pool, from a quantity & quality point of view. Not water from the bottom of the dam which has the potential to create the Paterson River just being a cold drain.

An offtake from Gostwyck would hugely impact on the salt levels in the tidal pool & hence the social, environmental & economic conditions dependent on this area.

We are now in an environment where the Hunter & our society is in transition.

No research that I can find shows it's a good idea to transfer water from one valley to another – from a social, cultural, environmental & economic view. There is an extraordinary assertion from Hunter Water – Information sheet 7 of 8 that they believe the construction of a pipeline from Lostock to Glennies Creek dam would have low cultural & social impacts & low impacts on natural biodiversity.

One of the largest water users in the Catchment has been Macquarie Generation, now AGL.

What will happen to the water extractions one the coal fired power stations have closed?

Coal mining will be finishing within decades – what will happen to the water they use & what will fill their "voids"?

COVID & climate change has provided us with a great opportunity to review our society & look at what's important.

Green space, gardens & house plants, cycle ways, parks, community – not black rooves & no option but to get in the car, put on the air conditioner & rampant consumerism & waste.

Looking at where we source our food & goods – food miles, shall be valued.

Agriculture has an important part to play in this vision.

It is my submission that to build these pipelines will have negative social, environmental and economic effect and therefore object to such a proposal.

Individual submission 046

I mostly agree with the security plan. As a land holder that has a water title to extract water from the Paterson River downstream from the Paterson Bridge I have concerns regarding the Lostock Dam to Glennies Creek Dam proposed pipeline.

- The 'natural' flooding downstream of Lostock Dam is an essential environmental cleansing. Media and government's tendency to always portrait flooding as a negative is mostly incorrect. Flooding, particularly in the Hunter Valley, has made the valley what it is – a mostly fertile productive landscape. It is construction and/or development of land on flood-prone areas that is the negative.
- The part of the river that my water title allows access to is part of the Paterson River tidal pool. By its very nature is somewhat brackish. If water that is normally released into the Paterson River from the Lostock Dam is lessened that brackishness will increase therefore reducing its suitability for agriculture. I already have neighbours that will not allow water pumped from the river to be given to their horses.
- If the proposed Lostock/Glennies pipeline was approved this would surely result in a reduction of water for irrigation for farming. As a cattle farmer recently said to me 'oh, your water allocation won't change, it will be that the water just won't be there'. Farmers may leave farms as during times of drought there may not be enough water, via irrigation, to see them through.
- Has anyone in the department given consideration to water quality at the proposed Gostwick offtake? Currently before the NSW Department of Planning, Industry and Environment and then the Independent Planning Commission is an application to expand the Martins Creek Quarry. (SSD-6612). If approved, quarry extraction will increase by 370% based on the current consent. The quarry discharges toxic waste water containing heavy minerals, fly ash and potential spills of hydrocarbons and other chemicals. This waste water courses its way to the Paterson river, which is 20 metres lower in elevation to the quarry pit floor, via ephemeral streams that enter the Paterson River upstream from the proposed Gostwyck offtake. This offtake will supply water to Grahamstown Dam and Maitland. How does the DPIE propose to ensure this water will be safe for human consumption?

Individual submission 047

How are you? Here is my suggestion on how to reduce the demand of water.

My solution is to "educate" people. More importantly we need to educate all children in schools, so as they grow into adults they are water conscious. A program being taught through-out their schools years to CARE about our water concerns as a member of the community, for their own needs and for their future family will not only help them, but will help Hunter Water reach its goals. If we focus on teaching this in schools we can be sure a lot of them will than teach this to their future children. This is a long term plan. As we know only through education is how we as a community can make those changes. School excursions to the water plant and visits from your company to schools will emphasise how important water is to the community and will show each student how they can contribute to something that affects us all.

As technology advances involving future students, who knows what great ideas the next person could bring to the table to save our water with this ever changing technological world.

As I say we are one big team. Many heads are better than one.

As a community we really need to utilise our resources and rely on our educators to assist with these detrimental issues.

Children are not generally taught these basic things as home. All children go to school and can be taught on how to conserve water. I can only imagine how much water one child would use from pre-school thought to year 12. Now I am not sure how many children there are all over Australia, but having them all educated on very simple ways to conserve water. Would drastically reduce the water demand.

This is something that we can always improve on and we can change. We just need to get everyone on board educate our future. Have a great week.

Individual submission 048

I am writing to lodge my submission in regards to (Hunter Water) – Department of Planning, Industry and Environment (DPIE) – 'Draft Lower Hunter Water Security Plan', dated August 2021. I have written submissions for 17 years for a Government to protect our natural environment. I am pleased and thankful, that the State Government has withdrawn their "proposed 2 dam/s projects", at Limeburners Creek/ surrounding areas & Upper Chichester River/ valley area. This certainly caused people living in both areas for years, unnecessary health and mental health issues, being put into this situation and for me who met people in both locations, took their plight to my heart. As well as knowing that our property would have been looking at concrete walls attached to Ebsworth Mountain and every mountain on 3 sides of our property and while driving north or South along The Bucketts Way, that would have been clearly seen, I am very much relieved. The stress this has caused people is beyond reasonable. To even consider building dams is damaging to whatever area, you intend to drown out. In your documentation you had written 10,000 locations had been looked at, I still find this mind boggling (yet this information was not disclosed to the general public or me when I asked for this list).

NOTE: For documentation purposes and record, the map that Hunter Water put out to the Community showing one dam wall was actually false, incorrect and wrong. It was obvious there would have been many dam walls the entire 360 degrees around the proposed dam drowning area of Limeburners Creek and surround areas as we do not live in a basin. I asked the staff at the 'drop in meeting at Clarence Town' and last week, how many dam walls was there to be. The response basically advised these details had not been confirmed. Yet the map wrongly showed one spill way/one dam wall and I was advised that you were working on the 80 metre contour line on the map (water height), and each time I came to a gap, there would be another dam wall. My point to this, don't put out false information/maps.

Any dams would have destroyed bushland, as well as people's private homes/properties and businesses, while killing wildlife in numbers unknown and would have stopped the migration of wildlife across the valley. Both areas are of significant value in natural bushland and wildlife, including Koalas, and it is untrue of Hunter Water Staff meeting me and others, also in their documentation referenced Ebsworth Road and surrounding areas proposed to be drowned by this proposed dam, as cleared or regrowth/ saplings. It is very clear that Ebsworth Mountain, (I can see from inside my house) is natural bushland along with every other area around. Any areas of grass paddocks, are obviously because the bushland was/is being cleared. We have natural bushland and old growth trees with hollows, that are now being clear-felled by Government Department approvals (for cattle farming in bushland, for quarries and coal mines). Regardless of Zonings RU1-4, being RU2 at Limeburners Creek, does not mean that

these trees and natural bushland don't exist. The Zonings are wrong and do not actually portray old growth trees, trees with hollows and creek systems that flow to the Karuah River directly. These creeks of The Bucketts Way, are Zoned Protected Creeks of Karuah River, Marine Park Port Stephens.

NOTE: The fact that both areas (proposed dam sites), of everyone that would have been impacted is on tank water, and therefore not putting any pressure on State Water supply and we are in control of our own tank water. This should actually be the way that State Government sees water issues by encouraging everyone that can to put on their properties. NOT in making money through water rates, or on selling the water within their documentation for on selling to Gosford, Central Coast, mining and industry.

For the record:

- I take the opportunity to reference the logos on the front cover of the report: NSW Government, Hunter Water & love water.
- **The State Government by your approvals/ various Government Departments, have destroyed; so much bushland/rain forests/ old growth trees/with hollows AND many natural water-sources around Australia and bringing this sad fact back to NSW for the record.** I have witnessed destroyed bushland areas where once an abundance of wildlife existed, are killed through Government approvals. For those animals that can't fly/or run quickly (they perish). For those animals that can escape bushland clearance and machinery, these animals are pushed into an area, they are not familiar with or imprinted too and become victims of no shelter and boxed up by other animal species already living in that area.
- I have witnessed destroyed soaks, swamps, creeks, rivers, dams and lakes, as I/we travelled around NSW during our Rivers SOS quarterly Regional Meetings (formerly President/Secretary). I am the Secretary of ICAG Inc., which was one of 55+ groups of Rivers SOS. I see first-hand the destruction of our natural environment by ruthless NSW Government approvals. The environment is then left with destroyed landscape forever, just like so many areas around Australia, NSW and the World.
- I live in a beautiful valley that is being destroyed by various Government Department approvals. The Bucketts Way NSW Tourist Drive 2, where I live at Limeburners Creek. Natural water-sources around NSW are destroyed forever by drained swamps, creek, rivers and lakes, with broken bedrock from long wall mining and impacts by open cut mining, by diverting these natural water systems, or turned into concrete drains for dirty water discharge from mining/quarry companies. Draining dams, swamps destroyed, iron oxide coloured water discharging orange, yellow, red or black water into these swamps, creeks, river systems. Many of these natural water-sources cease to exist and thereby Government by these unacceptable approvals are changing the environment. Turning areas that once had abundant water supplies of swamps, creeks & rivers for the environment/ wildlife, thereby make that area hotter and dryer and change the climate.
- The continued approvals of mining/coal, companies etc., (quarries/CSG being extractive industries, do NOT bring ANY revenue into the State. Thereby making the owner richer and Council's broker deals, at the expense of their Communities that are or will be impacted forever during the operation of these mining/quarry companies and/or big end developments that clear-fell bushland and kill wildlife.
- Department of Forestry that removes vast areas of hardwood forests/bushland/ rainforests for wood chips or putting this through furnaces to produce electricity is beyond sense and is an outrage.

- State Forestry areas are now 'ear-marked' for gravel quarries on State Forest Land is beyond sense. The state Government has been responsible for destroying so many natural water-sources and bushland areas which must stop and should have a long time ago. State Forestry parks should not be clear-felled and/or mined/gravel quarries.
- Once our landscapes, mountains, valleys and natural water sources are gone by means of being dug up, drained and discharged into. They are never the same obviously or cease to exist. The wildlife dies in numbers each Government approval, going completely undocumented, yet forms part of these companies roads, over burden dumps, along with Aboriginal artefacts and sites of significance etc.

Thank you for allowing people to download and copy this document.

The Photo on page 5 does not say where it is taken other than a bridge over the Hunter River NSW.

Minister Pavey: So many of these areas are being destroyed by Government approvals. There are areas where bushland is being cleared and roads are being built for a proposed gravel quarry at Karuah and Limeburners Creek. The proposed quarry at Limeburners Creek invited Aboriginal people to come and look around. The Company Insite Heritage advertised the 'DA proposed quarry' and a brief list of information and inviting Aboriginal people to contact them. I phoned, emailed repetitively. Sent them photos of destroyed bushland, old growth trees with hollows laying on the ground in piles and roads being built through creek lines of Deep Creek. The company said it didn't matter as they could see the trees laying on the ground. I then realised this is why we have the problem. That this should be seen to be offensive and disrespectful to the Aboriginal people, expected to come and look for significant sites, trees, etc, and the landscape they are being invited to attend has been on purpose tampered with and therefore also being disrespectful to the Aboriginal people. As I stated to the company, if there was significant Aboriginal artefacts, they are also part of the roads being built. This should be seen to be a fineable offense. I have contacted many Government Departments advising them of this illegal bushland clearing and road building and I have sent many photographs. When both these companies have not been approved to commence their gravel mine/quarry in either location (I add or rejected) which is what we are hoping.

Yes water is a precious resource and yet, it is one natural water resource that State Government and Council's hand over to mining companies/gravel companies, housing developments to be destroyed. It is the natural environment that the Government approves through various DA's and terminology to be destroyed, like "thinning Certificate" of Local Land Services authorising approval to destroy natural bushland for cattle farming, for quarries or coal mines. Midcoast Council's staff that said the trees felled on the area of an unapproved proposed quarry was "minor scrubbing" is equally and individually offensive.

New approaches of water supply should not include building large scale dams, flooding out the environment, killing wildlife, flooding homes, businesses. In fact if the Government actually encouraged everyone that has the room to put in a water tank for their house, their drinking purposes, then this would relieve the pressures of providing a water supply. However this then does not generate an income to the State Government through Water Rates.

Large scale dams destroy the area they seek to flood. They remove the bushland, thereby changing the climate and killing wildlife. They dam up creeks which kills the aquatic wildlife and downstream impacts. They stop the migration of wildlife as there would then be a body of water they cannot cross. Also building dams for other areas should actually not happen at all, and seems to me to be a money raising venture for the State Government.

Climate change on the region – Stop authorising mining companies/quarries, forestry bushland/ rain forest clearance for wood chips, or putting through a power station is downright disgusting. Destroying these areas, removing mountains, change the climate of that area. Putting all these dirty water holding dams that these companies produce, causes climate change. And cause acid rain. In 2020 September, we had a storm from Stroud. The rain fizzed (you could hear the drops of black water hit our new concrete path). It left black dots. The noise of the fizzing water hitting the concrete in circles is still there on 2 concrete paths. It does not wash off. I believe this was acid, dirty rain, that had been sucked up from the hot day north in our valley over all the dirty water holding dams of Stratford Coal, Duralie Coal, AGL gas, Allworth Quarry etc. and it came down that way on us in Forest Glen Road Limeburners Creek.

The Community through CCC and submissions, letters has made it clear to Hunter Water/State Government that we are not in favour of dam building projects. The proposed Tillegra Dam was another example of Community back-lash towards damming up the Tillegry River of which I have been there and had a swim on a property that held out against Hunter Water and would have destroyed the entire river system and area, flooding out people's properties, homes and cemeteries. Thankfully again, this dam was removed from proceeding.

As 90% of water comes from the Dungog Council Shire already that Hunter Water utilises, I don't believe that this water should be sold Gosford/ Central Coast, which is not anywhere in the Upper Hunter, Middle Hunter, Lower Hunter area. We here at Limeburners Creek are actually Mid North Coast area of Midcoast Council Shire. Many of the Towns and Villages are on tank water and once again do not put a strain on Town water supply. Yet Stroud and Clarence Town going on Sewerage have been discouraged from having tanks. This should be seen to be dangerous for many reasons, as once again this shows that it's a dollar driven revenue service of the State Government and not a drought proofing an area.

Central Coast is not in the Hunter area and is "water sharing" to sell water to Central Coast. ***So how much water goes out of Grahamstown Dam each day to Central Coast, Gosford etc.?***

Those people also that can have dams dug on their property to capture ground run off, not dam up a creek/river etc., should be encouraged to do so, without the removal of bushland to do it either.

As Hunter Water kept over the years putting dams on the agenda, when it is obvious that dams are a low priority, Hunter Water and State Government should be encouraging property owners to put in their tanks to plumb up their house and for drinking water purposes. Many of us on our properties seek to live with tank water, dam water for gardens/firefighting purposes, animals etc., solar panels reducing electricity needs and costs and some already have removed themselves from the grid, while others of us are seeking to put bigger solar units on and battery storage in the future.

When we lived in Lake Macquarie, we wanted to sink tanks for both rain water, and grey water tanks for the garden. We were told in writing that if we proceeded we would be fined $1000.00 a day. We sadly did not think about going out to Media at that stage, or going to local Ministers. I would like to see that Hunter Water/State Government actually works with home owners who want to put tank water in and grey water tanks as a bonus, not people they can bully and intimidate into their submission.

WATER SECURITY PLAN: page 9

- 40 YEAR PLAN – providing sustainable water future by not building mega size dams that destroy the environment, dam up creeks and rivers.
- Give ownership of water collection to property owners, via tank water for drinking, washing cooking, bathing, grey water for gardens, lawns, even a backup firefighting tank.

- I am not a fan of mixing sewerage water with drinking potable water, and believe that these types of treatment plants could be put in wastelands of mining companies and then used to dust suppress and water any area they are putting grass/tree species on.
- State Government to truly incorporate the protection and restoration of degraded swamps, creeks, rivers, lakes, need to STOP approving such mining companies/quarries on the landscape.
- There also needs to be more town tank water supply.
- There also needs to be tank water accessible to RFS in areas of bushland, in shopping areas, Schools, with the pump valve for RFS to hook into, onsite generator and hoses. Because with droughts, comes fires from lightening, electricity lines breaking, accidents, arson.
- Give people financial incentives to help with purchase of tank water, reduced rates etc.
- The 'no regret action' over time, has me puzzled. That's to me is like saying the Environment and wildlife are collateral damage to the coal mine, the quarry, the large scale dam building projects or pipe line corridors.
- **Page 10** – a safe and reliable water supply, must have everyone that can be involved for their water supply usage on their property and tank water should be part of that. For everyone that has a pool in NSW, I guarantee that the majority do not have 2 tanks. One for collecting rain water off their roof. On for backwashing the water, when it over tops in rainfall events. This water could be put into the pool. Yet it doesn't. The backwash does into the Sewerage system. To top up their pools comes from the mains water supply. Also every pool should have a generator and firefighting hoses.
- The State Government should also not be selling off ground water or spring water to soft drink/bottled water companies. Australia should be holding onto their water supplies. As we know plastic bottles are the cause of pollution around the World.
- **Page 11** – When a water initiative destroys an area of bushland, creeks and rivers, this should not be adopted by Hunter Water/ State Government or anyone. Likewise doing business with mining companies/quarries at the expense of the environment, natural water-sources should also not be adopted.
- Working to extend dams that are already present such as Grahamstown to increase capacity, though dams have a high evaporation rate. Give people back the ability to put tank water in if they can and grey water tanks for gardens.
- **Page 11** "our plan will seek to protect and restore our environment and ecosystem". I would like to see the State Government repair the damaged creeks, rivers, swamps and lakes that they have approved to be destroyed through underground mining or open cut mining ventures. I have seen personally attempts made, our pouring concrete into creeks and rivers, bolting back rock boulders in rivers, cementing rock cracks, and putting gravel and sand in bedrock of rivers, as being a solution to the problem left for the environment. STOP approving mining companies to dig up, dig under drain, discharge into, destroy these natural water systems.

Page 11 – The amount of money your bills are going up by is so expensive an increase of 6 to 9 percent. *As you are passing on the costs of State Government costs for building infrastructure to whom exactly?*

What about the people that don't incur water bills, are we too going to be slugged with a bill being incorporated through Council Rates of Local Land Services?

Page 12 – safe drinking water should also include tank water for anyone that can.

Making the most of what you have – That means no dam building projects.

When river systems are in flood this would be the time to be pumping that water into large scale storage units. When you consider how high the Williams River floods and Manning River Floods etc., the water level is mind boggling. This amount of water flow into a system obviously has environmental impacts and on wildlife/people's homes/animals.

No one would want to live near a sewerage treatment plant and I am thankful that the proposed dam at Limeburners Creek did not proceed, as recycled water, including sewerage water was being discussed which would have been an environmental disaster. This type of treatment plant should stay away from people, creeks, rivers, etc.

How much water does Hunter Water send to Central Coast/Gosford. These details should be put up on your website. When Grahamstown Dam was decreasing, was it really being used by Newcastle people, Hunter people, or was it going down pipe south to the above?

Page 13 –

Belmont desal plant:- My concerns with desal plants are this. The increased salt content going back into the ocean, the affects this has on the Marine animals, and what if any studies have been done on the actual impacts of constantly adding salt back into the ocean.

The other concern I have is that the pipes sucking in the ocean water, would be sucking in ocean life (fish and plankton etc.), ***does it have a screen like a screen over a window? OR is the wildlife sucked in also seen as collateral damage?***

It seems by reading, that there will be a pipeline corridor connecting Glennises-Lockstock dam, if so how will the impacts to the environment and wildlife be managed?

It should not just be about water restrictions. Everyone with a pool should have a tank.

Need to find out more info about the Hunter River Paleochannel and evaporation reduction options?

Page 13, Everyone should be involved on their property, in their home, by helping to adapt to changes of climate change, hotter days, dryer periods. The State Government should be seeing water security as everyone's business and therefore everyone that can put a tank in and also a grey water tank.

Water for liveable Communities: – page 13 to

Improving the integration of land use and water planning, contributing to liveable communities, green spaces and healthy waterways

I continue to be stunned that State Government can write the above, yet through your approvals, you destroy the bushland, you destroy the land for mining and quarries that cannot be repaired to the land it once was. Reducing built up areas, surfaces take ground water to storage areas, and reduce/remove rubbish out of creeks/river systems, with catchment dam areas before running this gutter water into natural creek, lake, ocean systems.

The plan 2014, then 2019, 2020 and now in 2021, clearly shows that the Community is against dam building projects. They want to see ground water harvested and used to fill up existing dam/s, holding tanks. Why not use some of these open cut pits to hold water for drought purposes, or firefighting purposes. There used to be an adaptor for laundry sinks that could pump the water from the washing machine out onto your grass or garden. It is these types of gadgets that State Government/Hunter Water should be encouraging people to use. Get rid of/treatment plants on site of these mining properties, to clean/filer and reuse the dirty water in these holding dams on site, so this water is not taken up into the atmosphere.

Water services, energy, carbon emissions, ecological health and economic productivity. Encourage anyone that can to be the master of their own water supply through tank water, grey water for gardens, small dam water for gardens.

Energy consumption for people on tank water is either electricity or solar. Carbon emissions should be on the big end businesses and mining ventures/quarries that destroy large areas of the landscape and therefore the State Government should stop approving such developments. Ecological health of our natural water sources and the environment should be at the top of priority of Hunter Water/State Government. Economic productivity, again its dollar value over actual water security of a particular area and State Government should never look at drowning out any area as a solution.

The sad fact of reality is, that State Government has and still is destroying natural water sources and this MUST stop. No new investments in infrastructure, when your moral/ethical code continues to destroy water sources. Yes conserve water. Yes make sure your pipes are not leaking and property owners need to do the same. Leaking taps etc. fixed. However the problem is bigger than this and it is on the shoulders of many State Government Departments. There are those of you that would have seen the Rivers of Shame DVD's and other Community Groups. Yet the Government does not protect our natural water sources.

This is why your documentation causes an outrage in me that is a deep sadness of the areas I have seen destroyed by Government approvals.

I spent 13 months of my life in January 2011 to February 2012 attending the Land & Environment Court with ICAG Inc./JCCC representatives and our legal team and Expert Witnesses, trying to stop NSW Planning Department now called DPIE from removing all the Conditions of Consent awarded to Duralie Coal (almost 2 years of Commission of Inquiry) to get almost 100 Conditions of Consent. One of those was "No River Discharge Condition of Consent". While Judge Preston stopped them putting a pipe into Mammy Johnsons River 24/7, he gave them all the creeks. This River is the drinking water of Stroud and flows directly to the Karuah River, Port Stephens Marine Park. Mammy Johnsons River will flow black water, orange water, or a combination and always will as Duralie Coal has changed, altered forever the valley, removed bushland, killed wildlife, removed creeks and impacts the river system to date and forever.

Our future planning (page 15) besides fixing leaks, should also be about stopping the destruction of any more natural water-sources under any circumstances.

- Good to read that the consumption fell by 11% in 2019 and 2020, which is surprising considering, this was when all the fires were happening in so many areas.
- Good to read that the reduction in water loss by leakage had also dropped and the new equipment to detect leaks. Though turning down people's pressure if this happens is also dangerous during fires. However once again, people should be encouraged with incentives to buy generators for firefighting purposes, roof sprinklers and tank water.

(Page 19-20) – Recycling water and capturing rain water and in green spaces and parks and fields, perhaps these areas could have small run off/storage holding dams, which would cool the area, bring wildlife and have a filtered plant system and also a way of removing rubbish. State Government once again would have to be mindful of where they put these types of treatment plants, though utilising destroyed landscape from mining could be a solution.

- Reducing water in rivers and streams should only be happening if these systems are in flood.
- Our temperature in Limeburners Creek as elsewhere has been increasing. In 2017 we for 2 months January and February hit temperatures from 35 to 50 degrees. For 6 weeks our temperature was 40 to 50 degrees each day. The wildlife was sustained with sprinklers that would come on in different areas of the garden and water dishes filled multiples of times per day.
- Loss of wildlife during this time is unknown.
- The weather patterns are changing, hotter, dryer, the season rains don't come and the wind storms are increasing taking out habitat trees and bushland areas.

- Industries should be made to manage their own water. They should not be taking water from creeks/rivers or potable drinking water.
- Budget constraints. People's water bills are going up not down.
- When a cotton farmers can drain lakes, rivers at the expense of that lake, river and downstream Community, this should never happen again. You can't eat cotton and you can't drink dirty or contaminated water.
- 20 years is a long time and needs to remain flexible, so that the plan encourages people to manage their own water supply on their own property. This should be done State wide. "The Greater Sydney Water Strategy" and "Lower Hunter Water Security Plan". **What does Sydney have to do with the "lower Hunter Water Security Plan"? Sydney should be looking after their own water issues and requesting all those pool owners to have tank water and to backwash back into. I am formerly from Sydney.**
- **In documentation about the proposed dams you had the water going to Gosford and Central Coast. I see this as selling water coming from Dungog/Grahamstown dam on on-selling this water outside of the "Hunter area".**

I would not support any move ever; that is on tank water being forced as Stroud was to remove their tanks, go on town water and then have sewerage systems put in, as State Gov. did in Clarence Town, yet there was a massive catch that Dungog Council will always regret, selling out their Water control. Liquid gold one Councillor said at a meeting I attended to speak against the proposed Hunter Water dams/in both locations at that stage. They realised they had sold an asset that they should have kept. Likewise I would hope that Midcoast Council does not sell their Water control.

(Page 20) Your NSW Water Strategy, setting the agenda for water management, (sounds great), yet is based on old principles of multiples of Government Departments approving the destruction of natural water-sources continues, as you reference the Water Management Act 2000.

(Page 21) Explain "future changes to Industry in Upper Hunter"?

What do you think alters climate? Massive holes in the ground, bushland/mountains removed, valleys filled up with manmade rock piles. Soaks, swamps, creeks, rivers, lakes all destroyed for mining/quarry companies and other unacceptable industries causing permanent impacts to the natural environment.

What do you mean, "Climate change as important drivers for investment to secure the future economy of the region"?

"Infrastructure options to improve water security" – no dam building projects.

"better managing water supplies to address the needs of industry and the environment", again this sounds like how can we make more money by selling water to industries at the expense of the environment, OR taking dirty water from industries/sewerage treatment plants, coal and gravel, CSG dirty water holding dams and running that through a processing plant to give them water to use back into their industry?

You talk of the plans to be "2036 Hunter Regional Plan and the Greater Newcastle metropolitan Plan 2036, as well as the Premier's priorities. NSW Governments commitment to integrating water cycle (is that recycled water?) and land use planning across the state to ensure the co-ordinated development and management of water resources with land and urban infrastructure".

My comments to above: There is so much land that is or will be destroyed by coal mines, quarries in NSW and unsympathetic housing development that destroys anything plant based, let alone our wildlife. Bring back those days were suburbs were built around the bush and trees. It is these suburbs, Towns/Villages in NSW that have a higher biodiversity value because of the retained bushland, creeks, river systems. It is therefore not a complete annihilation of wildlife either.

The Government is approving the destruction of bushland and cleared pasture land/agricultural land for mining/development, then you approve bushland to be cleared for farming land (as per Local Land Services under thinning certificate). No flora/fauna study because "they don't have too" because "the legislation is silent" and "legislation does not require us to do flora/fauna studies". The area has been wrongfully zoned RU2, like so many other areas of natural bushland, old growth trees and trees with nests, hollows or white ant nest for wildlife. The RU Zoning 1-4 needs to have the E for environment/for wildlife in all of these bushland areas and any other natural bushland/rainforests that MUST be protected from the Government that has been too busy for too long approving the removal of these natural environments

I am disturbed at the blatant disregard for our natural environment and the continued Government approvals to hand it over. I am alarmed at the "water cycle and land use planning across the state to ensure the co-ordinated development and management of water resources with land and urban infrastructure". So my question has always been, why is Government NOT protecting our natural water-sources and it concerns me greatly, that there has been no change for all these decades, and the environment seems to me to be destroyed quicker under a Liberal/National Government. It is one thing to say that Government is co-ordinating developments and your lack of management for protecting natural water sources, "with land and urban infrastructure", to me says that the environment continues to be removed for land/urban/industry development.

I don't believe that Hunter's water should be going to Central Coast, Gosford as per your documentation at all. All this is to me, is passing water from point to point, and charging for that water into State Government revenue?

What I have also noticed is all the 'buzz words and buzz phrases within this documentation, "whole-of-system outcomes for the two regions", the feel good we are looking after your best interests, and looking after water issues and the environment. Government is not looking after our natural water sources, or our environment, or our water, or people's health impacts by these Government approvals. When in reality water rates bring revenue into the State Government. The more water rates you can bring in from any person, organisation/company, the better the State slush fund from Water Rates is. The State does not make any revenue from "extractive industries", which is beyond stupid. Though the Government is quick to continue to approve quarries and the CSG industry, why? You are making the company owner richer, while they plunder out the environment that we all have to live in and suffer the consequences of Government approvals, causing wildlife deaths which are continuing to date at a rapid speed, regardless of us losing so much wildlife in the 2019 and 2020 fires, which is beyond shameful.

Page 22 – "a vibrant new metropolitan city at its heart". What I do see in Newcastle and other Council areas is high-rise building, and they are getting higher. Which should not happen. Newcastle was capped at 10 storeys high. The continue push from developers and on Council staff throughout all Council Shires should not happen, as they have their own personal agendas and not to be working for their Community/Rate Payers. Many Council's work for the 'high end of DA's/companies' and look forward it seems for payment of approval. There is information going around the Community that Midcoast Council received a massive donation from the owner of the proposed service centre at Bulahdelah. This is actually what it is, being paid for an approval. That is receiving donations either before, during or after the approval, is the same outcome to make sure that the development is approved. This should not happen and should not proceed. Stop wrecking the skylines of Towns, villages and cities around NSW and elsewhere.

Then I read this next point of yours. "a biodiversity rich natural environment".

Actually STOP destroying our bushland, our water sources, our wildlife.

Local Land Services, falsely runs workshops for the Community, I have attended for around 10 years. In this time the workshops have been all very interesting, telling us about biodiversity, keeping trees with hollows, bushland for bees, fencing off your creeks and rivers from stock, soil, weed removal, regeneration work. Yet all the while Local Land Services was approving the destruction of the bushland/wildlife, by giving approval to people to clear-fell bushland to the ground.

"thriving communities". Environment, bushland, rainforest, sustaining wildlife communities, people living in their houses, street, Council Shires as Communities?

Greater housing and job choice – Highrise is not the answer and packing people onto tiny blocks with no trees and dark rooves, no tank water or solar is not the answer either.

Jobs? Doing what? It sounds to me like a mining catch cry.

"to improve green open public space by 10% in 2023. We have wonderful bushland tracks around NSW, these areas should be managed as actual Forestry parks and natural bushland areas, not logged or turned into rock mine/quarries or turned into coal mine spoils. Once again I find this hard to read as the State Government through many different departments including Local Land Services does not protect these areas and 10% out of 100% is not much at all. All those buildings and high-rise should all have tank water for their gardens. Tanks should be in parks and gardens and sprinklers automated from this type of infrastructure. The natural environment should be encouraged by Government Departments to use. Yet our Forestry park, was closed, which was a very silly thing to do, as this creates jobs for people in maintaining the Forestry parks. Now all we do is pick up rubbish each year and throughout the year by littering thugs of people. The park and walk up the top of Bulahdelah Mountain was also de-commissioned, which again I think this is the wrong thing to do and was to remain in public use. Yet this mountain has been sold off in parts to different people and developers, which again is wrong, unacceptable and deals and money exchanged hands at the expense of the environment, wildlife and people's enjoyments of State recreational parks in natural bushland.

When bushland is intact, it has its own ecosystem and thereby reduces evaporation.

I think that the idea of using treated water for open park gardens, grass with storm water/ recycled (sewerage water will smell) and if used should be nowhere near natural water sources or the ocean.

I would have liked to have State Government actually take a poll of people on tank water in each Council area Vs people in the same Council area on Town Water. This would then show how many people are self-sufficient. It would also show how many people on Town Water, who could put in tanks for their water. This should be the way of the present and the future.

Yes clean water is a requirement for every living thing. It's our wildlife, people our animals that suffer when water is contaminated e.g. pfas and CSG industries, coal mines, gravel quarries that have destroyed soaks, swamps, creeks, rivers, lakes etc.

(Page 24) Your map Hunter Water area of operations and water resources, needed more detail, particularly on the recycled water schemes and what that means for each area and what the details are surrounding the blue dot on the map.

90% of water I read sometime back, I was led to believe came from Dungog Council Shire. Yet your documentation states 80% in total.

You state 28% from Chichester Dam, 51% from Grahamstown (79%), Tomago 9% and Tomaree 2% (11%) = 90%, where the other 10% comes from recycled water (8%) and 2% rainwater tanks (which must be increased).

You mention that three private network operators, yet you have provided no detail, who and where are they?

How many times has Gosford pumped water up to Grahamstown Dam in the last 10 year period?

It's like Grahamstown has replaced the Tilegra Dam to send water to Sydney/ Central Coast/Gosford.

What is the recycled water, and where from?

Rainwater tanks should not be 'estimated', they should encouraged for every house hold and high-rise buildings that can.

(Page 28) Nothing there about mining companies cleaning up their dirty water holding dams, which as mentioned above, needs to happen.

Once again, where would this proposed desal plant be at Belmont, and this would change the area completely. I don't believe that desal plants should be built, due to the environmental impacts of pumping in salt, and extracting sea water.

"trigger levels" /scare mongering that desal plants need to be built everywhere 'just in case'. Encourage everyone that can to have tank water.

As mentioned, some places in NSW their water has been turned down so low, that they have a trickle coming out of their house, taps or washing machine, and surely this could be made better for those people, who used to have good water pressure.

(Page 29) Congratulations for developing equipment (who ever that was), to be able to detect leaks in pipes underground. That is a massive saving of water.

Page 29 onwards to come in next email.

This is a draft as it has not been proofed and will resend final copy without the draft water mark. Along with the ICAG Inc. Report.

Individual submission 049

Would be worth developing a greater emphasis on domestic storage, eg water tanks for gardens/ lawns, grey water uses and potentially filtered drinking water in an emergency. I currently have 3300 litre storage and am planning to increase this to 10000 litres. Incentives could help.

Individual submission 050

Thanks for the opportunity to consider your draft plan "The Fountain" left in my letterbox. There are a number of problems with it, starting off with OWNERSHIP.

Hunter Water exhibits a "Cargo Cult" mentality. You dig holes in the ground, and then pray to the rain god to fill them. Then YOU SELL THE WATER – it's not your water to start with – it's OURS i.e. belongs to the public.

Even worse, all the money you make, you SEND TO THE RAIN GODS IN SYDNEY!

I have spent time in Israel, they have 2,000 years old deserts, in the middle of which are oasis's. How is that possible **= DESALINATION**, *that is taking sea water and making it drinkable*.

SO, STOP SENDING MONEY TO THE RAIN GODS IN SYDNEY, SPEND OUR MONEY ON DESALINATION!!! Thus in my view, Hunter will be drought proof for the next 1,000 years.

Individual submission 051

I write to commend this plan for the future of water security in the Hunter Valley.

The decision not to include new dams in the plan seems to me a very sensible and pragmatic one. Dams are subject to the vagaries of weather, being reliant on adequate rainfall and prone to great losses of water through evaporation. They also impinge detrimentally on the ecology of the river dammed and most certainly alter habitats of many of our native species.

Better methods of water conservation such as recycling, use of grey water where practicable and

general education of the public as to how valuable and scarce water is on this continent, are essential.

Changing the attitude of people to the use of treated water is paramount to maximise every drop that is used. In some cities of the world water is recycled through treatment plants up to seven times. We must learn that water is a commodity like power and has to be paid for. It is increasingly scarce and therefore not only must be valued, we have to educate everybody to conserve every drop. I was appalled, when I first came to this country to see a hose being used to clean driveways. That mentality must be avoided through education and an understanding that a bit like land water is not finite in quantity.

Desalination plants are useful additions to our armamentarium in water usage. They may be costly to set up but once there, are permanent fixtures that can be started up when required relatively cheaply and quickly.

I trust that this draft plan will be implemented in its entirety – probably with some modifications – hopefully all of them improvements on your original. I congratulate you on a very thorough evaluation of the subject.

Individual submission 052

As requested I am responding with feedback on the Draft Lower Hunter Water Security Plan.

The Tomago Groundwater Source is allegedly partially affected by perflurooctane sulfonate (PFAS) & perflurooctanoic acid (PFOA) contamination. Hunter Water has decommissioned three bore stations that provided drinking water to Lemon Tree Passage, Mallabulla, Tanilba Bay, Oyster Cove, Swan Bay and Kaurah. The remaining bore stations are still supplying water to the afore mentioned suburbs.

Individual submission 053

The Draft Plan covers a lot of information particularly for drought conditions and how you are proposing to deal with water supply and climate change. However I could not see much information about flooding and sea level rise.

Water supply – Are there incentives for residents to install water tanks – a one-off rebate, discount on water rates etc mainly for older buildings that may just use it for gardening etc.

Climate change – there is a lot of information of how you are dealing with drought but what about Sea Level Rise and the effects this will have on your infrastructure around coastal communities ie Swansea, pipes will be below water tables, what about your infrastructure on ground will they be flooded, sewerage will be backed up into people's houses and water supply may get infiltrated with salt water. Lake Macquarie City Council are well advanced in developing a Local Adaptation Plan, have you been involved or taken onboard their concerns.

Belmont Desalination Plant – This will be located not too far from the ocean. There has been substantial erosion along the beach front over the past 12-24 months what plans, mitigation works are proposed to stop sea water or sand erosion affecting the plant.

Individual submission 054

I have been a customer of Hunter Water for decades. I believe Hunter Water was the first water organisation in Australia to bring in 'user pays' as the basis for invoicing users rather than a set amount then excess water rates if the customer exceeded the basic allowance. While this user pays system is probably the norm now it certainly was not back in the 70s when I think it started. Well done on some logical thinking and implementation.

Now to sewerage charges. I know the logic for the current billing system but clearly the person who generates the most volume for treatment should also pay the larger running cost of the system. You would also know who uses the most water (water meter) and there would be a fairly logical ratio of water used to volume sent to the sewer. This ratio would apply to most domestic households. On that basis the user pays system could also be implemented. Naturally there should be a standing component which recognises

the basic cost of the system and some allowance for future upgrades as probably occurs now. All connected users should pay an equal amount for the basic system with the additional 'user pays' component on top.

Now there is a question for you to answer – do you apply any upgrade cost to the existing sewerage component of our water bill??? If not where does the upgrade costs come from?

So my suggestion to make the system fairer is to charge all connected users a basic system fee and apply a separate fee based on the user generated volume processed. No doubt there would be some users who do not fit this normal user profile eg commercial users like nurseries, food production etc. It would take a few cycles to refine the billing but at least it would reflect the user pays logic. It would not be hard to canvas a number of water corporations around Australia and overseas to see if such an arrangement is in operation and therefore assess the merits, challenges, ratios etc of such a billing process.

To illustrate what illogical processes have been in operation in Australia, we lived in Canberra for a number of years where initially you were specifically prevented from having rain water tanks and years later it was mandated for new houses and even inducements offered to install one. The logic for not allowing rain water tanks was apparently based on the visual impact aspects. There was also a system of providing free shrubs for new houses to help create the garden city atmosphere. Now Canberra is a very hostile area to have a lush garden – I know as I installed many lawns, irrigation systems etc all too little avail as the dirt and climate are against you. So dry gardens are the norm there. Mind you a recent walk around an old Canberra suburb resulted in my observation that it was quite rare to find an uncluttered respectable garden.

Harking back to my youth, our street was a visual delight as neighbours cared for their gardens and street appearances. I have enclosed before and after pictures of our terrace lawn to show one consequence of exposure to gardening as a youth. I bought the water tank second hand from Gosford and with help from neighbours slide it over the front fence when this photo was taken. Landscaping of this house took me 12 months of rock wall terracing, planting, drainage etc.

Keep up the good work. I trust your planning for a desalination plant is thorough and logical. Australian examples are a poor reflection of our strategic planning processes. I am sure Singapore would be a good place to study how to manage a scare resource.

Individual submission 055

Thank you for the opportunity to make a submission to the Lower Hunter Water Security Plan 2021.

Global public benefit corporation (SOURCE) supports the objectives and focus of the Plan, which mirrors our own mission of providing clean drinking water to everyone.

We also wish to highlight the role that innovative new technology, such as SOURCE Hydropanels, are currently playing in enhancing the health and wellbeing of communities around Australia and in the Lower Hunter region by providing them with clean, high quality, reliable, fit-for-purpose drinking water.

Our completely off-the-grid drinking water solution is particularly suited to improving the quality and accessibility of drinking water in regional and remote communities that are not served by existing water infrastructure, or where the water quality is not suitable for drinking.

We believe that through collaboration and sensible management of existing water treatment facilities and natural water sources, new innovative water solutions can contribute to greater water security for all residents and businesses within the Lower Hunter region.

Thank you again for the opportunity to provide this submission. Should you have any questions or require further information, I can be contacted. We would also welcome the opportunity to show you our Hydropanel sites in action and sample our drinking water.

DRINKING WATER IN THE LOWER HUNTER AND THE UNIQUE CHALLENGE OF PROVISIONING REGIONAL COMMUNITIES

The water strategies, technologies and policies of the 20th century have yielded remarkable success in providing reliable services to high density urban areas, however the same benefits have not been experienced in regional and remote communities. Many often lack the requisite scale to fund, build and service centralised water infrastructure, a challenge for Government and utility providers alike.

These communities are often over-reliant on a single water source for drinking water which is unsustainable and fails to provide stability and security against future challenges. The reliance on bore or surface water has been a challenge with water quality, taste and aesthetics, while the reliance on bottled water delivery for drinking water is costly and contributes to plastic waste and carbon miles.[1]

As the draft Lower Hunter Water Security Plan identifies, the Lower Hunter region has a relatively stable level of water security, however this is under threat from unpredictable climate and increasing risk of drought. The plan also notes that water provisioning approaches need to be reconsidered to ensure future sustainable and resilient water supply for the Hunter region.

Rural areas in the Lower Hunter face vastly different challenges compared to cities and urban centres. With higher population density, more varied water sources, and the fallback option of desalination plants during times of drought, urban centres are more equipped to face the water challenges of the future.

However, regional offgrid communities, particularly in the western part of the Lower Hunter are faced with a higher degree of water insecurity, largely due to their remote location and reliance on increasingly unpredictable rainfall for water supply.

The draft plan has identified that drinking water should be considered as distinct to other water sources, with a focus on *'a reduction of full treated drinking water consumption and overtreatment, supplemented by increased usage of recycled and wastewater for non-drinking water supplies'.*[2] As the plan highlights a key priority is ensuring the safety of the Lower Hunter's drinking water supply to safeguard the health and wellbeing of the community. The plan to ensure drinking water is conserved in times of drought by reducing overall water using by 17% demonstrates the instability of the current supply being reliant on rainfall dependent sources.[3] With over 80% of the region's drinking water sourced from the Williams River Catchment, the plan notes that the drinking water supply system is vulnerable to drought due to the lack of diversity of water sources.[4]

Realigning water policy and planning to focus on investments that deliver distinct, resilient, non-rainfall dependent sources of drinking water would help ensure that the Lower Hunter region has a reliable drinking water resource. The introduction of diverse supplies of drinking water would help improve the overall stability of the Lower Hunter's water network.

1. Each SOURCE Hydropanel offsets up to 54,750 (500 ml) water bottles over its 15-year lifespan. SOURCE dramatically reduces CO2 emissions compared to other drinking water alternatives. Every two Hydropanels is the equivalent of removing one car off the road.
2. Department of Planning, Industry and Environment, *Draft Lower Hunter Water Security Plan*, August 2021, pg 12.
3. Ibid.
4. Department of Planning, Industry and Environment, *Draft Lower Hunter Water Security Plan*, August 2021, pg 25.

SOURCE HYDROPANELS, INVESTING IN NEW TECHNOLOGIES

SOURCE is the manufacturer of SOURCE Hydropanels, an advanced, innovative and sustainable water technology that provides clean, safe, high quality, renewable drinking water in a variety of applications. SOURCE Hydropanels provide communities with a drought-proof drinking water solution to supplement their other water supplies. Unlike traditional water infrastructure, which can take months or years to be built, SOURCE Hydropanels require no existing infrastructure and can be installed and delivering drinking water in a matter of days.

Source uses a combination of solar energy and materials science, to extract pure water vapour from the air and convert it into the highest-quality water, ready for immediate consumption. A standard array – two Hydropanels – has a storage capacity of 60 litres or 120 standard water bottles. Arrays can be scaled to community size, with larger installations providing millions of litres each year to a centralised storage tank and dispenser. *Attachment A* explains how the individual Hydropanels work.

The scalability of SOURCE enables the Hydropanels to be deployed on the roofs of residential homes, in schools or community halls and in 'water farms' (Source Fields) adjacent to entire communities. SOURCE complements existing water supplies such as bores and rainwater tanks (which can easily become contaminated or are often not suitable for drinking water) offering a faster and more cost-effective path to improving the health and quality of life in communities, in particular for regional and remote communities without infrastructure access. Feedback from consumers across Australia is consistent: the quality, taste, and look of the water that is produced by their SOURCE Hydropanels is a vast improvement compared to traditional solutions.

As part of the Lower Hunter region's approach to guaranteeing water security any investment in community drinking water supply upgrades should consider a broad set of innovative water provisioning technologies. It is important that these technologies are both cost effective, sustainable and have a minimal impact on the local environment.

DRINKING WATER AS A DISTINCT CONSIDERATION TO POTABLE AND NON-POTABLE WATER

The Plan notes that Priority 1 is to ensure safe drinking water for the region. Implementation of innovative technology that creates and maintains a consistent supply of water specifically for drinking purposes ensures resilience in both flood and drought situations.[5]

The adoption of innovative, decentralised drinking water solutions that do not rely on existing infrastructure has the ability to empower individuals, families and communities to enjoy long term high-quality drinking water security at a fraction of the cost and environmental impact of alternative solutions. With rainfall predicted to continuously decline across the Lower Hunter and the availability of water likely to decline,[6] the investment in a fit-for-purpose sustainable drinking water solution is essential.

REDUCTION IN PLASTICS AND LANDFILL

Drinking water consumption is also closely linked to the usage of water packaged in PET plastics. Many people, particularly in regional areas, choose to consume plastic bottled water due to water quality or supply concerns. In times of drought and drinking water shortages usage of plastic bottled water is also likely to increase dramatically.

For example, two Hydropanels will produce enough drinking water for a family of four and offset up to 6000 PET bottles each year. This is the equivalent to 90kg of plastic waste, which would currently cost around $12-16 to dispose of at landfill.

5. Department of Planning, Industry and Environment, *Draft Lower Hunter Water Security Plan*, August 2021, pg 12.
6. NSW Government Office of Environment & Heritage, *Hunter Climate Change Snapshot*, 2014, pg 3.

While PET bottles can be recycled, less than 10% of recyclable plastic waste is collected and reused in Australia each year. This means that the vast majority ends up in landfill, which negatively impacts delicate ecosystems in remote ad regional areas, away from urban centres. For the portion that is recycled, councils in Australia are increasingly burdened with rising gate prices for mixed kerbside recycling, meaning the reduction of plastic consumption is essential in order to prevent rising waste management costs. While councils could once expect to be paid for their recycled material, recycling companies have imposed high gate fees to combat the reduced profitability of recycling associated with Chinese Government recycled material import bans. These gate fees have been forecast to rise.

Additionally, the NSW Government's Plastic Action plan seeks to phase out many forms of plastics over the coming three years. PET beverage bottles are not planned to be phased out or banned, meaning the issue of PET management, recycling, or landfill management will continue to be an issue of concern for years to come.

SOURCE OPERATIONS IN AUSTRALIA

SOURCE provides water resilience in over 53 countries around the world through a range of Government, corporate and NGO partners. In Australia, a 2018 demonstration grant from the Australian Renewable Energy Agency (ARENA) allowed the technology to be tested and proven in a variety of climates across the country, from Lady Elliot Island in Queensland to the Pilbara in Western Australia.

SOURCE Hydropanels have now been installed at schools, community facilities, farms, and council venues in over 1000 locations around Australia, see Attachment B. While Attachment C provides additional case studies on these and other installations, including "Canonbar", Waverley Road Gundy in the Hunter Valley.

For instance, in the Upper Hunter town of Murrurundi, residents have traditionally relied on rainwater, bottled water, bore water, and the Murrurundi Dam for their water supplies, however these sources are regularly depleted during periods of drought. In the summer of 2018-19, millions of litres of water were carted weekly to the pre-treatment lagoon to meet shortfalls, and locals relied heavily on donated plastic bottled water to meet taste, quality, and aesthetic expectations. In 2018, Source installed Hydropanels at the local school to give students access to reliable, safe and great-tasting drinking water and to ease the burden on families providing bottled water to children each day. Members of the wider community also continue to access the school out-ofhours to replenish their drinking water supplies. *(A video sponsored by Hyundai provides more context to this story: Hyundai and SOURCE).*

In mid-2019/20, SOURCE Hydropanels were installed in remote Aboriginal communities in Queensland, New South Wales, South Australia, Western Australia, and the Northern Territory to address residents' concerns about diminishing and poor-quality water supplies. Residents in these towns where Hydropanels were installed now have an alternative to river and bore water, which is often poor tasting, discoloured, and contaminated by lead, sodium, uranium, and nitrates. Having access to high quality drinking water reduces community reliance on expensive bottled water and improves health outcomes by reducing the consumption of sugary beverages driven by poor water access. These installations, and those at the Oodnadatta School[7] were made possible through a donation from the U.S. National Basketball Association (NBA) and Australian Indigenous basketballer Patty Mills.

SOURCE RECOMMENDATIONS

SOURCE Hyrdopanels can provide a source of reliable, sustainable, high-quality drinking water that operates independently of infrastructure.

7. The Hydropanels were installed in response to the concerns of local school teachers and parents about the poor-quality of the water supplies, and an over-reliance on bottled water and sugary drinks. The Hydropanels have provided the students at the local school with a reliable, highquality water supply, giving peace of mind to parents. Community and Local Council members have expressed a desire for the technology to be expanded to service the entire Oodnadatta community at a central location due to concerns about continuing sickness caused by the bore water, and the potential presence of parasitic water infections.

The Hydropanels are a high value, high impact drinking water solution to complement existing bulk water supplies, particularly in regional and remote areas where there is insufficient drinking water infrastructure. We recommend that the Lower Hunter region explore the following options:

1. Alternative water sources should be incorporated into climate change planning. There is currently a **need for climate-proof solutions that can provide reliable quantities of drinking water** close to the point of demand (i.e., without reliance on rainfall or infrastructure to deliver water).

2. Consider pathways for **innovative non-traditional technologies**, including alternate sources of water (i.e. atmospheric harvesting) and alternate delivery models (i.e. direct to tap, behind the meter), to better achieve policy outcomes for rural and remote communities.

3. Government programs tend to focus on traditional drought resilience measures e.g. pipelines and dams – often to the exclusion of innovative, low cost and decentralised solutions like Hydropanels which can provide immediate water supplies to communities. We argue that water security in remote and regional communities would be further enhanced by enabling communities to seek public funding for new and innovative technologies like Hydropanels, and recommend that consideration be given to **ensuring new solutions like Hydropanels are not 'crowded out' by traditional projects** and activities. In our view, such an approach will maximise opportunities for rural communities to enhance their drought resilience and wellbeing.

4. We further urge the Lower Hunter region to consider **fitness-for-purpose for water methodologies** in water stressed and drought affected areas. Traditional water suppliers treat all household water to the same level regardless of use, a process that is energy-intensive, expensive and often means that drinking water is only treated to the minimum level of safety and potability. What this strategy ignores is that the expectations and preferences of the Australian public go far beyond minimum standards of safety and potability where drinking water is concerned. As evidence, less than one percent (1%) of household water use in Australia is consumed directly for drinking, and yet Australians elect to spend over $1 billion dollars annually on bottled water that meets consumer expectations for taste, quality and health.[8]

5. Water service providers should be encouraged to assess water needs on a segregated basis, incorporating **a fitness-for-purpose approach that optimises use-specific solutions.** Drinking water consumed directly by Australians is the most valuable, impactful and essential for health and should be regarded as a separate class of water within the broader category of treated water.

6. As a pre-emptive action, the **installation of alternative climate-proof sustainable technologies in towns where water carting is currently occurring, likely to occur, or at high risk of occurring.**

Alternative technologies and sources for drinking water will provide security to remote communities and reduce the environmental impacts of carting.

Attachment: Marketing material for SOURCE Hydropanels.

Individual submission 056

The concepts within the plan focusing on reducing the environmental impact and water reuses by developing water sources not totally reliant on rainfall are reassuring and align with community input into the development of the plan.

The concept of transferring water from Lostock Dam to Glennies Creek Dam and proposed HW pumping stations at Gostwyck on the Paterson River is however very conceptual and could only be considered with the establishment of a sound ecological baseline, which to date is non-existent.

8. IBIS World Bottled Water Manufacturing in Australia - Market Research Report 2021.

The Final report Review of the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009 May 2020 under taken by the Natural resources Commission has highlighted the work required under Part 2 of the plan in developing a sound ecological database and developing management trigger has in fact never been undertaken.

My other concerns with the water transfer between the dams is the potential for the Paterson River to become a cold drain which in turn impacts fish breeding, ecological condition and the biodiversity of the waters. This is most probable as fresh overtopping's of the dam will be minimized and there is no thermal de-stratification of the dam and the take off point is fixed without a variable height alternative.

This in turn will have an economic impact to the region with a reduction of recreational river users.

Hunter Waters proposed water takeoff points at Gostwyck also share the concern with a lack of ecological baseline data. Running the river consistently at low flow levels will have an impact on the over regional biodiversity and raise the salinity levels within the tidal pools. This will have an adverse economic impact on the existing agricultural and fishing enterprises.

In an environment of trying to sustain ecological values(yet to be determined) and existing/future economic opportunity through diversification in agriculture, the establishment of these takeoff points on a finite water resource is at the best counterintuitive to sound sustainability principles and the Natural Resources Commission review.

Should you wish to discuss my submission please have no hesitation in contacting me directly.

Individual submission 057

Support for a diverse range of rainfall independent strategies – I fully endorse a LHWSP which focuses on a diverse range of rainfall independent strategies to provide a safe and reliable water supply for the region.

Support for HWC's recognition that climate change will greatly influence the way we plan for water security – Recognition that new approaches are needed to secure the region's water supply as we manage an increasing demand for water alongside a changing climate, including the prospect of prolonged droughts and more extreme weather events.

Support for the decision that no new dams should be a part of any LHWSP – Two new dams were included as options assessed to be included as part of the LHWSP. The LHWSP Portfolio Analysis Summary Report and Cost Benefit Analysis (CBA) conducted by Frontier Economics re-enforce, without question, that the new dam options could not be justified economically, financially and for the environmental and social impacts that would result from their construction and operation'.

Support for improved environmental outcomes – Environmental assessments completed for Hunter Water highlighted that the dam options were likely to have devastating effects on many species of threatened flora and fauna in the dam and pipeline areas as well as on downstream aquatic ecosystems, nationally and internationally recognised wetlands and shellfish and tourism industries. Threatened Koala populations and critical koala habitat were identified in the dam areas and platypus at one of the dam option sites.

Support for increased demand management and water conservation – There needs to be ongoing improvements in the areas of demand management and water conservation and efficiency initiatives in LHWSP planning.

Support for Water Sharing between regions – Regional water sharing will result in improved regional system resilience, linking the Upper Hunter, Lower Hunter and Central Coast water systems and will have comparatively low ongoing operating costs.

Support for Desalination as part of the mix of water security options – The mix of permanent and drought response desalination proposed in the Draft LHWSP will secure a safe and reliable permanent supply source while having the capability to be up-scaled as and when required as a drought response and for any increased demand due to population and industrial growth.

Support for continued exploration of ground water sources – The continued search for additional groundwater sources is important to the regions water security, particularly deep-water sources. This water could become a long-term, sustainable source for the region including as a potential managed aquifer recharge scheme.

Support for Potable Re-Use – HWC has another virtually climate independent source it can develop for a safe and reliable water supply. Most notably, a major recycling/indirect potable re-use scheme able to recharge groundwater and surface water storages from much of the 70,000 ML of wastewater generated annually. Indirect and direct potable water reuse offers a potentially significant, relatively drought-proof source of water.

Individual submission 058

Having personally been involved in the community consultation process for the draft LHWSP I would like to applaud Hunter Waters' decision to listen to the community feedback and **NOT** include new dams in the draft LHWSP. Community participates have clearly requested a water plan for the future, one which is environmentally friendly, with good social and economic outcomes for the future, **which did not include any new dams.**

A future water plan which will not be dependent on the impacts of climate change, nor our depleting river systems is a good clear indication Hunter Water is moving towards more sustainable and worldwide trends and listening to the community expectations.

The need to diversify future water plans, with moves towards using more recycled water, desalination, water sharing, decreasing industrial use of potable water and utilizing our existing water resources without bringing in new dams will hugely benefit both the environment and community in both social and economic aspects.

I fully support the draft LHWSP and entrust Hunter Water to ensure the best environmental and sustainable measures are undertaken to ensure the take up of recycling, the least environmental impacts from desalination and the continued best practice water conservation measures. Thank you for the opportunity to be part of the consultation process of the draft LHWSP.

Individual submission 059

I fully endorse the draft LHWSP. In their draft water plan Hunter Water do not propose any more new dams in our region. In part, this is because dams are outdated and no longer considered financially or environmentally sustainable. Numerous studies confirm this.

This is because they are detrimental to downstream aquatic ecosystems and flora and fauna and to wetlands.

What Hunter Water is proposing instead, is that we progress towards diversified rainfall independent strategies that take into account the impact climate change will have on our current vulnerable water supply. I fully support this proposal and all of the proposals the HWC has put forward in the draft water security plan.

Individual submission 060

It is a positive move that Hunter Water have deleted dams from the plan and are progressing towards diversified rainfall independent strategies because of the impacts of climate change on the current vulnerable supply system.

A precious and scarce resource – I support LHWSP's view that water is a precious and scarce resource, that the traditional planning approach for drought including dams carries too much risk and uncertainty.

Effects of climate change – I agree the new approach must take account of the effects of climate change, as articulated by LHWSP: reduced flows in rivers and streams, changing rainfall patterns, higher temperatures and more frequent extreme events including droughts and fires.

No new dams – I support LHWSP's decision not to build new dams. Dams can have a damaging impact on catchment ecosystems, extending all the way to the coast by changing freshwater river flows and impacting plants and animals in terrestrial, freshwater, estuarine and coastal marine ecosystems.

Individual submission 061

It is a positive move that Hunter Water have deleted dams from the plan and are progressing towards diversified rainfall independent strategies because of the impacts of climate change on the current vulnerable supply system.

A precious and scarce resource – I support LHWSP's view that water is a precious and scarce resource, that the traditional planning approach for drought including dams carries too much risk and uncertainty.

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No new dams – I support LHWSP's decision not to build new dams. Dams can have a damaging impact on catchment ecosystems, extending all the way to the coast by changing freshwater river flows and impacting plants and animals in terrestrial, freshwater, estuarine and coastal marine ecosystems.

Individual submission 062

Water is Life. All living things on land need a satisfactory supply of fresh water. For this exercise, all life other than humanity is set aside.

Of the services considered essential for us, water is probably the most important. Most of us would survive with only minor irritation if all medical assistance was not available for a week. Without electricity for a week, most of us would survive although most would think it an intolerable burden. Without potable water for a week, most would probably die.

As potable water and the supply of it is such an essential part of life, and as the Lower Hunter supply is handled by a State Government owned monopoly organisation, the Hunter Water Corporation in the Lower Hunter Valley, it seems reasonable to expect Hunter Water to always be 'ahead of the game'. It appears that this has not been the case in recent years.

And as a State Government owned body the funding of the necessary infrastructure should be funded by the Government, both State and Federal. We all pay taxes to both governments and the infrastructure will of course be government assets. Hunter Water has paid dividends to the State Government which has also been raking in mind-boggling amounts from stamp duty.

There has been no addition to the Lower Hunter potable water supply since the completion of the Grahamstown Dam, some 55 years ago. During that time the area supplied by Hunter Water has seen a considerable increase in industry and population with growth in population exploding at the moment and expected to continue. Although total water consumption has been declining in recent years, this trend is unlikely to continue.

With regard to the funding of the plan, why do we see no mention of any government involvement? We are instead told that, after 2024, 'the proposed actions are likely to increase annual residential customer bills by between $75 and$120'

(a one-off increase of between 6 and 9% for the average customer). Hunter Water needs to better explain the proposed funding and how an annual bill increase can be considered a one-off.

Dependence on rainfall sources is finite and, with climate change here and now, rainfall is less reliable than previously. Reliance on the Hunter – Central Coast pipeline is only increasing the available water supply while including the Central Coast area in the overall customer base. Despite the suggestion that this pipeline maximises the drought resilience of both districts, does this achieve any greater security for either water supply district? It can only 'rob Peter to pay Paul'.

The Security Plan: at a glance, acknowledges "we need to act now".

Further, the community engagement discussions told us we need "up-front investments, as opposed to acting reactively during drought".

Hunter Water now has consumer water saving measures permanently in place. However there is little incentive for consumers to reduce water use. A considerable portion of a consumer's bill are fixed charges which may make up the majority of the customer's bill. Responsibly low water consumption has little financial reward.

To put extra reliance on rainfall sources, be it a new dam, piping water from further afield or harvesting paleo water, is robbing the environment. The scenario of severe drought extending beyond 3 years, as shown in 2.2 and figure 14 of the Plan is appalling. To suggest an emergency desal plant commence operation at 15% of total storage appears grossly irresponsible. It is hoped this is not the intention in this current draft water plan.

With current water consumption of approximately 190 litres per person per day, the suggestion that the 'current system' could provide only about 50 litres per person per day appears to be a failure of responsibility on Hunter Water's and the State government's part. With community members saying they could accept a supply of 100 litres per person per day there would likely be severe civil upheaval and a refusal to comply to a 50 litre daily limit. The 100 litres per person per day should be the minimum ongoing supply during drought in the final water security plan.

A far more reliable solution is to immediately build the long promised Belmont Desalination plant and develop the proposed Walsh Point desal plant to a 'shovel ready' stage. Operating the Belmont plant on a near-ongoing basis should immediately extend the reserves leading up to severe drought conditions. Further, the processing of wastewater to potable standards, thus complementing our traditional water resources should be actively promoted with supporting information from the Western Australian plant.

It seems Hunter Water's and the State government's pockets are too deep or their arms too short to build the Belmont desal plant without hitting up the consumers to fund the plan. Perhaps the Australian public should be offered the opportunity to fund the plant via community ownership with a lease-back arrangement to Hunter Water. At least the plant would be Australian owned, unlike the Sydney desal plant. It could be a win – win situation.

The proposal of building a 'purified recycled water for drinking' demonstration plant is an excellent idea. It would be ideal if such a plant is transportable so it can be displayed throughout the Hunter and further afield. The processing of wastewater from permanent treatment plants which presently discharge to the Hunter River would reduce the nutrient load on the river.

Powering the desal and processing plants requires a good reliable electricity supply but with renewable energy becoming more affordable the cost of supply to the plants should not be a major problem. Perhaps Hunter Water should encourage community owned investment into renewable energy generation and storage with Hunter Water offering an arrangement to buy the power at a mutually beneficial price. We all like a win – win situation and public support could be overwhelming.

Individual submission 063

I support the recommendations outlined in the draft - increased desalination, water sharing, recycling, water conservation.

I note Minster Pavey in her forward recognised that "new approaches are needed" to respond to climate change and the diverse needs of the region. I support Mr Darren Cleary's statement that we need to make better use of what we have, and that the plan for the next 40 years needs to be resilient and sustainable, there needs to be new ways to conserve and recycle water and to recognise the necessity of working with First Nations people and learn about their water values.

The emphasis on reducing water demand, reducing network leaks, recycling water, preparing people for potable recycled water is in line with all of the community feedback from the consultation process.

I participated in some of this process and can testify that there was a very strong preference for water conservation, reuse and recycling.

I note the goals for recycling on p12 of the draft.

"Increasing recycled water use for non-drinking by 1.3 billion litres through new and expanded industrial schemes, more public open space irrigation schemes continuing to explore viable opportunities for recycling in new residential developments."

The plan acknowledges:

p36 climate change projections from global and regional climate models. We recognise that climate change will alter historical patterns of climate and change our climate risks into the future.

The conclusion that the region will need rainfall independent supplies into the future is a sound one. It's acknowledging this fact that HWC has done well to discard any future dam proposals, recognising that dams do not supply a reliable, consistent supply of water in the event of a serious drought.

HWC has responded well to community desires to preserve environmental values and to encourage people to conserve water. In the future, with sufficient education, it will be possible to supply potable recycled water, like many places in Australia and the world already supply.

Water sharing is obviously an important part of future water supply planning. It will be important to regulate how much water is transferred from Lostock to Glennies Creek dams. As Glennies Creek is not in the HWC footprint it will be important to be transparent about how and when water is transferred to Glennies Creek and if there will be caps on how much is transferred.

It's important that HWC work closely with the NSW government on how to make sure recycling water becomes a necessary part of development (domestic and industrial) assessment and approval. This is not solely a HW matter and the NSW government must include water recycling targets in any assessment process.

Individual submission 064

Comments in relation to *"protecting drinking water catchments"*

It is encouraging to see that "*protecting water quality"* is identified as having the highest priority and recognizing this is achieved by *"protecting drinking water catchments"*. Whilst this concept meets the Australian Drinking Water Guidelines of 'catchment to tap' approach in managing drinking water quality at the source, experience has shown Hunter Water has been incapable of protecting the health of the Seaham weir pool since the introduction of the Seaham Weir.

By way of background, our family has lived and farmed along the Seaham weir pool since the late 1B00's. During this time, we have witnessed many changes to the river such as the construction of the weir, changes in river hydrology through manipulation of river levels, acceleration in bank instability and slope, changes in boating activity and the implementation of various river management plans aimed at improving the environmental sustainability of the river system.

Alarmingly, water quality within the Seaham weir pool has been in a constant state of deterioration. Despite being acknowledged by Hunter Water management as accelerating, and after the investment of many hundreds of thousands of dollars on research studies, riparian works, and inter-agency meetings, protecting the catchment will remain fragmented when there is no clear agency responsible for managing the health of the catchment.

Our biggest concern and hesitation in Hunter Water achieving any improvement in water quality hinges on the current involvement of Transport for NSW managing boating activity on the Seaham weir pool. High speed boating activity on the Seaham weir pool remains a significant contributor towards bank destabilization. Various studies have shown boat wash causes bank instability, bank undercutting, increased turbidity, and increased nutrient loads. We are convinced after living on the property for many decades that boat wash is the single largest contributor towards high nutrient loads that is now providing an environment for aquatic weeds to flourish and blue green algae outbreaks to occur more frequently. It makes no sense to allow high speed boating activity to continue when riverbanks are in such a fragile state.

As land managers our view has always been to protect our land, including its water resources, for future generations. This has been fundamental to our farming business spanning many generations. We take a broader view of our role within the catchment and look beyond our boundary fences, consider how our farming activities may impact on water quality and adopt sustainable farming practices.

Our riparian corridor has been fenced to manage stock access for over 20 years, extensive off-stream watering points have, been installed to move stock away from the river and drainage areas, wetlands have been fenced off and extensive revegetation activities have been undertaken to provide alternative shade and sediment entrapment. Many more land managers have taken similar approaches.

Despite huge investment in protecting our land within the catchment, our riverbanks have become so steep that revegetation activities have become impractical. Addressing bank erosion at the bank-water interface with aquatic revegetation activities have also failed due to ongoing boat wash. Future revegetation activities to improve the health of the river will be a waste of time and resources if high speed boating activity is allowed to continue. We will no longer support any investment in the riparian corridor until high speed boating is removed from the Seaham weir pool.

As active participants within our local community, this view is shared by many other land managers. Land use changes over several decades has seen a reduction in livestock numbers along the Seaham weir pool and an estimated 75% of properties with cattle from Seaham Weir to Clarence Town Bridge now fenced to manage livestock access. The ongoing deterioration in water quality from bank instability, as many claim, cannot be attributed to livestock as many banks cannot be accessed or are simply too steep. Destabilisation of banks occurs at the bank-water interface by holding constant river levels with the added pressure from boat wash.

Suggestions from inter-agency meetings to rock amour selective sections of riverbank for the benefit of a few boaters is outrageous and highlights a complete failure by Hunter Water to address water quality concerns. These expensive rehabilitation activities will have no impact on reducing agitation of sediment containing nitrogen and phosphorus from being released into the water column.

The significance of water quality within the Seaham weir pool cannot be underestimated. Grahamstown Dam accounts for 79% of the Hunter's water, with approximately half of the water supplied to the dam being pumped from the Williams River. Impacts on water quality within the Seaham weir pool will have far-reaching impacts on water quality within Grahamstown Dam. If Hunter Water is serious about *"protecting the drinking water catchment"*

high speed boating will need to be removed from the Seaham weir pool and Transport for NSW sidelined as the lead agency responsible for environmental management.

Our suggestion is to amend Hunter Water Regulation 2015 to restrict high speed boating activity along the entire length of the Seaham weir pool. It makes no sense to regulate activities to only 2.5 kilometres upstream of Seaham Weir when all boating activity is excluded from Grahamstown and Chichester Dams to mitigate effects on water quality.

Indeed, many decades have passed since the Healthy Rivers Commission recommended a moratorium on boating activity to improve the health of the Seaham weir pool. Continued ignorance and failure to address boating activity only leaves us skeptical this will remain an aspirational goal.

Comments in relation to *"makes the most of existing resources"*

This statement implies an increased reliance on water extraction from Seaham Weir to deliver water to Grahamstown Dam. We would like to see the significance of the role adjoining land plays within the broader catchment and how management of these areas impacts on water quality.

Our property has extensive drainage channels linked to five floodgates. Levee banks along the river frontage largely prevent water inundation from overtopping banks except in severe flood events. Movement of water flowing through the catchment and parts of our property into the river thereby relies entirely on gravity flow through floodgates. Flows into the Williams River can only occur when river levels are lower than the impounded water level.

During construction of the Seaham Weir an agreement was reached between the then Hunter Water District Water Board and adjoining landholders/farmers to keep farms in production by minimizing water impoundment on properties to less than 5 days as pastured areas cannot survive long periods of water inundation.

Hunter Water's manipulation of river levels to suit water extraction has caused us immense frustration and financial cost as lengthy water impoundment over our property has at times, rendered grazing areas useless. While Hunter Water has an operating licence for water extraction, history has demonstrated Hunter Water is only concerned in acting as a bulk water extractor with total ignorance over environmental impacts on adjoining land.

Any increase in water extraction will continue to have detrimental impacts on our property and our ability to contribute towards broader catchment goals. If Hunter Water promptly removed water held on our property, this would prevent tonnes of soil and dead organic matter with low dissolved oxygen and stagnant water from entering the river. We encourage Hunter Water to take a collaborative approach in integrating adjoining land use with improved water quality objectives.

In summary, unless there is a major shift in focus towards water quality improvements and clear direction from an independent or environmentally focused Government department, then unfortunately the Draft Lower Hunter Water Security Plan will become another document collecting dust on the shelf.

Individual submission 065

The draft Lower Hunter Water Plan and supporting documentation provides a clear and transparent description of the considerations made into the development of proposed water management actions and services.

It is clear that it has been prepared with a dedicated focus of developing a safe, secure and sustainable water supply that meets the needs of the community.

The process undertaken to develop the draft plan has resulted in one that balances competing constraints and presents a sound pathway forward that manages the inherent uncertainties and risks.

Key elements that contributed to this outcome are considered to include: -

- A dedicated team of committed professionals guided and supported by a leadership with a genuine goal of developing a socially responsible and effective water service;
- Open minded planning undertaken with no preconceived solutions;
- Development of a deep understanding of the relevant technical, social and environmental issues;
- Commitment to gaining a deep understanding of the community's, expectations, aspirations and preferences;
- Cooperative approach between relevant organisations (including: Hunter Water, DPIE, Local Government and others);
- An appropriate level of integrated water cycle management considerations and linkages;
- Active consideration of local, regional and inter regional planning initiatives and opportunities;
- Appropriate time and resources provided to undertake the investigation and planning activities;
- Recognition of the various uncertainties and development of approaches that enable sound decision making in the context of those uncertainties;
- Sound technical evaluations.

I support the plan as currently presented.

All those involved in the development of this plan should be proud in the knowledge they have made a significant long-term contribution to the local and broader community.

Individual submission 066

As a landholder on the Williams River weirpool I am profoundly disappointed at the continuing "Yes Minister'" obfuscatory approach being taken by State Government in managing this critical community resource.

In particular, as a priority in this plan, I urgently request that Hunter Water demand that government replace TfNSW (as the primary manager of the Williams River Weirpool waterway) with a more appropriate body – or commissioner.

TfNSW has a direct conflict of interest in this role. Its duty and expertise is the management of transport and maritime activities - not the management of river ecology and water quality. TfNSW isfocussed on satisfying the demands of their primary stakeholders on the Williams weirpool - that is the very small number of high speed powerboat operators who ski and wakeboard on this waterway. It is these same stakeholders who are the biggest cause of ecological and water-quality damage in the weirpool. According to at least three independent and expensive research studies conducted in the last 30 years - powerboating by these few people is the single biggest cause of unhealthy nutrient loading in these waters. This seems to me to be a rather obvious conflict of interest!!!

I hope Hunter Water has the gumption to demand, as part of this plan, that government nominate a new manager for this waterway forthwith.

Individual submission 067

Thank you for the opportunity to comment on the LHWSP.

I am in legal control of two properties adjoining the tidal pool of the Paterson River.

The properties have been owned for approximately forty years. A premium was paid for the properties when ownership used to be sufficient 'licence' to make use of the water. The rules changed and it became necessary to buy the right to use that water. The plan to draw water from an off-take on the Paterson River will again have consequences to the property value.

Of immediate concern is that one property is now part of a Late Estate. The trustee of that estate is responsible for retaining the property's valuation

for beneficiaries. It seems reasonable that another change altering or restricting water usage will affect that valuation and encumber the trustee.

Also, I'm concerned about the effects of the proposed Gostwyk offtake on the salinity levels of the river and the effects it may have on current business activities and pasture production. This concern extends to both the quality of water drawn and that of the water table. If the existing water table is allowed to turn brackish from lack of new fresh water and decreased volume, established pastures and vegetation root systems are going to be exposed to detrimental growing conditions.

Beyond the economic concerns, the natural environment seems to be understated in the proposal. It seems plausible, even inevitable, that an offtake can only have a detrimental influence on crustacean, fish, bird life and native vegetation.

Furthermore, I would be interested in knowing more of the proposal's intention to address and redress the current stakeholders. I would also like to know the steps taken to address the psychological stress the proposal incurs on stakeholders. We can deal with droughts, fires and floods but this type of human induced rapid change to available resources makes it difficult to change quickly enough to retain existing business models.

Individual submission 068

I wish to object strongly to elements of the draft lower hunter water strategy.

I am a 3rd generation vegetable farmer from the pitnacree region [in the tidal pool of the lower hunter river]. We have been farming on our property since 1930and have been irrigating out of the hunter river at pitnacree since then and have grown many crops by aid of irrigation.

We rely on quality water from this water source [being the lowerhunter river unregulated]. The most important issue has been constant flows into the tidal pool by ways of end of system flows or surplus flows from the hunter or paterson rivers from natural rain events or spilling of dams.

This is so important to keep the salinity and the environment of the river healthy.

Any proposal to pipe water from lostock dam to glennies creek dam [thus stopping any spilling of lostock dam] can only degrade the water quality in the tidal pool and any though of a water of take at gostwick would only damage water quality down stream.

There are many farmers in this region reliant on this valuable water source.

Individual submission 069

Just wondering why to make this LHWSP happen you need to increase everyone's water bills? It is unclear in the statement how long the 6/9% increase will run? A one off increase for how long? Surely it won't take forever to pay for it?

I am also wondering why you need to have this increase at all? Hunter Water is a profitable business as you can see from the financial statements. Where are all the profits going if not set aside for major projects?

Businesses set aside money for growth and new equipment etc.

Could please tell me how much money Hunter Water has returned as profits to the state government over the past 15 years?

I think every water rate payer deserves to know this and it should be included in the Plan that has been released.

And if you are a rate payer reading this you should also question where is the money going.

It's a great idea to link the dams but double dipping into everyone's pockets is just wrong.

Individual submission 070

I am supportive of your plan with two areas of concern:

1. **Desalination must be powered by renewable energy.** It is unacceptable that this wasn't made mandatory when the plant received planning approval. I made a submission to the Planning department at the time, which was ignored.

   In NSW the standard is that desalination plants are to be powered by renewable energy. The Kurnell Desalination Plant is powered completely by the Capital Wind Farm. This requirement was specifically stipulated as part of the Minister's Conditions of Approval for the Plant in 2009: see [link provided to aforementioned document] [Condition 2.2a reads "a specified outcome that the desalination plan will be powered by 100% renewable energy, or equivalent."]

   Hunter Water Board claims to be a 'green' company, but the EIS document omits to commit to 100% renewable energy. Hunter Water is falling behind similar organisations in Newcastle. Newcastle Council, the University of Newcastle, Port of Newcastle and even Tomago Aluminium are going to 100% renewables.

   There is no excuse for not conditioning the desalination plants to be 100% powered by renewables. The precedent is there with Sydney's desalination plant. Renewables are much cheaper now than they were in 2009. And Hunter Water as a state body should be doing its bit to meet the carbon neutral target by 2050.

2. **Profits, profits, profits.** Bill increases could be avoided if Hunter Water reinvested its retained earnings into this new infrastructure.

   As you state, your Plan will increase bills. By extension it will also permanently increase Hunter Water's profit and dividends. Why hasn't this fact been transparently shared with the community along with all the funding pathways? It's disingenuous to state that bill increases are the only way of funding this investment. What meaningful consideration has been given to the alternatives, especially funding from the very healthy retained earnings.

Individual submission 071

We OPPOSE "The Draft - Paterson River Off Take Hunter Water Security Plan" because of the effect it will have on our home & our farming properties at Gostwyck Bridge. Our worries include the close proximity of the pumping draw-off site to our home from the noise levels 24 hours per day. The use of the properties for water pipes, power lines, infrastructure and of course the devaluation of our properties.

This proposal was investigated over 30 years ago & was abandoned with the same questions & answers. The high cost of set up & repairs after major flooding, the power costs for pumping for litres gained after water losses within this open system.

Today's issues are also the security of supply for existing irrigators in tidal & non-tidal parts of the river. The effect on the river system environment above the draw off point will be erosion of the river base from higher than normal river flows, and the effect below the draw off point in dry times will be an increase in salinity level because of lower than normal water levels & flow.

Land owners & home owners above the draw off point will be imposed with restrictions because off run off & leaching from fertilizers & chemicals, cow manure, septic tanks etc that will make their way into the river system. All of this will put restrictions & controls over current land use.

Individual submission 072

Where we source it, how we use it and where it goes. Thank you for opening my eyes to this issue. Every little helps, it's part of an awareness first emissions then water;

L'Oréal, for example, has seen how these investments can pay off. In 2015, the cosmetics

maker implemented a water recycling system at its plant in Spain. Today, 100% of the water used for industrial processes is cleaned and recycled so it can be used again [link provided to 'Spain: Burgos, L'Oreal's First waterloop Factory by L'Oreal].

Individual submission 073

My comments relate to the Williams River catchment, along which my family has farmed for over 100 years, and particularly to the stretch below Mill Dam Falls, now ponded by the Seaham Weir. I am particularly concerned with the deteriorating state of the weir pool, including water quality {increasing algal outbreaks} and riverbank erosion.

The Williams, via Seaham Weir, Balickera canal and Grahamstown, provides about 5O% of Newcastle's water supply, so is critical to security of water for the Lower Hunter.

Construction of the barrage across the river at Seaham stopped tidal flows and irreversibly changed the environment along that section of the river. The weir pool is now largely a stagnant pond and the riparian zone is fragile because of the effects of changed water levels on hydrodynamics of the banks. Slumping of banks, erosion and loss of large trees has continued over a period of years.

To the disappointment and frustration of those who love the river and remember it as it was preweir, the riverbank degradation continues, despite numerous studies and reports which have documented the decline, and the consequential effects on water quality in the weir pool, including blue green algae outbreaks.

It is noted that Priority 1 in the Plan is Safe Drinking Water. To quote:

Safe drinking water is our highest priority. We will continue to provide high-quality drinking water for the health and wellbeing of our community and the future prosperity of the region by:

- investing in catchment management and protection to maintain our multiple-barrier approach to supplying safe drinking water.

We will continue to invest in catchment management and catchment protection to ensure we are maintaining a robust multiple-barrier approach ta drinking water quality and are making the most of our existing water resources. We will continue to work collaboratively with landholders and stakeholders to protect water quality in our catchments.

These are noble sentiments. Historically, Hunter Water has supported projects to rehabilitate catchment and riparian vegetation. However, Hunter Water is only a licensed user of the water resource and does not have the overall authority for management of the weir pool. No one agency wants to take responsibility, but Transport for NSW (TfNSW) seems to have default responsibility from the time {decades ago}when Maritime Services controlled the river when it was tidal, pre-weir.

It is completely inappropriate these days for a transport/engineering agency to control an environmentally sensitive water source for a major metropolitan water supply.

Due to the fact that the Williams is a narrow river and thus relatively calm, water skiing was undertaken there before the weir was constructed and Maritime Services (now TfNSW) was in control. Despite the pondage area becoming a domestic water source, speed boats are inexplicably still allowed there, despite evidence that erosion along the riparian zone is exacerbated. TfNSW has never been able to make the logical decision to properly control speed boating and it has even been suggested that some of the riverbanks of this beautiful river be rocked to minimise erosion. So the problem continues due to only a handful of individuals. It has been shown that speed boating adds little to the economy of communities along the weir pool, but the community bears the cost.

Although our property is on the river above Clarence Town, I am aware of past attempts at riverbank revegetation in the speedboat areas which have failed due to destruction by wash from boats.

It seems unlikely that the environment of the weir pool will be safeguarded until an Agency is appointed which understands environmental protection, and can properly coordinate activities in the weir pool area. Until that happens, Hunter Water's control over water quality at one of the "multi-barriers" (i.e. storage phase in the Williams and Grahamstown)will be made much more difficult.

Thanks for the opportunity to comment, but please remove the anachronistic and inappropriate role of TfNSW in management of the Seaham weir pool, and replace it with an Agency or body with overall responsibility for coordination of environmental protection there.

Individual submission 074

Thank you for your "Fountain" special Edition 2021, and the excellent presentation of plan, priorities and data.

It falls short in not considering the water requirements resulting from the probably industrialisation of the Hunter Valley as a consequence of the demise of coal. This concept has the following features:

- Maintaining the now coal-dependent 30,000 population in the valley,
- Maintaining the majority of the existing rail and power grids and their staff
- Tapping into the accelerating world appetite for aluminium and exotic metals.

To underpin the power supply from wind and solar sources, a pumped storage hydroelectricity system will be required, involving upper and lower dams – your domain. The lower dam will probably be an abandoned mine.

I have produced a paper outlining the concept in more detail, I would be happy to provide you with a copy and would be even happier to brief you personally in a 30-minute presentation.

To help you assess the worth of this time, I have enclosed a brief summary of my background, and a Wikipedia description. I hope to hear from you.

Attachment: CV and Wikipedia reference for pumped-storage hydroelectricity.

Individual submission 075

Hi there. I have just looked through the hunter water pamphlet which was delivered yesterday. I have asked my federal member of parliament this question and I will now ask hunter water. Why is there no plans for creating new significant sized water dams? I actually asked a hunter water representative when the last time a new dam was constructed and he told me about an upgrade to the grahamstown dam. I then told him that I had actually asked about construction of a new dam and not an expansion of an existing dam. He then told me that the last dam constructed for the hunter was grahamstown dam which was done in the 1960's. I fully support hunter waters plan to build desalination plants in the region as stated in the pamphlet. But I can't work out why no one is doing anything with any substance about building a complete new dam. My local federal member of parliament told me that there is thousands of potential dams sites and also current dam sites already available but none can be used as they are on private property. This sounds like a weird response. Governments of all sizes have no problem doing mandatory acquisitions of people's property to build new roads and other infrastructure. But with water, our most precious resource, it seems as though no one can be bothered to put the effort in to constructing a new dam. So does hunter water have plans to construct new dams? And if so, what is hunter water actually doing about it? Surely there's been enough time between 1960 and now to do environmental studies on new dam sites so what is actually stopping hunter water and the government. My local council has told me that it is required to change certain areas classification so medium and high density residential developments can be constructed. This means more people which obviously means higher water usage. So what is hunter water's plan for new dam construction?

Individual submission 076

The brochure that was circulated in "The Fountain" titled "The Lower Hunter Water Security Plan – Special Edition".

General

This publication is considered to be quite superficial major issue on discussion – water security for the Lower Hunter. The reasons are outlined below.

Water sourcing / sharing

Water from Lostock is understood to be a one way transfer - so how does that assist the Upper Hunter?

Similarly, the Central Coast's major water supply of Mangrove creek dam is not expected to have any excess water during a prolonged drought as the population of that area is also projected to have grown significantly !

Water Costs

With Tilligra Dam canned some years ago for purely political reasons, the most practical extension to water sourcing for the Lower Hunter's long term security was dealt a significant cost blow. The consequence is that now community will have to pay (heavily) for every litre of water that is created by distillation – the most expensive process to obtain to the potable water.

The costs are not being made public – and I understand why – the news is not good – in fact to the contrary it is very bad news for the consumer: it requires enormous electricity consumption to evaporate every litre of water.

Energy sourcing

With the proposed demise of cheap electricity from coal fired power stations, where is this energy to be sourced from cost effectively in the long term ?

Alternative fuels (solar, wind) are struggling to be cost effective from very high capital costs per kWhr of infrastructure, or from high transmission losses because of their location relative to the demand consumption.

The other alternative, which is more cost effective [nuclear] is unacceptable to the community currently.

The cost impost of this issue is major, but not referenced in this "strategy" brochure.

A real "Strategy" document is released to the public that reflects all the major issues related to our water security:

a. Flow diagrams for each option illustrating where the major infrastructure is required.
b. Power requirements to run each option.
c. Source of power for each option.
d. Capital investments required for each option.
e. Operating costs for each option.
f. NPV over a life of 50 years for each option.
g. Commentary on the ongoing capital investments for each option – to ensure the NPVs are not biassed.
h. A clear demonstration that the results are not Politically expedient, nor politically biassed (as was the Tilligra Dam decision – to our community's detriment).

Appendix III - Organisation submissions

Photography
Image courtesy of iStock.
Irrigation field at sunset, NSW.

Organisation submission 001 – Public Interest Advocacy Centre

Introduction

The Public Interest Advocacy Centre (PIAC) welcomes the opportunity to respond to the Draft Lower Hunter Water Security Plan (the Draft Plan).

PIAC broadly supports the Lower Hunter Water Security Plan, and welcomes the further progress towards fit-for-purpose strategic water planning that reflects community needs and responds to a changing climate.

Overall, the Draft Plan demonstrates clear links between the identified issues the plan must respond to and how the proposed solutions and responses are intended to address them.

Importantly, the Draft Plan transparently outlines how the proposed solutions were decided, what evidence and perspectives were considered, how they were considered, and what priorities and principles were involved in the assessment process.

The Draft Plan provides clear links to the objectives, priorities and principles outlined in the NSW Draft Water Strategy and outlines practical implementation actions under the identified priorities.

These are positive steps towards more effective and transparent planning. PIAC commends the approach taken to develop the plan and broadly supports the responses it outlines.

Having been deeply involved in engagement processes underpinning the development of the Plan, PIAC has queries regarding some of the detailed elements proposed. In the remainder of this submission PIAC provides more detailed comment directly in response to relevant sections of the Draft.

Developing the plan

PIAC commends Hunter Water and the Department of Planning, Industry and Environment (DPIE) on the process of development outlined in the Draft Plan. PIAC has been deeply involved in the development of the Draft Plan and have engaged directly with community stakeholders in the Lower Hunter, as well as Hunter Water, and with the team from DPIE. PIAC also sits on the Community Liaison Group (CLG) convened by Hunter Water and DPIE to help guide the community engagement process and the development of the Draft Plan. The process commenced early and has been methodical, evidence-based and transparent, representing a positive example of how long-term strategic planning, shaped by community-engagement, should be undertaken.

Specifically, PIAC notes the following positive aspects of robust process demonstrated by the Draft Plan:

- The development process is aligned with the overarching strategic framework underpinning Water Planning and policy.
- The development process commenced with the definition of an agreed problem, based on a comprehensive assessment of historic evidence, contemporary experience, and the identification of historic gaps and weaknesses in strategic water planning.
- The development process identified agreed objectives and priorities that would shape the rest of the process, engagement with the community, and how options would be considered and assessed.
- The development process integrated community engagement perspectives at various stages throughout, via a wide range of methods, including input from the CLG to assess how engagement was undertaken and how its results were interpreted and integrated.
- The Community engagement was undertaken with a clear and transparent purpose, ensuring participants understood why their perspectives were being sought, how they

would be used, and what decisions would be made as result. These decisions were then revalidated.

- The development process transparently assessed technical, economic, environmental, social and cultural considerations in the assessment of options, and progressed options presenting an optimal combination of benefits.

This process has been robust and transparent. The transparency of each stage of this process facilitates examination and interrogation of decision making, and further assessment of the specific options proposed. PIAC strongly supports this approach and it should be regarded as an example of how similar planning and policy processes should be undertaken.

PIAC has some queries regarding how preferences of the community and the priorities established to shape the plan have been reflected in some aspects of the proposed responses, specifically:

- How do the community's preferences and the established priorities underpin the proposal to implement a larger, permanent desalination plant at Belmont Point as an early-stage priority in the plan? and,
- How is the community's strong support for purified recycled water for drinking (PRW), and its alignment with the priority to make the most of water resources, reflected in PRW having no concrete role in the plan, despite two separate desalination responses being proposed? and,
- How are both the early implementation of desalination investment and the proposal to progress further 'drought response' desalination at Walsh Point, supported by community preferences that indicate a consistent preference for recycling over desalination?

The Draft Plan does not appear to address these questions in detail. PIAC is concerned the proposed prioritisation for both permanent desalination and drought response desalination over PRW are not clearly supported by the process. PIAC recommends DPIE and Hunter Water provide more detailed explanation as to why PRW was not prioritised over either desalination option. PIAC further recommends that DPIE and Hunter Water develop more concrete steps to implement PRW, building on established community preferences.

Anecdotally, there is a perception of community resistance to recycling, and that implementation of PRW may be politically problematic. There are a number of instances where attempts to implement PRW in Australian communities has failed after eliciting significant community opposition. PIAC considers experience of failed attempts to introduce PRW reflect rushed and poorly handled processes, and a resultant politicisation and media hype, rather than entrenched issues with PRW. The engagement process for the Plan consistently showed overwhelming support for PRW and a consistent preference for it over desalination. PIAC considers this demonstrates there is no entrenched resistance to PRW, and existing community support in the Lower Hunter provides a foundation for earlier implementation if handled appropriately.

It is also relevant to note that current desalination practices have near identical perceived risks to PRW. Desalination plants, such as the Belmont point plant proposed in the Draft, draw sea-water from areas which treated wastewater is discharged into, and reinject treated water directly into the system. Despite these similarities there has been little assumed community resistance to desalination on the basis of water quality, and very little engagement or consultation was undertaken to build community support prior to implementation of desalination.

PIAC contends the process of engagement and assessment for the Draft Plan conceptually demonstrated community support for PRW, and indicated that PRW is a specific priority for the Lower Hunter. Technical and economic assessments of options, as well as the priority to extend the resilience of existing water resources to prolonged drought also appear to recommend PRW be prioritised over desalination.

Priority 1: Safe drinking water

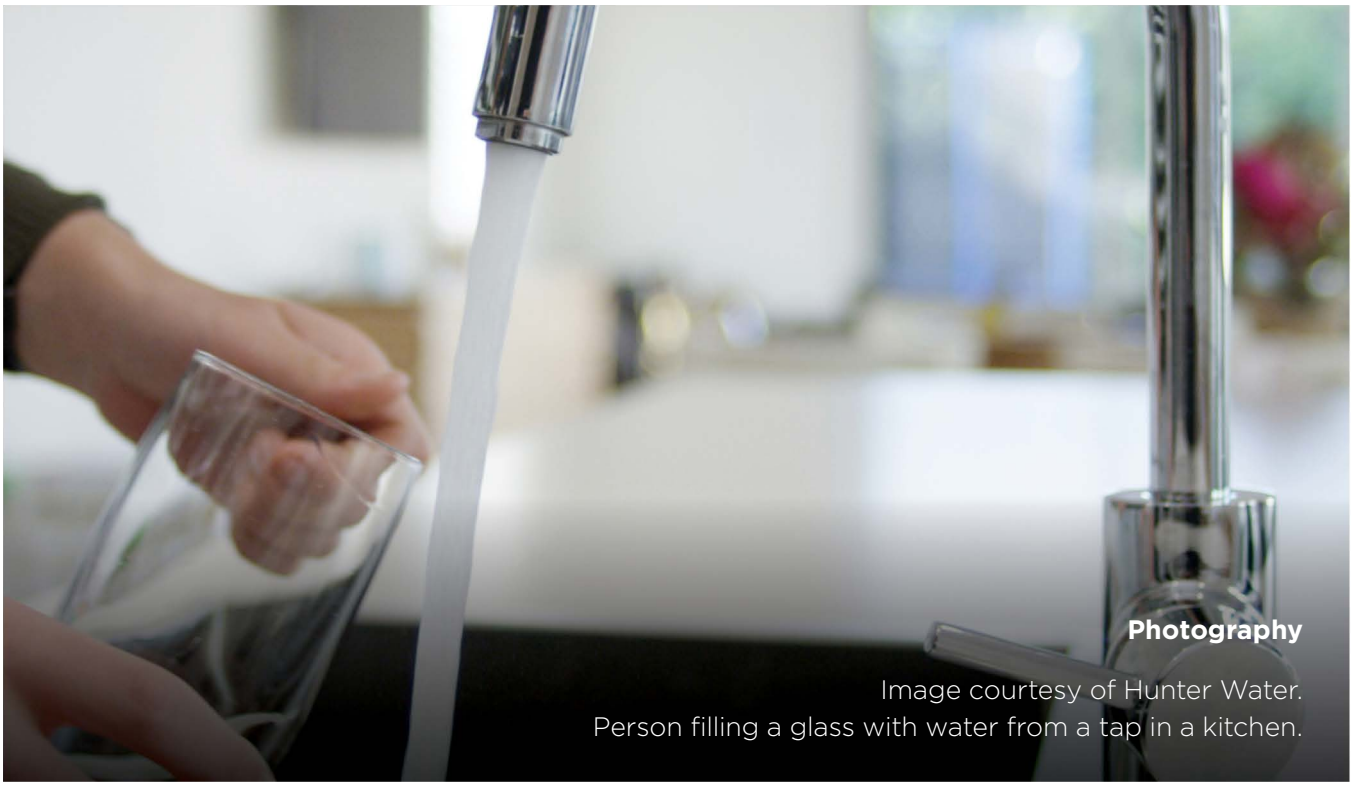
PIAC supports the prioritisation of water quality and health for the Lower Hunter Water Security Plan. These priorities fulfil the role of the Plan's objectives, representing what it seeks to achieve. It is arguable that 'safe' drinking water does not adequately reflect the intent of this priority, on the basis that drinking water may be safe to drink while being substantially lower quality than expected or desired by the community. PIAC recommends that 'priority 1' is amended to refer to 'healthy, high-quality drinking water'.

PIAC supports the actions identified to deliver this priority, and also supports the assigned agencies responsible for these actions.

Priority 2: Making the most of what we've got

PIAC supports this priority as both a reflection of strongly expressed community preferences and a crucial response to a changing climate.

The setting of specific goals and targets for water use, conservation and leakage is a welcome step that should be adopted consistently across all strategic water plans and supported through water regulation. PIAC agrees that per-person and per-household targets for water use must be set transparently and be based upon the minimum sustainable system yield. This step is a vital tool for the identification of risks, as well as an important step for addressing them. Relating system leakage to a per-connection equivalent also creates a transparent link that enables more efficient and co-ordinated responses to water conservation and sustainable use. PIAC commends this approach and notes that it presents a range of opportunities to align with pricing and regulatory reform.



Photography

Image courtesy of Hunter Water.
Person filling a glass with water from a tap in a kitchen.

Organisation submission 002 – Urban Design Institute of Australia

The Urban Development Institute of Australia NSW (UDIA) is the peak industry body representing the leading participants in urban development in NSW. Our more than 500 member companies span all facets of the industry from developers, consultants, local government and state agencies and we are proud to count Hunter Water Corporation (HWC or Hunter Water) as a valued member. UDIA advocates for the creation of Liveable, Affordable and Connected Smart Cities.

UDIA welcomes this opportunity to comment on the Draft Lower Hunter Water Security Plan (draft Plan) currently on exhibition. We are pleased to note HWC's commitment to support growth and withstand drought by increasing the diversity of the water system and emphasising adaptability for the future.

The Hunter region has benefitted from HWC's efforts to engage with its customers and understand their needs. In drafting the Lower Hunter Water Security Plan, HWC has undertaken a significant workplan to educate the community and incorporate their feedback. Those efforts are consistent with HWC's track record of community engagement and leadership as evidenced by their "Love Water" campaign to reduce household water usage, as well as the comprehensive Growth Plan which is relied upon by state and local government and industry to effectively plan for and deliver development sites that supply new jobs and housing.

As a result of its consultation process, HWC has produced a sound draft Plan. UDIA is pleased to offer our general support for the draft Lower Hunter Water Security Plan and its Priorities. Our submission offers comments and recommendations for consideration, summarised here:

1. **Provide more transparency on costs for all water users (residential, commercial and industrial) and any additional costs on new development.**
2. **Continue investigation of groundwater recharge using recycled water.**
3. **Engage with industry on any possibility for recycled water provision in new estates to ensure any system meets the needs of a new community and does not inadvertently add unnecessary costs.**
4. **Explore opportunities to include both Central Coast Council and MidCoast Council areas in the integrated water system.**
5. **Engage closely with the development sector on any initiatives to align water planning with integrated water and land use planning and wherever development will play a role in ensuring we have green spaces and healthy waterways in the creation of liveable communities.**

Comments and Recommendations

UDIA appreciates Hunter Water's constructive engagement with its development industry customers which has led to a cooperative working relationship in recent years. Hunter Water's professional staff have worked in good faith to address industry concerns with HWC's operations and policies. Their efforts to understand the unique challenges faced by the developer customer have resulted in improvements toward more efficient delivery of water services for new housing, including HWC's successful Funding of Growth (FoG) policy.

The Hunter is growing quickly, and Hunter Water is a leader in planning for the region's good growth. HWC's FoG policy has been transformative in unlocking new housing supply with water and sewer infrastructure to support increasing demand. At our recent quarterly stakeholder engagement meeting, HWC staff reported they recorded 5,800 new connections in the year ending June 2021, in contrast to 3,300 connections in previous years. All indications are that this upward trend will continue

and so we applaud the draft Plan's emphasis on adaptability to accommodate further growth.

However, we are concerned that the draft Plan is not transparent about how HWC intends to fund the proposal. UDIA agrees that the cost of providing a safe and secure water system should be shared across the community, while maintaining pension rebates and hardship support measures. HWC has estimated that implementing the draft Plan would cost about $100 per annum per user but has been unable to answer in detail how it will fund the works.

The NSW Government is developing a series of infrastructure contributions reforms, including the recommendation to reintroduce Development Servicing Plans (DSPs), which would be levied on the development of new housing. UDIA opposes the reintroduction of DSPs and has issued a Policy Issue Paper on the topic, which can be accessed at this link. HWC has suggested in discussions that DSPs could be used to fund some of the works outlined in the draft Plan, but such decisions will be made in the future. As a result, it is not clear what additional costs HWC may seek to impose on new development to support the Plan. UDIA will continue to engage with HWC as the discussions around possible DSPs evolve. In the meantime, we recommend:

Recommendation 1: HWC should provide more transparency on costs for all water users (residential, commercial and industrial) and any additional costs on new development.

In general, UDIA agrees with the four strategic priorities of the draft Plan. We offer comments and recommendations under each heading:

Priority 1 – Safe drinking water

The provision of high-quality drinking water is fundamental to new housing and employment areas. Investment in catchment management and protection and maintaining a multiple-barrier approach to drinking water supply is supported.

Priority 2 – Making the most of what we've got

Managing and maximising existing resources before investing in new resources ensures costs are also manageable.

UDIA supports the practices of conserving water, using recycled water where feasible and the interconnection of the regional water systems.

Recommendation 2: HWC should continue to investigate groundwater recharge using recycled water.

We support the use of recycled water for irrigation at sporting fields and parks. We appreciate that HWC intends to "work together with councils and developers to continue to explore viable recycling opportunities for new residential developments". The approach of seeking industry input affords Hunter Water with a better understanding of the practical effects of a proposed policy that will impact the policy's success as well as the delivery of housing and jobs in the Hunter Water service area. Experience with HWC's previous residential recycled water projects showed limited water conservation value, while it added significant costs for each new home lot. Any future consideration for residential recycled water needs to include a robust cost-benefit analysis.

Recommendation 3: It is critical to engage with industry on any possibility for recycled water provision in new estates, to ensure any system meets the needs of a new community and does not inadvertently add unnecessary costs.

It is pleasing to see the continued water sharing arrangement with Central Coast Council. UDIA agrees with the concept of interconnecting adjacent regional water systems to effectively share resources and improve water security as much as possible for all areas.

Recommendation 4: HWC should continue to explore opportunities to include both Central Coast Council and MidCoast Council areas in the integrated water system.

Priority 3 – Improving the resilience of the system

Promoting resilience of the existing water system will cushion the region from shocks such as drought and will support future growth.

We support continued research and development to identify new ways to reduce water demand and increase supply, including exploring options such as purified recycled water for drinking.

Priority 4 – Water for life

UDIA supports the protection and restoration of our environment and ecosystem. It is acknowledged that additional resources should not only be the most cost effective but also have the least impact on our environment and ecosystems.

We appreciate the emphasis on identifying opportunities to align water planning with the integrated water and land use planning initiatives throughout the Hunter. UDIA agrees that coordinated planning has the potential to integrate water use more effectively and efficiently in new communities to the benefit of residents and the wider region.

HWC undertook a pilot project earlier this year, 'Holistic Development Servicing for Growth Areas', examining potential for integrated water and land use planning in the New England Highway corridor. We were grateful to participate in workshops on that project. However, our involvement in the workshops should not be taken as endorsement of the final reports' recommendations. We caution that new requirements on development are likely to increase the cost of housing, and we appreciate that the reports acknowledged that fact. We urge HWC to continue close engagement with industry on any further initiatives.

Recommendation 5: HWC should continue to engage closely with the development sector on any opportunities for integrated water and land use planning and wherever development will play a role in ensuring we have green spaces and healthy waterways in the creation of liveable communities.

Conclusion

We congratulate Hunter Water Corporation on a comprehensive and considered Draft Lower Hunter Water Security Plan that will support the state's fastest growing region. Should you have any questions or wish to discuss our submission in more detail, please contact.

Photography
Image courtesy of iStock.
Hilly countryside and Lostock Dam in the Upper Hunter Region of NSW, Australia.

Organisation submission 003 – Yasmin Cately MP

The proposed plan has my support and I commend Hunter Water for taking a proactive approach to addressing future water shortages in our region.

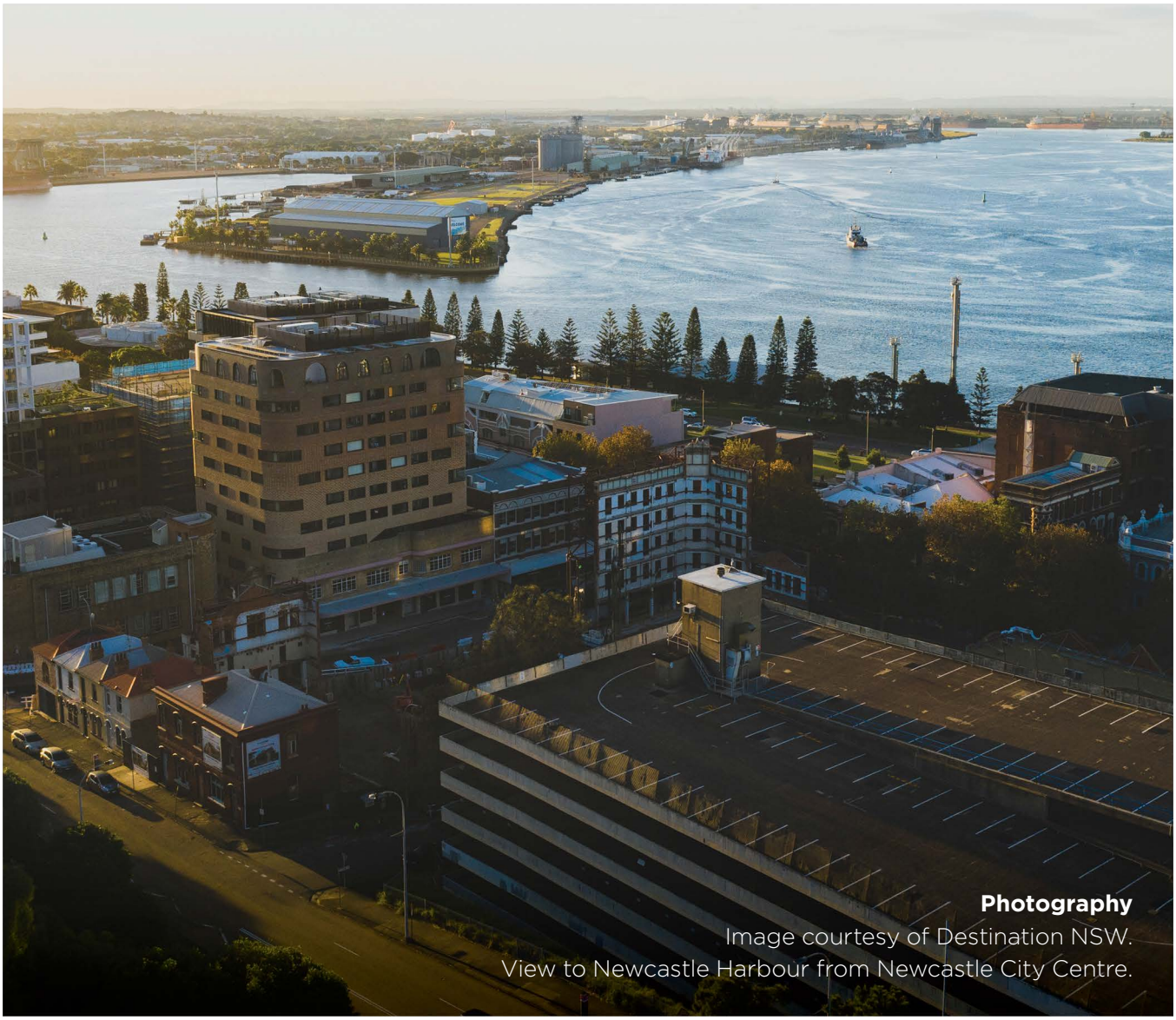
The bringing forth of the planned desalination plant at Belmont is welcome news but I must raise one concern about this plan, the impact on water prices.

Water is such a crucial community commodity and while the Belmont Desalination Plant is an important infrastructure project it cannot come at the cost of higher water prices for our community.

When water prices rise it has a devastating impact on many low socio-economic households and this must be taken under consideration.

If the investment in this infrastructure can be balanced against putting unnecessary pressure on water prices than it will be a great asset for our community in the decades ahead.

I reiterate my support for the Lower Hunter Water Security Plan and the work Hunter Water is doing to address long term water security.



Photography
Image courtesy of Destination NSW.
View to Newcastle Harbour from Newcastle City Centre.

Organisation submission 004 – Hunter Environment Lobby

Hunter Environment Lobby Inc. (HEL) is a regional community-based environmental organization that has been active for well over 25 years on the issues of environmental degradation, species and habitat loss, and climate change.

HEL has submitted comments to all major planning developments within the Greater Hunter Region for much of that time and we have attended and submitted at Planning Assessment Commissions and Independent Planning Commissions regularly on the issues of impacts on biodiversity, water, air and social impacts.

The purpose of water sharing plans is to prescribe how water is managed, firstly to provide for the environment and also to support social and economic outcomes. HEL fully endorses a LHWSP which focuses on a diverse range of rainfall independent strategies.

After the axing of Tillegra Dam in 2010, Hunter Water Corporation (HWC) were warned of the need to diversify its supply options. This is because up to 94% of all water supplied by HWC comes from the Williams River Catchment, so there was, and still is, an over-reliance on this catchment and rainfall dependent systems.

The fact that HWC has acknowledged the need for diversification and has accepted the community consultation process outcomes is welcomed. HEL recommends the introduction of valuing water as a precious and scarce resource and setting prices accordingly.

We believe that a unique 2014 report on the trends and insights of water sector professionals about their own industry indicated the three most important things that could be done to meet water supply requirements are: (1) using innovative sources such as recycling and stormwater harvesting (2) lowering the demand for water through education and (3) raising the price of water to reflect its scarcity.

We also believe that incentivization programs need to be implemented to encourage the use of recycled and storm water for manufacturing/ processing and to discourage the use of potable water. HEL supports HWC's recognition that climate change will greatly influence the way we plan for water security.

We know that the recent drought highlighted many vulnerabilities in metropolitan and regional water services in NSW. These vulnerabilities indicate that we need much better long-term strategic planning and to fundamentally rethink and improve how we use and manage water.

HEL also believes that we must plan and prepare for a future where we may need to deal with more extreme and more frequent droughts and floods than we have experienced in the past. This means that we need to reduce our reliance on traditional climate dependent water sources to supply our towns, cities and industry, while protecting the communities and natural environments sustained by our waterways.

The Draft LHWSP correctly says: "Dams rely on rainfall and don't ensure an ongoing supply of water in a long and severe drought, compared to the alternative options considered in the plan." The current supply system is highly dependent on rainfall, sourced from the Williams River catchment.

In some years, up to 94% of our water comes from this source. This leaves the reliability and safety of the water supply system highly vulnerable to drought and water quality issues due to the lack of diversity of climate independent water sources.

The unreliability of the Williams River catchment was highlighted in 2019 when only just over 3% of the average annual allowance of water was able to be transferred from Seaham Weir to Grahamstown Dam. During this period, the storage level of Grahamstown Dam dropped

from 82% to 55%. In the six years from January 2015 to 12th November 2020, an average of only 53% of the average annual pumping allowance was transferred from the Williams River to Grahamstown Dam.

The reduction of dependency on the Williams River Catchment water source should result in net positive environmental benefits to the Williams River catchment, the river's health and the survival of the diverse range of threatened and endangered flora and fauna species of the area, as well as the aquatic river and estuarine environments.

By reducing the water taken from the river system, there will be an increased water availability for improved survival of ecosystems and aquatic biodiversity, healthier wetlands and reduced frequency of algal blooms, particularly during periods of low flows and drought.

Environmental assessments completed for HWC during the options evaluation process for new dams in the catchment, highlighted that new dam options were likely to have devastating effects on many species of threatened flora and fauna in the dam and pipeline areas as well as on downstream aquatic ecosystems, industries and nationally and internationally recognised wetlands.

Threatened Koala populations and critical koala habitat were identified in the dam areas and platypus at one of the dam option sites. HEL sees Desalination as part of the mix of water security options – however extreme care must be used in decision making around this. We have seen the calamitous disbenefits that arise from privatization of this service nearby in Sydney and cost to residents of letting the provider of desalination decide how long their product must be purchased by tax payers.

Desalination costs are also a disbenefit when examining the issues more deeply – and unless there are 100% renewable power inputs, HEL could not support this way of ensuring water security for those of us in the Hunter.

Hunter Water has a virtually climate independent source it can develop for a safe and reliable water supply. Most notably, a major recycling/ indirect potable re-use scheme able to recharge existing groundwater and surface water storages from much of the 70,000 ML of wastewater generated annually.

As part of the LHWSP to increase regional water sharing, it is planned to connect into this system by accessing water from the Paterson River sourced from Lostock Dam and piping it either to Maitland or to Grahamstown Dam.

If connected to the Maitland system this will result in an increased resilience of the Lower Hunter's water supply system by providing a new independent water supply source to Hunter Water.

Regional water sharing will result in improved regional system resilience, linking the Upper Hunter, Lower Hunter and Central Coast water systems and will have comparatively low ongoing operating costs. HEL supports continued investigations of stormwater harvesting. Currently HWC operate and maintain about 92 km of storm water drains in the Lower Hunter which is all discharged into waterways or the ocean. None is currently collected, treated and added to the supply network. Stormwater has an important role to play in supplying water that is not of potable standards for irrigation of public parks and gardens as well as sporting facilities and agricultural use.

Localised harvesting projects for use in supplying non potable water for irrigation of public parks and gardens as well as sporting facilities and agricultural use should be prioritised. HEL supports continued groundwater development.

The continued investigation into the deep water Tomago paleochannel as well as the search for additional groundwater sources needs to be ongoing. Groundwater, when used sustainably, could become a long-term, sustainable source for the region and could incorporate an aquifer recharge scheme. Aquifer recharge schemes enable suitable aquifers to store surplus surface and treated recycled water to be used in times of drought while also maintaining critical groundwater levels benefiting groundwater dependent ecosystems and reducing the threat of seawater ingress in coastal groundwater supplies.

HEL endorses the Draft LHWSP as presented, which focuses on a diverse range of rainfall independent strategies to provide a secure and reliable water supply for the region and generate the highest net benefit to the community.

We also strongly support the decision that "the dam options could not be justified economically, financially and for the environmental and social impacts that would result from their construction and operation."

During rejection of the ill-fated Tillegra Dam proposal of 2010, HWC were warned by the Government that the dam proposal could result in a "lack of diversity and increased vulnerability in the supply system to the effects of reduced rainfall as a result of climate change."

This Draft LHWSP is final recognition by HWC that by relying too heavily on the climate dependent Williams River Catchment (which supplies up to 94% of water consumed), has resulted in a dramatic drop in the system yield of 38% in the last 14 years, thereby threatening the security of the region's water supply. Now is the time to act to ensure we reverse this alarming decline by implementing all the actions outlined in the Draft LHWSP, as well as continuing to pursue innovative rainfall independent water practices.

Photography
Image courtesy of Hunter Water.
Young family washing car.

Organisation submission 005 – Committee for the Hunter

About the Committee for the Hunter

The Committee is an independent and inclusive champion for the people of the Greater Hunter and their enterprises. Representing over 60 organisations including some of the largest employers and institutions in the region, we provide a unified voice for the Hunter. Our members are drawn from the private and community sectors and all three levels of government. We come together with a shared interest in building a sustainable, prosperous and equitable future for our region. The Committee delivers on that promise through advocacy, thought leadership and providing a platform for collaborative action.

More information about the Committee can be found at www.hunter.org.au.

Access to secure, resilient and sustainable water is critical to the Hunter's economic development and community wellbeing.

Water is essential for communities, business, industry, amenity and the environment. As the Committee engages with regional stakeholders on the growth and development of region, including accommodating population and economic development, access to quality, affordable and reliable water supplies is mostly assumed and taken for granted. That is until we experience the risk of water shortages and restrictions requiring trade-offs between users and uses.

A changing climate means the Hunter needs a more strategic and long term plan for water security.

The region has been through drought in the past. However, we are observing droughts that are longer and more severe than in the past. Projections indicate we will experience a more variable climate into the future and an increase in the frequency and intensity of extreme weather events including drought and floods. Given the reliance of Hunter Water catchments and water supply on rainfall, our region's water system is particularly vulnerable to the impacts of climate change.

- Hunter Water has acknowledged climate risk in the draft Plan by underpinning its development and recommendations with detailed, evidence and data-based climate modelling.
- The long term approach adopted in the draft Plan for the management of the water system and assets has enabled Hunter Water to engage with communities and clients on all available options, avoiding urgent decisions, extreme trade-offs and expensive capital solutions at the point of crisis.

Engaging communities on priorities for water management results in better buy in to decisions, including on contentious issues common to water providers, and fosters shared responsibility for delivery.

Hunter Water has prioritised and invested in comprehensive community engagement to inform the draft Plan.

- Pending submissions to the draft Plan, the reception to priorities in the draft Plan has been positive among the community, business and in media because of these efforts.
- The outcomes of engagement have demonstrated that the Hunter community has and continues to accept their responsibility to conserve water which serves to defer, and even prevent capital solutions to secure water supply.

- The use of recycled water in drinking water has proved to be a contentious issue in some communities around Australia. The recommendation for a demonstration plant in the region accompanied by education is a sensible approach to identify and address concerns and foster community acceptance for this important option in the water management toolkit.
- The Committee supports the proposal for the Belmont desalinisation plant as part of a portfolio of other actions, including water conservation and recycling. We note that this decision has not been made during a time of critical water shortages when there is limited capacity to pursue other non-capital options to extend water supply. A new water supply independent of rainfall is necessary given the reliance of Hunter water catchments on rainfall, the region's exposure to drought in a changing climate and our growing population and economy.
- Environmental impacts in the construction and operation of the desalinisation plant must be minimised, reflecting community preferences and to meet Hunter Water's ESG obligations and NSW Net Zero 2050. Hunter Water should commit to purchasing green energy or carbon offsets to mitigate greenhouse gas emissions from operating the plant in the final Plan.

Four strategic priorities – based on community feedback and technical analysis – have been identified to achieve the goals and objectives of the draft Plan.

These include: safe drinking water; making the most of what we've got; improving the resilience of the system; and water for life.

- The focus on improving knowledge sharing and increasing the involvement of First Nations people in strategic water planning is welcome. There is further scope to increase the involvement of the Hunter's Indigenous community in water management practices to benefit from the tens of thousands of years of culture and tradition and caring for country, and provide opportunities for economic development.
- The protection of water quality at the source is vital. We encourage Hunter Water to continue to engage with councils across the catchment to achieve this outcome and explore opportunities to improve community access to recreation and amenity, and sensible options for economic development.
- Hunter Water has recognised in the draft Plan that water is essential to liveable communities. The NSW government has set a benchmark for contemporary approaches to integrated land use, water planning and governance in Sydney through the Green Grid. Government has also committed to circular economy in the development of Western Sydney, which is being incorporated in Sydney Water's planning and investment in water systems. As Australia's largest regional economy and servicing a population of over one million, such focus and investment would deliver significant benefits to the State and people if applied in the Hunter.

Thank you for the opportunity to provide feedback on the draft Lower Hunter Water Security Plan. If you would like to discuss this submission please contact us.

Organisation submission 006 – Business Hunter

Thank you for the opportunity to submit feedback to Hunter Water *Lower Hunter Water Security Plan* (the Plan), currently on public exhibition. Business Hunter commends the Hunter Water team who brought the Plan together for consideration.

Business Hunter represents more than 3,500 members across our Hunter network and the broader Business NSW membership. We represent more than 80 of the Hunter's leading businesses as Hunter Firsts.

As part of the development of our submission, Business Hunter conducted two formal consultation sessions which were attended by Hunter Water staff and a total of 64 attendees across both sessions. Our submission draws on:

- Issues raised by the business community at these sessions
- Direct input from individuals of the business and local government
- Research and analysis conducted by Policy and Public Affairs Manager and Chief Executive Officer, Business Hunter.

Overall, Business Hunter supports the initiatives laid out in the Plan and looks forward to continuing to work with Hunter Water to ensure business interests, incentives and opportunities to engage with the Hunter Water team throughout the implementation of the Plan are sustained.

Our submission provides several recommendations we believe will support the effective implementation of the Plan over the projected forecast period, being forty (40) years. It is on this basis of an extensive look ahead period, and the variables in play particularly around responses to the realised climate changes, that our recommendations are so important.

Recommendation One: Leave nothing off the table. Restore Hunter Water's capacity to investigate and scope new reservoirs and dams for water capture over the Plan's 40 year look ahead.

Business Hunter accepts that, currently, the cost to scope, plan and execute the infrastructure required to support new dam catchments in the Lower Hunter catchment area is relatively prohibitive by comparison to other technologies such as desalination, water recycling and expansion of consumer water saving incentives. We believe however that omitting this option as a possibility across the 40 year look ahead presents risks to our region's water security.

We acknowledge that dam reserves, particularly establishing new ones, can be contentious in the community and we support other methods of water conservation, quality attainment and capture in the immediate sense, based on some of the other proposals laid out in the Plan (Glennies to Lostock particularly is an intelligent initiative to drive efficiencies in both reservoirs).

Feedback during consultation highlights that the two primary catchment dams in the Lower Hunter are both either side of 100 years of age, making new dam investment stack up to the investment required for desalination plant construction, operation and maintenance over a similar lifecycle. Water treatment costs per millions of litres at the former is also competitive to that same process at a desalination treatment facility.

The Plan highlights adverse climate circumstances only increasing over the period ahead, and the United Nations Intergovernmental Panel on Climate Change estimates Australia's base temperature is likely to have increased by 2.5 degrees Celsius by that time. Rainfall patterns and drought conditions will, by the Plan's own account of the pressures to adapt our water security approach (p19), increase in severity and impact on livelihoods.

By allowing the prospect on new catchment infrastructure, such as dams, to remain on the table for review by the Hunter Water's Community Consultative Committee at regular intervals, we are enabling our region to be responsive to the realisation of climate change projections, and ensuring we have the opportunities to capitalise on rainfalls and water catchment through activating the right infrastructure at the right time. Many of the issues raised in the table on Page 19 of the Plan could be resolved by new reservoir/dam infrastructure:

- reduced flows in rivers and streams
- changing rainfall patterns
- higher temperatures and more hot days
- population growth
- community expectations
- changing industry needs
- town and city water supplies
- water for agriculture and industry.

Recommendation Two: Make the most of what we have and improve resilience in the system. Expand this priority by implementing evaporation mitigation strategies across existing catchments and reservoirs.

Hunter Water has previously stated that the Lower Hunter's dams experience high levels of evaporation, making supply challenging in times of high and sustained drought. If we are to truly and simply make the most of what we have and improve the resilience of our existing system.

Business Hunter urges Hunter Water to revise the Plan to include detailed commitment to implementing evaporation mitigation techniques for our dam infrastructure.

The initiative outlined in Hunter Water's 2018 research into floating solar panels for Grahamstown Dam appears to be a viable opportunity to expanding renewable energy technology, industry and business in the Hunter, with the dual-purpose of conserving supply at this facility. There is no reference or fact sheet on evaporation mitigation contained in the Plan and we would welcome further detail on this and other opportunities to address this high waste risk for our region as part of a comprehensive approach to conservation.

Recommendation Three: Boost incentives for consumption reduction, adoption of water recycling practices and leakage reduction for business and industry.

We know that small to medium and large/major business users account for majority of the Lower Hunter's water usage. Business Hunter also acknowledges the efforts made by the Hunter Water team to inspire business and industry water conservation initiatives included in the Love Water and Smart Water Choices campaigns. Our members have the appetite to operate businesses more sustainably. Yet the current economic climate and the uncertainty of the pandemic impacts for the years ahead makes Smart Water Choices link closely to smart financial choices. Business Hunter would relish the opportunity to work with Hunter Water more closely to develop a robust, long-term incentive package for businesses of all sizes to adapt business practices to smart, sustainable and financially viable water choices.

Conclusion

Business Hunter believes there are many opportunities for the business community to aid the implementation of the final Plan. We welcome further discussion with the team, as well as the continuation of the Hunter Water Community Consultative Committee to oversee this implementation where Business Hunter can contribute to the business focus of the final Strategy.

Organisation submission 007 – CB Alexander Foundation

The CB Alexander Foundation is the custodian of the Tocal property home to the State's only agricultural college. The Tocal farm operation is the heart of the College's operation. This submission by the CB Alexander Foundation (the Foundation) is in response to the draft Lower Hunter Water Security Plan that is currently on public exhibition.

Tocal College is made up of 2,200 hectares of farming enterprises including 650 head of beef cattle, a 320-cow dairy, 100 Australian Stock horse breeding enterprise, 92,000 free-range egg production, Honeybees, 300 Dohne sheep flock and cropping/hay making. The farming enterprises use irrigation schedules to ensure efficient water use.

Low water levels can have significant impact on all of the farming enterprises but in particular for the Tocal Dairy which currently runs 320 milking cows with plans to increase this amount in the next 5 years to maintain a national average sized milking herd for educational purposes.

The Dairy contains 180 hectares of irrigation with five travelling irrigators and three centre pivots which requires a reliable water source to remain viable. Further upgrades of irrigation are also currently underway.

If the Lower Hunter Water Security Plan is approved there would be additional restrictions placed on the Foundation's farming enterprises, in particular the Dairy, which could have dire effects during periods of drought. To date the business has been built on current water availability with no cease to pump provisions. Any change will severely impact the future of the farm and education of students.

Considerable funding has been provided from both the NSW Government and through private donations and investment to build and maintain the Tocal farming enterprises up to the industry standards. Lack of water security will compromise Tocal's capability to provide education, research and information services to the State's agricultural industries.

Photography
Image courtesy of iStock.
Plant sprouts in field.

Organisation submission 008 – St Michael's Nelson Bay

Introduction

We strongly support the draft Lower Hunter Security Plan (LHWSP), which dispenses with the building of new dams and instead relies on a diverse range of rainfall independent strategies to provide for current and future water needs of the region.

We acknowledge that Hunter Water has consulted with the community and has considered community concerns and preferences, and environmental assessments, in formulating the draft plan.

A precious and scarce resource

We support LHWSP's view that water is a precious and scarce resource, that the traditional planning approach for drought including dams carries too much risk and uncertainty.

Effects of climate change

We agree the new approach must take account of the effects of climate change, as articulated by LHWSP: reduced flows in rivers and streams, changing rainfall patterns, higher temperatures and more frequent extreme events including droughts and fires.

No new dams

We support LHWSP's decision not to build new dams. Dams can have a damaging impact on catchment ecosystems, extending all the way to the coast by changing freshwater river flows and impacting plants and animals in terrestrial, freshwater, estuarine and coastal marine ecosystems.

Further, because they are reliant on rainfall, dams become an unreliable source of water supply during long and severe droughts, underscoring the need to apply rainfall independent strategies such as recycling, stormwater harvesting and desalination.

WATER MANAGEMENT OPTIONS

Catchment management

We agree that in prioritising safe drinking water Hunter Water in partnership with the NSW Government, should continue to invest in catchment management and catchment protection.

Water conservation and water loss management

We support the plan's water conservation program based on maintaining and building on the behaviour change and efficiency gains achieved in the 2019–20 drought, notably the 10-year plan to reduce total customer drinking water use by 17% and the five-year plan to reduce connection leakage as well as water loss from leaks and breaks in the distribution network.

Recycling

We support re-using highly treated wastewater from treatment plants for non-drinking purposes including industrial processes, irrigation of green spaces, residential use (such as for toilet flushing, garden watering and clothes washing), agricultural use and operational use at Hunter Water's treatment plants.

Purified recycled water

Community feedback from surveys indicates a majority supports consideration of adding purified recycled water to existing water sources, and concept has our full support. It reduces demand on drinking water supplies and reduces the volume of wastewater discharged to waterways. It is essential that the NSW Government provide all the necessary legislative and regulatory pathways required to enable a safe and efficient transition to the use of treated wastewater for storage and aquifer recharge, as well as for direct potable re-use.

Water sharing between regions

We support the use of technology to make better use of existing storages for water sharing, for example the development of a final business case for the two-way pipeline between Glennies Creek Dam and Lostock Dam, enabling water to be moved from the high rainfall catchment in the east to the large storage in the west. This will provide water supply benefits for the agriculture, resources and energy sectors in the Hunter Valley, and improved town water security for Singleton.

Desalination

We support in principle the use of desalination as an important rainfall-independent water supply option, with environmental caveats. The plans should include eventual use of renewable energy to drive the plant. Intake design should minimise impacts on marine life and the discharge of brine effluent should not be allowed to contribute to a 'dead zone'. We agree that the site at Belmont, already owned by Hunter Water, is the best option. As desalination plants are energy-intensive, we would like to know more about how Hunter Water will mitigate greenhouse gases emissions using carbon offsets.

Groundwater sources

We support LHWSP's investigation into whether water-bearing sands and gravels associated with the ancient Hunter River (paleochannel) and Karuah River systems deep beneath the Tomago Sand beds could provide a long-term sustainable water source for the region.

First nations input

We support LHWSP's engagement with First Nations people and its view that there is considerable scope to revitalise and learn from Aboriginal custodianship of waterways.

WE FURTHER SUBMIT THE FOLLOWING ADDITIONAL POINTS

- To enable payment for the works that the proposed levy to be raised in 2024 be commenced at an earlier date with designated payments shown on the rate notice over a period of years so that there no burden on rate payers by a one-off payment.
- That Hunter Water and all Councils jointly carry out an efficiency audit of water use for recreation fields and park lands.
- Hunter Water should oppose the development of Anzac Park and the Mambo wet lands as this will result in increased traffic and traffic delays during peak periods and further road development.
- Oppose the construction of a bypass road over the Tomago sand beds as the run off from the road will pollute the drinking water of Nelson Bay.

Organisation submission 009 – Eco Network Port Stephens

EcoNetwork-Port Stephens is a grassroots community-based environmental and sustainability network comprising 30 community and environment groups and ecobusinesses with a focus on sustainable planning. We are non-party political and do not donate to political parties.

EcoNetwork strongly supports the draft Lower Hunter Security Plan (LHWSP), which dispenses with the building of new dams and instead relies on a diverse range of rainfall independent strategies to provide for current and future water needs of the region.

We acknowledge that Hunter Water has consulted with the community and has considered community concerns and preferences, and environmental assessments, in formulating the draft plan.

A precious and scarce resource

We support LHWSP's view that water is a precious and scarce resource, that the traditional planning approach for drought including dams carries too much risk and uncertainty, and that a new planning approach is needed to meet community expectations for a safe and secure water supply.

Effects of climate change

We agree the new approach must take account of the effects of climate change, as articulated by LHWSP: reduced flows in rivers and streams, changing rainfall patterns, higher temperatures and more hot days, sea level rises and increased salinity, more frequent extreme events, and harsher fire weather climate.

No new dams

We support LHWSP's decision not to build new dams. Dams can have a damaging impact on catchment ecosystems, extending all the way to the coast by changing freshwater river flows and impacting plants and animals in terrestrial, freshwater, estuarine and coastal marine ecosystems.

Further, because they are reliant on rainfall, dams become an unreliable source of water supply during long and severe droughts. The fact that the Lower Hunter relies on dams for 78% of its water supply (28% Chichester, 51% Grahamstown) according to 2015-20 data, underscores the need to apply rainfall independent strategies such as recycling, stormwater harvesting and desalination. As the draft plan explains: 'The region's water storages fill up quickly when it rains but can fall from typical operating levels to empty in around three years in a severe drought, even with a range of drought response measures in place to slow the rate of depletion. If a severe drought was to continue beyond three years, the water supply system could fail, and the Lower Hunter could run out of drinking water.'

We note that shortlisted options to decrease reliance on existing drinking water supplies included a new 230 billion litre on-river dam at Upper Chichester, immediately upstream of the existing Chichester Dam and a new 160 billion litre off-river dam at Limeburners Creek, east of Clarence Town have been rejected.

WATER MANAGEMENT OPTIONS

Catchment management

EcoNetwork agrees that in prioritising safe drinking water Hunter Water in partnership with the NSW Government, should continue to invest in catchment management and catchment protection. Catchments need to be protected from potential pollutants including sediment runoff, pesticides and chemicals from farming, phosphorus and nitrogen from fertilisers, algae, and pathogens.

Water conservation and water loss management

We support the plan's water conservation program based on maintaining and building on the behaviour change and efficiency gains achieved in the 2019–20 drought. The community responded to the Love Water initiative positively by adopting water saving measures at home and in their businesses and note that in 2020, water consumption was 14% less than what would be expected in the hot, dry conditions.

We support the 10-year plan to reduce total customer drinking water use by 17% and the five-year plan to reduce connection leakage as well as water loss from leaks and breaks in the distribution network.

Recycling

We support re-using highly treated wastewater from treatment plants for non-drinking purposes including industrial processes, irrigation of green spaces, residential use (such as for toilet flushing, garden watering and clothes washing), agricultural use and operational use at Hunter Water's treatment plants. Saving potable water by combining recycled water with harvested stormwater and groundwater for industrial use seems a worthy initiative, building on established recycling schemes at Kooragang Island and Karuah.

Purified recycled water

Community feedback from surveys indicates a majority supports consideration of adding purified recycled water to existing water sources, and concept has our full support. It reduces demand on drinking water supplies and reduces the volume of wastewater discharged to waterways. We note that such schemes are already part of the water supply mix in over 35 cities around the world including Perth, Western Australia. Closer to home Orange's Blackmans Swamp Creek Stormwater Harvesting Scheme can provide 1300 megalitres of additional water into the city's raw water supply each year, meeting around 25% of its total water needs.

Orange also introduced smart water meters to keep track of water usage and minimise loss. The city's water storage got down to almost 21% during the recent drought. It is essential that the NSW Government provide all the necessary legislative and regulatory pathways required to enable a safe and efficient transition to the use of treated wastewater for storage and aquifer recharge, as well as for direct potable reuse.

Water sharing between regions

We support the use of technology to make better use of existing storages for water sharing. As the draft plan explains, Hunter Water and Central Coast Council have an existing pipeline connecting the two regions. The pipeline can transfer water in either direction according to established water sharing rules, offering mutual benefits for drought security.

We support the development of a final business case for the two-way pipeline between Glennies Creek Dam and Lostock Dam. By connecting these two storages, water can be moved from the high rainfall catchment in the east to the large storage in the west, providing water supply benefits for the agriculture, resources and energy sectors in the Hunter Valley, and improved town water security for Singleton.

Desalination

We support in principle the use of desalination as an important rainfall-independent water supply option, with environmental caveats. The plans should include eventual use of renewable energy to drive the plant. Intake design should minimise impacts on marine life.

The discharge of brine effluent should not be allowed to contribute to a 'dead zone'. We agree that the site at Belmont is the best option because the land is already owned by Hunter Water and allows the discharge of brine to the ocean via the existing outfall at the nearby Belmont Wastewater Treatment Works, thereby minimising environmental impacts.

We acknowledge that such a plant provides flexible water supply source that is responsive to water supply needs, with a small, continuous supply of water when total storage levels are high, increasing to full supply capacity as storage levels fall in drought. However, desalination plants are energy-intensive, and we would like to know more about the carbon offsets mentioned by Hunter Water to mitigate greenhouse gases emissions.

Groundwater sources

The LHWSP is investigating whether water-bearing sands and gravels associated with the ancient Hunter River (paleochannel) and Karuah River systems deep beneath the Tomago Sandbeds could provide a long-term sustainable water source for the region. We support the investigation as the use of groundwater would appear to have low environmental impacts. The aquifer could serve as a potential managed aquifer recharge scheme, which could be replenished naturally or be used to store treated water from surface sources for later use.

First nations input

EcoNetwork supports LHWSP's engagement with First Nations people and its view that there is considerable scope to revitalise and learn from Aboriginal custodianship of waterways.

Conclusion

Because it dispenses with the building of new dams and instead focuses on a diverse range of rainfall independent strategies to provide for current and future water needs of the region, we support the LHWSP. We acknowledge that Hunter Water has consulted with the community and has considered community concerns and preferences, and environmental assessments, in formulating the draft plan.

Organisation submission 010 – Pindimar Bundabah Community Association

Our communities of Lower Pindimar, Pindimar and Bundabah are fully aware of how precious our water resources as we are all reliant on our rain water tanks.

A warming planet, changing rainfall patterns and the extremes of temperature variation must be addressed and responded to.

We therefore feel it is beholden to the community at large to be far more proactive in conserving, reducing and reusing water by as many means possible.

Simple actions make a huge difference and encourages responsibility.

*3 minute showers are ample.

Our Association fully supports the draft Lower Hunter Security Plan.

- No new dams
- Catchment Management
- Water Conservation and water loss management
- Recycling
- Purified recycled water
- Water sharing between regions
- Desalination (environmentally run)
- Groundwater sources
- First nations Consultation.

Organisation submission 011 – Healthy Hunter Rivers

Healthy Hunter Rivers Group (HHRG) makes the following comments in relation to the draft Lower Hunter Water Security Plan (LHWSP):

Introduction

The Healthy Hunter Rivers Group (HHRG) fully endorses a LHWSP which focuses on a diverse range of rainfall independent strategies. After the axing of Tillegra Dam in 2010, Hunter Water Corporation (HWC) were warned of the need to diversify its supply options. This is because up to 94% of all water supplied by HWC comes from the Williams River Catchment, so there was, and still is, an over-reliance on this catchment and rainfall dependent systems.

The fact that HWC has acknowledged the need for diversification and has accepted the community consultation process outcomes is welcomed.

HHRG recommends the introduction of valuing water as a precious and scarce resource and setting prices accordingly

A unique 2014 report on the trends and insights of water sector professionals about their own industry indicated the three most important things that could be done to meet water supply requirements are: (1) using innovative sources such as recycling and stormwater harvesting (2) lowering the demand for water through education and (3) raising the price of water to reflect its scarcity.

The Love Water campaign should be monitored and adjusted accordingly to support water saving strategies.

Water must be priced to reflect its scarcity, with those using more water, paying more. Non-residential and bulk customers consume about 43% of the region's water. Therefore incentivization programs need to be implemented to encourage the use of recycled and storm water for manufacturing/processing and to discourage the use of potable water.

HHRG supports HWC's recognition that climate change will greatly influence the way we plan for water security!

The Healthy Hunter Rivers Group fully endorses the decision of the NSW Government and Hunter Water Corporation's "recognition that new approaches are needed to secure the region's water supply as we manage an increasing demand for water alongside a changing " climate, including the prospect of prolonged droughts and more extreme weather events.""

The Department of Planning, Industry and Environment and Hunter Water have worked in partnership and with the community to develop the Lower Hunter Water Security Plan (LHWSP) and align it with the Greater Hunter Regional Water Strategy and the NSW Water Strategy. Some of the outcomes of the 2021 Draft NSW Water Strategy, which relate directly to the objectives of the Draft LHWSP are:

- "The recent drought highlighted many vulnerabilities in metropolitan and regional water services in NSW. These vulnerabilities indicate that we need much better long-term strategic planning and to fundamentally rethink and improve how we use and manage water."
- "We must plan and prepare for a future where we may need to deal with more extreme and more frequent droughts and floods than we have experienced in the past. This means that we need to reduce our reliance on traditional climate dependent water sources to supply our towns, cities and industry, while protecting the communities and natural environments sustained by our waterways."
- "Our water supplies in NSW could be less secure than we thought. This is because we now understand that droughts longer than those of the last 130 years are likely at some point, and that we could also see higher temperatures and less rainfall.

Projected changes in rainfall patterns, warmer conditions and increased evaporation will impact future water availability. The frequency, intensity and duration of droughts are also predicted to increase, which may affect water quality and the ecology of our rivers."

- "The overall message from new modelling is that our water supplies in NSW could be less secure than we thought. This is because we have now factored in that droughts longer than those of the last 130 years are likely at some point and potentially to reduced river flows and more frequent low flow periods, decreased inflows into dams and water storages, and lower water storage levels.

HHRG strongly supports HWC's strategic direction that no new dams will be a part of the LHWSP

The LHWSP Portfolio Analysis Summary Report and Cost Benefit Analysis (CBA) conducted by Frontier Economics re-enforce without question that "the dam options could not be justified economically, financially and for the environmental and social impacts that would result from their construction and operation,:" and that the diversified, climate independent supply options outlined in the Draft LHWSP would provide water security to the Lower Hunter and generate the highest net benefit to the community.

The Draft LHWSP correctly says:

Dams rely on rainfall and don't ensure an ongoing supply of water in a long and severe drought, compared to the alternative options considered in the plan:

The current supply system is highly dependent on rainfall, sourced from the Williams River catchment. In some years, up to 94% of our water comes from this source. This leaves the reliability and safety of the water supply system highly vulnerable to drought and water quality issues due to the lack of diversity of climate independent water sources.

The unreliability of the Williams River catchment was highlighted in 2019 when only just over 3% of the average annual allowance of water was able to be transferred from Seaham Weir to Grahamstown Dam. During this period, the storage level of Grahamstown Dam dropped from 82% to 55%.

In the six years from January 2015 to 12th November 2020, an average of only 53% of the average annual pumping allowance was transferred from the Williams River to Grahamstown Dam.

In the Hunter Water 2019 MERI (Monitoring, Evaluation, Reporting and Improvement) report it quoted the following: "A number of supply side risks exist which could be an issue in the future, including reduced inflow to Grahamstown Dam due to water quality risks."

The supply side risk for Hunter Water of the Williams River Catchment is a major issue which requires an urgent shift to the climate independent supply sources, and the need to implement increased water conservation and efficiency measures, as outlined in the Draft LHWSP.

The dramatic effect climate change is having on our current rainfall dependent water supply is reflected in the continual and dramatic reduction of nearly 40% in the system yield in the last 14 years from 90 GL to 55 GL.

In 2007, due to a re-calibration of drought frequency and concerns over an anticipated 10% reduction in rainfall and the resulting 25% reduction in catchment runoff, Hunter Water reduced the estimated annual yield down from 90 GL to 67.5 GL. In the 2014 LHWP the annual yield is estimated being 75 GL. In the 2017 MERI the annual yield was estimated being 76 GL. In the 2021 Draft LHWSP the annual yield appears to have again been downgraded by Hunter Water to 55 GL.

The Draft LHWSP says: "Based on our new knowledge about climate variability, and ensuring that we are prepared for drought, the Lower Hunter's current water system can reliably supply around 55 billion litres (GL) of drinking water per year on an ongoing basis. This is less that the current average demand for water in the Lower Hunter, which is around 66 billion litres (GL) a year. This deficit is expected to increase in future as the population grows and climate change influences rainfall and evaporation.

This dramatic reduction in yield highlights the vulnerability to climate variability of the Williams River Catchment and the dams reliant on this source and the urgent requirement to develop climate independent supplies to ensure our water security.

HHRG supports improved environmental outcomes resulting from the LHWSP

As alternative climate independent sources and increased demand/efficiencies measures are implemented, the reduction of dependency on the Williams River Catchment water source should result in net positive environmental benefits to the Williams River catchment, the river's health and the survival of the diverse range of threatened and endangered flora and fauna species of the area, as well as the aquatic river and estuarine environments.

By reducing the water taken from the river system, there will be an increased water availability for improved survival of ecosystems and aquatic biodiversity, healthier wetlands and reduced frequency of algal blooms, particularly during periods of low flows and drought.

Environmental assessments completed for HWC during the options evaluation process highlighted that the dam options were likely to have devastating effects on many species of threatened flora and fauna in the dam and pipeline areas as well as on downstream aquatic ecosystems, industries and nationally and internationally recognised wetlands. Threatened Koala populations and critical koala habitat were identified in the dam areas and platypus at one of the dam option sites.

HHRG supports Desalination as part of the mix of water security options

There is only one truly climate independent water source available to Hunter Water desalination of seawater, which is available in unlimited quantities on our doorstep. Used extensively in many parts of the world and in particularly in drier climates such as the Middle East and Australia, the technology is proven but is continually becoming more efficient and cost effective and it integrates low emissions and green energy sources. The long-awaited introduction of desalination into the regions supply will be the lynchpin that will hold together all the other components of the LHWSP by securing a safe and reliable permanent supply source while having the capability to be up-scaled as and when required as a drought response and for any increased demand due to population and industrial growth.

A recent study from Finland's Lappeenranta University of Technology predicts the global average levelised cost of drinking water (LCOW) from desalination plants could decline from around $3.78/kL in 2015 to $1.65 by 2050 if solar, storage systems and other renewable energies are used to decarbonize the sector.

HHRG supports recycling as part of the mix of water supply options

The Lower Hunter community has strongly endorsed recycling as a priority for water security planning (94%) in the LHWSP.

Currently, around one third of potable water is used for non-domestic purposes and only around 10% is recycled. As noted by the NSW Productivity Green Paper (2020): "Options may include purified recycled water for drinking. Recycled water also provides options for supplying fit for purpose water for industry and agriculture and for maintaining 'green' spaces - reducing reliance on drinking water supplies and relieving the pressures on the wastewater system."

A continued program of localised "fit for purpose" recycling schemes utilising treated wastewater and stormwater must be pursued where infrastructure permits and it is economically feasible.

Non-residential customers attributed 37% of water consumed in 2019-20. To reduce the use of potable water where not required, an incentivisation program needs to be introduced as part of the LHWSP to encourage high water using industries to develop their own on site recycling and storm water harvesting schemes.

Third pipe recycled water systems have not been widely implemented, most likely because the value of the perceived benefits typically do not outweigh the high capital and ongoing costs associated with such systems. The infrastructure costs are very high for a relatively small gain.

Planning regulations (such as BASIX in NSW) incentivise or require alternative water sources such as rainwater tanks or third pipe recycled water solutions to reduce potable water demand and thus obtain development approval. Typically rainwater tanks are a cheaper way for developers to satisfy such regulations; but sometimes third pipe dual reticulation is offered up as a competitive alternative (Australian Building Codes Board, 2016).

A more cost-effective method of recycling large quantities of recycled water is by using large scale purified recycled water schemes for a resilient, secure and sustainable water supply using much of the existing distribution network.

HHRG Supports direct (DPR) and indirect potable reuse (IPR)

Potable (direct or indirect) water recycling is often thought to be a more economically viable way of decreasing the stress on potable supplies. Using recycled water to augment the potable supply is anticipated to cost far less overall, even with increased treatment requirements, because piped network infrastructure does not need to be duplicated.

Hunter Water has a virtually climate independent source it can develop for a safe and reliable water supply. Most notably, a major recycling/indirect potable re-use scheme able to recharge existing groundwater and surface water storages from much of the 70,000 ML of wastewater generated annually. Hunter h2o - Purified Recycled Water in the Hunter – A High-Level Feasibility Study, July 2020, outlines a four stage IPR system incorporating purified recycled water from the Burwood Beach WWTW and the Raymond Terrace WWTW eventually being able to supply an additional supply of 75 ML/day into the water supply system.

Indirect and direct potable water reuse offers a potentially significant, relatively droughtproof source of water. The degree of significance is, to a large extent, a consequence of the 'multiplier effect' that comes with reclaiming water which, once reused and returned to municipal sewers, becomes available to reclaim a second and subsequent times.

In the case of water recycling, an injection of 'new' water into a supply system is made to meet new and growing demand. Some of that water (such as that used on gardens and other outdoor uses) will be lost from the system, but much of it will be returned to the sewage collection system and become available for re-treatment and re-injection back into the system. A water utility which is able to capture and recycle 50% of the drinking water it supplies will capture 50% again (thus a total of 75%) on the second time around. Capturing 50% on the third time around gives a total of 88%. This practice of 50% capture and recycle will ultimately lead to a doubling (an extra 100%) of the available potable water supply. The impact of the multiplier effect becomes exponentially more effective as the percentage of water recapture and reuse increases.

A large recharge system would also reduce the need to take water from the river system, thus benefitting the environment, particularly during drought, and could also maintain critical groundwater levels benefiting groundwater dependent ecosystems and reduce the threat of seawater ingress in coastal groundwater supplies.

It is essential that the NSW Government provide all the necessary legislative and regulatory pathways required to enable a safe and efficient transition to the use of treated wastewater for storage and aquifer recharge as well as for direct potable re-use.

A well-planned program of public education and acceptance is essential to the implementation and success of potable re-use schemes. A very good role model of this is the Water Corporation's Perth IPR scheme.

HHRG supports Increased water conservation measures

It is vital that HWC continues to use the Love Water program and implement permanent water conservation measures and Smart Water Choices, to encourage long-term behavioural change in the communities water usage.

In 2019 Hunter Water described their past water conservation measures in the following words:

"We were the poorest performer in water loss per connection for multiple years in the National Performance Report and this was getting worse year-on-year. In addition to relatively high and increasing leakage from our system, our consumers were using more than the national average and we were targeting little if any investment in trying to encourage modified water-use behaviour."

"We took immediate action – Our performance is improving but needs to improve further."

In 2019-20 Hunter Water was ranked 9 out of 15 (1 best - 15 worst) for "real losses: service connections (L/service connection/day)" in the National Performance Report for Major Water Utilities.

In 2019-20 real losses were just over 6,000 ML or 9% of water supplied. For Hunter Water to become amongst the top performing major water utilities in the nation, these losses need to be reduced as do apparent losses (2%) and HWC's own usage (3%).

Targets for non-revenue consumption and leakage need to be set, monitored and achieved within given time constraints which must be part of the LHWSP.

HHRG supports Regional Water Sharing

Hunter Water currently has a two-way pipeline connecting with the Central Coast supply system, enabling water to be transferred either way when required due to water shortages in either region.

As part of the Greater Hunter Regional Water Strategy, NSW Water is in the final planning process for a new two-way pipeline to connect Lostock Dam on the Paterson River and Glennies Creek Dam in the Upper Hunter. As part of the LHWSP to increase regional water sharing, it is planned to connect into this system by accessing water from the Paterson River sourced from Lostock Dam and piping it either to Maitland or to Grahamstown Dam.

If connected to the Maitland system this will result in an increased resilience of the Lower Hunter's water supply system by providing a new independent water supply source to Hunter Water.

Regional water sharing will result in improved regional system resilience, linking the Upper Hunter, Lower Hunter and Central Coast water systems and will have comparatively low ongoing operating costs.

HHRG supports continued investigations of stormwater harvesting

Currently HWC operate and maintain about 92 km of storm water drains in the Lower Hunter which is all discharged into waterways or the ocean. None is currently collected, treated and added to the supply network. Stormwater has an important role to play in supplying water that is not of potable standards for irrigation of public parks and gardens as well as sporting facilities and agricultural use.

Localised harvesting projects for use in supplying non potable water for irrigation of public parks and gardens as well as sporting facilities and agricultural use should be prioritised.

HHRG supports continued groundwater development

The continued investigation into the deep water Tomago paleochannel as well as the search for additional groundwater sources needs to be ongoing. Groundwater could become a long-term, sustainable source for the region and could incorporate an aquifer recharge scheme.

Aquifer recharge schemes enable suitable aquifers to store surplus surface and treated recycled water to be used in times of drought while also maintaining critical groundwater levels benefiting groundwater dependent ecosystems and reducing the threat of seawater ingress in coastal groundwater supplies.

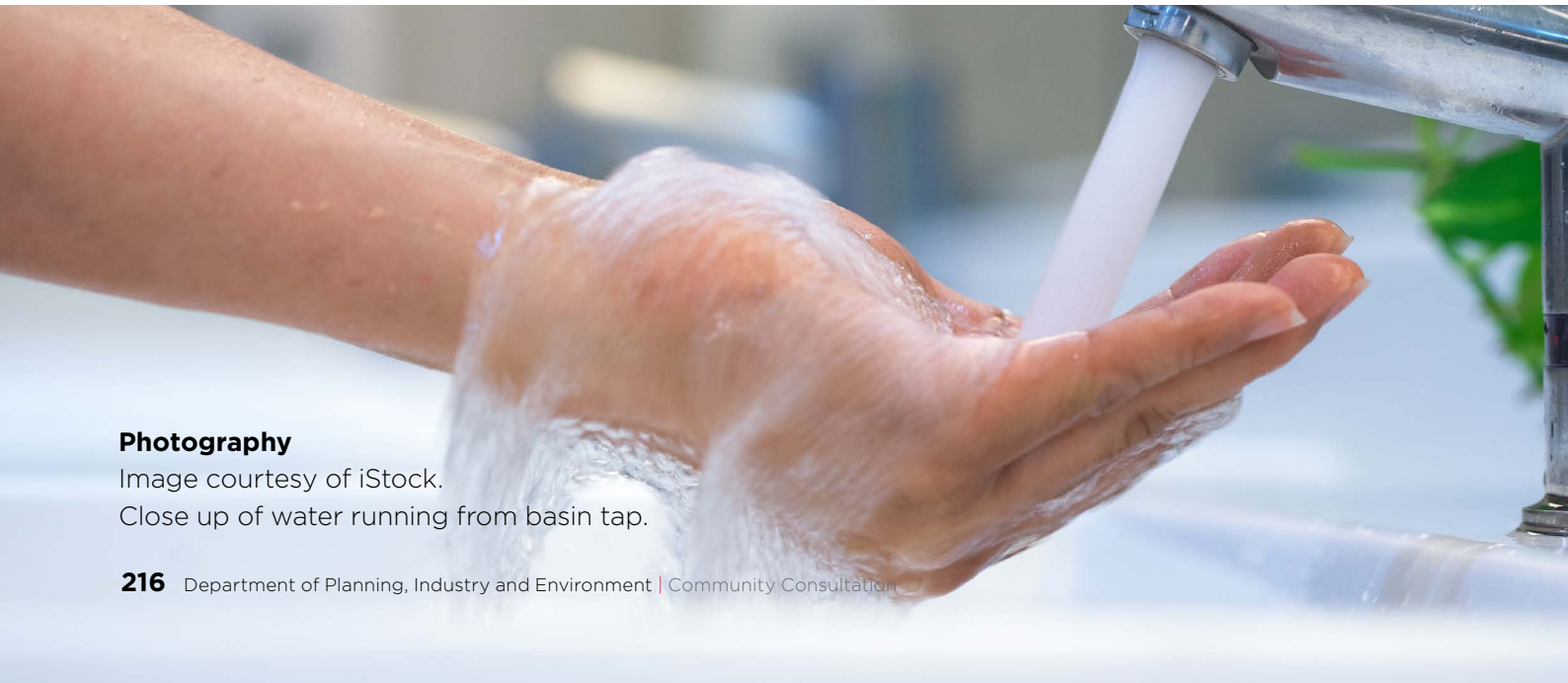
Conclusion

As stated, the HHRG endorses the Draft LHWSP as presented, which focuses on a diverse range of rainfall independent strategies to provide a secure and reliable water supply for the region and generate the highest net benefit to the community.

HHRG strongly supports the decision that "the dam options could not be justified economically, financially and for the environmental and social impacts that would result from their construction and operation,:

During rejection of the ill-fated Tillegra Dam proposal of 2010, HWC were warned by the Government that the dam proposal could result in a "lack of diversity and increased vulnerability in the supply system to the effects of reduced rainfall as a result of climate change".

This Draft LHWSP is final recognition by HWC that by 'putting all their eggs in the one basket' the over reliance on the climate dependent Williams River Catchment (which supplies up to 94% of water consumed), has resulted in a dramatic drop in the system yield of 38% in the last 14 years, thereby threatening the security of the region's water supply. Now is the time to act to ensure we reverse this alarming decline by implementing all the actions outlined in the Draft LHWSP, as well as continuing to pursue innovative rainfall independent water practices.!



Photography
Image courtesy of iStock.
Close up of water running from basin tap.

Organisation submission 012 – Hunter Lakes Corporation

Requested submission remained confidential.

Organisation submission 013 – Central Coast Council

Thank you for the opportunity to comment on the draft Lower Hunter Water Security Plan (LHWSP). Central Coast Council (Council) has closely followed the development of the LHWSP as part of a strengthening of inter-regional planning of water resources. Council shares the objective of providing a resilient and sustainable water future for our customers and input to the LHWSP allows joint opportunities to be identified and realised.

The LHWSP represents a whole of Government approach to water planning and has taken an 'all options on the table' approach. Council supports these practices to promote collaboration and ensure the most efficient options to manage supply and demand are identified and implemented. The four priorities identified within the LHWSP align with the three pillars identified in the Central Coast Water Security Plan (CCWSP) and will improve resilience to future droughts and population growth across both regions.

Council notes the extensive collaboration that occurred with Hunter Water to develop combined modelling tools to assess joint supply options across technical and economic analysis and confirm the value of ongoing operation of the Hunter-Central Coast pipeline. While both organisation's plans confirm that expansion of the existing inter-regional transfer assets is not a preferred option, Council supports the following LHWSP actions that require Council's specific involvement:

- Continued operation of the Hunter-Central Coast connection to optimise the use of existing infrastructure.
- Undertake collaborative engagement with our communities on the urban water cycle and the use of purified recycled water.
- Ongoing improvements to joint system modelling tools to further optimise inter-regional water resource planning.
- Participate in the NSW Water Strategy action to review state-wide water restrictions to improve alignment across the regions where suitable to do so.

Council looks forward to the finalisation of our two organisation's water security plans and the upcoming opportunities for further collaboration through the implementation phase of the plans.

Organisation submission 014 – Lower Hunter Agricultural Water Users Association

I wish to lodge an objection to elements of the Draft Lower Hunter Water Strategy on behalf of the Lower Hunter Agricultural Water Users Association, specifically the proposed Lostock to Glennies Creek pipeline & the possible connection from Gostwyck to Maitland or Grahamstown… pp 72 - 74.

We agree that the Hunter needs a sustainable Water plan for the community to thrive – triple bottom line: social, environmental & economic.

In 1998 – "Building a more secure future for the Hunter " saw the waters of the Hunter as a finite resource with signs that we had reached the limits of reasonable growth.

The 2015 Hunter Strategic plan for both the region & the Newcastle city saw an increase in population, but not an increase in water reserves.

During the current community consultation process the most favoured solution has been: recycling, stormwater harvesting & conservation – we agree & are sad that the opportunities over the past 23 years have been wasted, despite recycling technology being available when the mushrooming housing estates have been developed.

I have attended a consultation session where the Lostock to Glennies Creek pipeline was canvassed – it was not favoured. In the Water Security Engagement Summary the option of the Pipelines was not shown.

We see these pipelines as robbing Peter to pay Paul.

We see the Paterson valley & tidal pool are Peter and those wanting a glass of water in the urban areas Paul….don't rob us, please.

Despite over 20 years of concern for urban water security & river health – there is no data.

So, we need to look to events & common sense.

We are irrigators in the tidal pool in an area which has been a traditional food bowl.

We know that climate change will threaten this by an increase in salinity and sea level rises. (p.19) (Draft Plan).

The water coming through the end of system, at Goswyck on the Paterson & Greta on the Hunter, is what keep the salinity in the tidal pool for the river environment & our crops at a tolerable level.

The 10ML end of system flow at Gostwyck, is not sufficient. Cameron Archer in his book, The Magic Valley suggested 25ML a day was required for the tidal pool health. (p.292) Further, the Lostock dam was built for farmers in the Paterson Valley.

There is also the belief that part of the rationale for the dam was salinity control in the tidal pool.

The spills from the Lostock dam are not wasted – they are extremely important for the health of the river system – the Paterson & the tidal pool.

To further suggest that there be an offtake from Gostwyck would take further water out of the system & it doesn't need an expensive study to imagine the salt levels in the tidal pool.

Nor do we need a study to imagine the ecological impact of the Paterson River being a "cold drain" with water coming from the bottom of the dam, released on demand for the regulated river system & 10ML end of system flow…the poor fish & other creatures.

We are now in an environment where the Hunter & our society is in transition.

The Draft Water Plan does not seem to take a total Catchment view. Yet we in the tidal pool need to take a catchment view – the water flows from the Wollombi, the Goulburn, the Allyn are just as important to us when looking at the flooding potential, as those waters coming down the Paterson & the Hunter.

No research that we can find shows it's a good idea to transfer water from one valley to another – from a social, cultural, environmental & economic view. There is an extraordinary assertion from Hunter Water – Information sheet 7 of 8 that they believe the construction of a pipeline from Lostock to Glennies Creek dam would have low cultural & social impacts & low impacts on natural biodiversity.

One of the largest water users in the Catchment has been Macquarie Generation, now AGL.

What will happen to the water extractions one the coal fired power stations have closed?

Coal mining will be finishing within decades – what will happen to the water they use & what will fill their "voids"?

COVID & climate change has provided us with a great opportunity to review our society & look at what's important.

Green space, gardens & house plants, cycle ways, parks, community - not black rooves & no option but to get in the car, put on the air conditioner & rampant consumerism & waste.

Looking at where we source our food & goods – food miles, is valued.

The tidal pool irrigators have an important part to play in this vision.

It is our submission that to build these pipelines will have negative social, environmental and economic effect and therefore object to such a proposal.

Organisation submission 015 – Slow Food Hunter Valley

We are making this submission on behalf of the Slow Food Earth Market Farmers in the Lower Hunter.

In 2016 Slow Food Hunter Valley recognised that the local food production of fresh seasonal produce was about to collapse due to recent flooding. The region's largest vegetable grower was growing 5-6 staples per annum (pumpkins, cabbages, cauliflower, potato) and others were growing one commodity (e.g., potatoes). Natural disasters and supply chains through the wholesale markets alone meant that this farmer had made the decision to walk off the farm. His son who was then studying horticulture and apprenticed on the farm was about to lose his job and agriculture was about to lose a third generation of local farmers.

Since the setting up of the local produce market in Maitland and the subsequent commencement of the Slow Food Earth Market in Maitland in August 2017, we have witnessed a Fresh Food Revolution. Our aim to change the monoculture farming practices is witnessed in the over 400 biodiverse varieties of food supplied to the market over the 4 seasons of production. The new and emerging Agribusinesses are producing fresh vegetables, garlic, eggs, Asian herbs and vegetables, honey, flowers, Beef, lamb plus value added condiments and are now contributing to the regional economy. The farmers are practicing sustainable and technology-based solutions to grow and evolve their businesses. These emerging farmers are from East Maitland (MC & SL Dennis, Nebo Farm), Oakhampton (A&L Breiner, Oakhampton Heritage Farm) Morpeth (J Clarke, Phoenix Farm) Lorn (H Bell, The Good Growers) Aberglasslyn (F Nguyen, Felicia's Home Grown), M Brown (Purple Pear farm) Lambs Valley (P&L Kalokerinos (Kapsali Farm), Luskintyre (C Rowcliff, Carinya Downs), Dungog (T Christie 4 Acre farm) Dungog (S Brownbridge, Fosterton Farm & Bakery) Butterwick (L Bruvel, Shepherd's Ground) Dungog (T Norman, Munni Beef).

Food grown on these farms is now winning awards and is on the plates of the Hunter region's finest restaurants and in Sydney.

Some of the other benefits have been regional food tourism, food security in the time of the recent droughts when these local farmers supplied over 12 tons of food to families in the drought affected areas and a similar quantity made available in the pandemic for food relief.

These businesses are poised with their sustainable practices to benefit from the export markets created through the Newcastle Airport gateway to Asia, bringing valuable export revenue to the region.

We believe that the availability, quality and quantity of water is the key to grow and sustain these emerging agribusinesses in the Lower Hunter.

Our concern is that the NSW Department of Planning & Infrastructure ignores these emerging agribusinesses as contributors to the farm food production for the State of NSW and the Hunter Region.

Our concern is that as these businesses are basically ignored and they primarily source their water needs as unregulated water users, their needs for quantity and quality of water will not be met.

The proposal to introduce a pipeline to transfer water from Lostock Dam to Glennies Creek Dam along with take-off points for Hunter Water from the Paterson River for urban supply is of great concern to our farmers. We are concerned that this water is also destined for the Central Coast and Newcastle.

We are concerned that the promise of water repumped back into the Hunter River will be unsatisfactory for agricultural purposes. A concern is that this will impact the salinity and ecology within the river system and be detrimental to the quality of the water required to produce the high value food that is part of the emerging businesses in this sector.

We urge the NSW government to build the infrastructure necessary to ensure good quality drinking water to the urban residents but take care of the needs of this valuable emerging sector.

On the basic of the above, we oppose the introduction of the Lostock Dam to Glennies Creek Dam pipeline and Hunter Water take-off points on the Paterson River.

Slow Food's work is focused on the biodiversity that contributes to agriculture and food production: edible plant species and varieties, domesticated animal breeds, insects (including pollinators), the invertebrates and microorganisms that guarantee soil fertility and hold up the food chain in the oceans, the microflora that live in digestive systems and those that enable fermentation processes in many foods (bread, cured meats, cheeses, etc.) but also the diversity of knowledge that has allowed farmers and food producers to select and adapt plants, animals and farming techniques to different environmental contexts and to transform and preserve foods.

Slow Food was one of the first civil-society organizations to turn its attention to domesticated biodiversity and the first to have ever considered food production techniques and food products an integral part of the biodiversity in need of saving. Slow Food sees everything as connected: What happens in the realm of microorganisms influences agriculture and the health of plants, animals, and humans; how mountain environments are managed triggers a series of consequences that follow the course of rivers and reach the depths of the oceans; a technique or piece of knowledge applied in the field has an impact on the resulting foods, their nutritional characteristics, their healthiness and their flavour, and so on.

Organisation submission 016 – Singleton Council

On 9 August 2021, the Department of Planning, Industry and Environment (DPIE) placed the draft Lower Hunter Water Security Plan (LHWSP) on public exhibition with submissions due on 26 September 2021. Council welcomes the opportunity to provide feedback on this important planning document noting that it also has significant implications for the Singleton Local Government Area (LGA).

Council understands the LHWSP is centred around four priority areas that include 'Safe Drinking Water', 'Making the most of what we've got', 'improving the resilience of the system' and 'Water for life'. The proposed strategies for each of these priorities are summarised as follows:

Safe Drinking Water:

- Continued investment in catchment management and a multiple barrier approach to the supply of drinking water (essentially business as usual).

Making the most of what we've got:

- Reduce community water usage by 17o/o by supporting the community through investment.
- Continued investment in the leak reduction program.
- Increase recycling by 1.3 billion litres per year with industrial and open space irrigation schemes.
- Community engagement regarding future purified recycled water schemes for potable reuse.
- Continue to share water with the central coast via the Hunter-Central Coast Connection.

Improving the resilience of the scheme:

- Construction of a new 30 Ml/day desalination plant at Belmont.
- Connection to the proposed Glennies Creek Dam-Lostock Dam transfer pipeline.
- Activities to ready construction of an additional desalination plant at Walsh Point in preparation for drought conditions.
- Further investigation of the Hunter River paleochannel.

Water for life:

- Improve knowledge sharing and involve First Nations/Aboriginal people in strategic water planning.
- Improve the integration of land use and water planning.

Context:

Council provides high quality water services to approximately 18,000 people in Singleton, Singleton Heights, The Pinnacle, Hunterview, Maison Dieu, Mount Thorley, Jerrys Plains and Broke. Council's potable water supply also supports several large customers including an abattoir, the Singleton Army Camp, water carters and three coal mining complexes. Council also operates a raw water supply scheme supporting two mining operations and a mushroom composter.

Council sources the bulk of its raw water supplies from Glennies Creek Dam for its potable water supplies, with supply for Jerrys Plains and for the raw water supply scheme being drawn from the Hunter Regulated River. Council holds several local water utility and high security water supply licences which allows for use of allocated water on a priority basis, including in the event of drought.

By agreement with Council, Hunter Water Corporation (HWC) provides water and sewerage services in the Singleton LGA under section 16 of the Hunter Water Act 1991 with particular reference to the Government Gazettal extending HWC's area of operation to include the Branxton to Whittingham Corridor and south along Hermitage Road. The LHWSP will directly apply to this HWC supply area within Singleton LGA.

Singleton LGA has a powerful industry base, significant agricultural lands and is an attractive business and commercial destination. Major industries include mining, heavy manufacturing, construction, defence, public administration, agricultural production and viticulture. A safe and secure water supply is critical to ensure that communities and industries within the Singleton LGA remain vibrant and sustainable.

There are several key strategies within the LHWSP that would improve the drought resilience of the Singleton LGA and contribute to the sustainability of the region.

Council is broadly supportive of the LHWSP in seeking to provide infrastructure and non-infrastructure solutions to ensure safe and secure water resources for the Lower Hunter.

However, Council has the following comments which are addressed in this submission:

- Council's engagement with DPIE and HWC with regards to the development of a final business case for the Lostock to Glennies Scheme;
- Extent of HWC area of operations within the Singleton LGA that will be directly affected by the strategies within the LHWSP; and
- Opportunities for collaboration on water conservation, drought management and water recycling projects in the Singleton LGA and beneficial knowledge sharing.

Council would also have appreciated more direct engagement from DPIE and HWC, given the LHWSP impacts some economically significant portions of the LGA, and looks forward to more direct engagement in the future.

Greater Hunter Regional Water Strategy including Lostock to Glennies Scheme

The development of a business case for the two-way pipeline to connect Glennies Creek Dam with Lostock Dam (Lostock to Glennies Scheme) was previously recommended in the Greater Hunter Regional Water Strategy (GHRWS) 2018 and NSW infrastructure Strategy 2018. This connection was one of two large scale infrastructure options identified in the GHRWS to assist with drought proofing the Lower Hunter and Singleton LGA. This connection has implications for many stakeholders in the Singleton LGA that rely on allocations from the Hunter Regulated River system and experienced reduced water security during the most recent drought.

The LHWSP includes a proposed HWC connection downstream of Lostock Dam to utilise the Lostock to Glennies Scheme and provide a higher level of drought resilience to both the Lower Hunter and Central Coast regions.

There are several details surrounding the operation and impacts of the proposed Lostock to Glennies Scheme that are not addressed in the LHWSP. DPIE and HWC have advised, during an information session held on 5 August 2021, that a comprehensive Final Business Case (FBC) for the project will cover these issues. The FBC is proposed to be completed over a period of eighteen months and will include the following investigations and modelling:

- Operational rules for transfer to achieve benefits for both systems and impacts to existing allocation;
- Cost sharing arrangements that reflect beneficiaries of the project, consistent with IPART methodologies;
- Financing options for the infrastructure;
- Environmental impacts;
- Hydrological investigations to assess potential impacts during drought and effectiveness of the system in reducing restrictions; and
- Power sourcing and requirements for operation of the transfers.

It is understood that a decision will be made following the completion of the FBC as to whether to proceed with construction of the Lostock to Glennies Scheme, with a construction timeframe of approximately two years.

While the Lostock to Glennies Scheme is considered a separate project to the LHWSP, the proposed HWC offtake (downstream of the Lostock Dam) forms a significant component of the strategy outlined in the LHWSP. This is evidenced in the long-term supply and demand balance (Figure 27) in the LHWSP demonstrating that the project is intended to provide approximately one third of the required additional supply to meet projected demand of HWC customers. However, it is unclear how this drought yield demand would be met if the FBC determines that the Lostock to Glennies Scheme is not a feasible option.

It is also unclear in the LHWSP, how the Lostock to Glennies Scheme would provide benefit to HWC and the Central Coast without impacting potential benefits of the scheme to the Upper Hunter, including water security to support town water supply, agriculture, mining and power generation. Council is seeking to ensure drought planning for the Lower Hunter and Upper Hunter is considered concurrently to ensure the needs of both regions are balanced and that actions to secure water security for the Lower Hunter is not at the detriment to water security for the Upper Hunter.

An additional water security infrastructure option was previously identified in the GHRWS to make use of climatic variations. This involved a direct connection between HWC and Singleton Council water supply infrastructure (potable two-way pipeline).

In 2018, Council provided in-principle support for developing a business case for the potable two-way pipeline as well as the Lostock to Glennies Scheme. The Lostock to Glennies Scheme was Council's preferred option. The basis of this support was to reduce drought risk of the Upper Hunter region and in particular water users within the Singleton LGA. Council is supportive of the Lostock to Glennies Scheme, on the basis that it provides drought security to the Upper Hunter and requests that it will continue to be formally engaged during the development of the FBC. As part of this engagement, Council requests detailed feedback on the dam operation, proposed water sharing rules and impact of the proposed scheme on the Upper Hunter as available, including direct engagement with Councillors.

Additionally, from the LHWSP, it is apparent that the potable two-way pipeline does not form part of the LHWSP. Council seeks clarification from DPIE as to whether the potable two-way pipeline would be reconsidered if the Lostock to Glennies Scheme and/or HWC's connection to the scheme was not to proceed.

Hunter Water Supply Area in the Singleton LGA

Council acknowledges that the LHWSP will benefit the parts of the Singleton LGA currently serviced by HWC in providing increased water security which can ensure that water infrastructure servicing is not an impediment to growth in these areas. This supports Council's strategic land use planning in the area.

However, it is not clear if the water security measures outlined in the LHWSP are limited to the areas currently serviced by HWC or extend to the entirety of the gazetted HWC area of operations. Failing to provide water security for the entirety of HWC's service area may inhibit development and economic growth opportunities in this economically important region of the Singleton LGA. As such, Council is seeking clarification that the LHWSP considers the water security and infrastructure needs of the entirety of the HWC service area in Singleton LGA. Specifically, Council requests confirmation that the proposed large lot residential development in the Branxton area, proposed industrial development in Whittingham and the Wine Country Regions off Hermitage and Old North Roads form part of the LHWSP.

The LHWSP also indicates that the implementation of the measures contained in the strategy would result in a one-off increase to customer bills of between $75-$120 per annum with this increase not to occur until 1 July 2024 at the earliest. Clarification is sought to understand how this increase will be determined and communicated to customers given there is little detail contained in the LHWSP.

Water Conservation and Drought Management

Council takes its responsibilities to the community and the environment seriously.

Water conservation means looking after our resources and protecting the environment. Council provides several educational resources and actively facilitates water saving initiatives which promote the efficient use of water. Council maintains, and promotes as standard, demand management initiatives including dual flush toilet and rainwater tank rebates.

Council notes that the LHWSP Priority Two, 'Making the most of what we've got', details several water-saving measures including leak reduction, water recycling, water audits for large users and continued implementation of water conservation programs.

Council also notes that the LHWSP Priority Three, 'improving the resilience of the system', details a drought management plan that includes the use of water restrictions.

Given the adjacency of Singleton to other LGA's (including Dungog, Maitland and Cessnock) that are directly impacted by the proposed water conservation strategies, and indeed part of the Singleton LGA, Council identifies an opportunity to better inform decision making in its own programs.

Council would appreciate any knowledge sharing regarding the success or other in use of the water saving measures that are implemented in the Lower Hunter region.

During the recent drought, many of Council's customers had difficulty distinguishing between Council's water restrictions and those of HWC. With this in mind, Council would appreciate a collaborative approach in considering the drought management needs of adjacent local water utilities, including Singleton.

Council also requests collaboration with all stakeholders on potential water recycling schemes in the Branxton area and is seeking feedback on any such projects within the Singleton LGA that may have been identified through the LHWSP.

In conclusion, Council reiterates its support broadly for the LHWSP in achieving water sustainability through the range of infrastructure and water saving measures as detailed in the LHWSP and would appreciate further consultation regarding the matters raised in this submission.

I would like to thank DPIE and HWC for the opportunity to provide feedback on the LHWSP and look forward to collaboration between Council, DPIE, HWC, WaterNSW and all stakeholders in the further development of the strategies and infrastructure solutions detailed in the LHWSP. If you have any further enquiries, please do not hesitate to contact us.

Organisation submission 017 – Port of Newcastle

Port of Newcastle welcomes the opportunity to make a submission on the Plan. We also thank you for your presentation on the Plan to our staff in conference on 25 August 2021.

Port of Newcastle commends Hunter Water for its commitment to water security for our community through the Plan. We note Hunter Water's potential interest in Port of Newcastle land at Walsh Point for desalination and whilst to date no commitment has been made we continue willing to engage with Hunter Water as it assesses desalination options.

As Port of Newcastle mentioned at the 25 August 2021 conference we have development plans to benefit Port tenants and users which include requirements for additional water and sewer connection. We look forward to further engagement with Hunter Water to identify and work with you on opportunity to take forward these plans.

Organisation submission 018 – City of Newcastle

City of Newcastle (CN) congratulates Hunter Water on the preparation and exhibition of the draft Lower Hunter Water Security Plan and thanks it for the opportunity to provide comment.

CN generally supports the initiatives presented as part of Hunter Water's priority streams, acknowledging the time horizons and options considered as part of the process.

We reiterate concerns over the price impact to the community and the importance of ensuring all other funding streams at higher levels of government are considered prior to increasing water rates. Noting Hunter Water's profit and NSW State Government dividend year on year since 2010-2011, further increases to Hunter Water's asset base will continue to increase Hunter Water's profit and dividend. We are disappointed the plan identifies water rate increases as the priority for funding the Plan's implementation.

CN suggests that further project development of the Walsh Point desalination plant consider the hazards presented as part of Newcastle's **Low Lying Lands Position Paper** and the **Stockton Coastal Management Program**. Additionally, CN would like to advocate for the use of renewable power in the planning and implementation of the desalination plants. CN has taken multiple steps to increase the renewable power supply of CN's operations and encourages Hunter Water to similarly take leadership in renewable uptake within the Hunter region.

We anticipate that implementation of the Plan will continue see to both organisations work in partnership recognising the value of ongoing communication and shared project planning in smart water usage. Our collaboration has seen and will continue to see beneficial flood outcomes for the residents of Wallsend, working together through amenity improvement planning and bridge upgrades for Ironbark Creek, as well as CN's expectation of channel widening by Hunter Water. CN values Hunter Water's role in implementing the blue green grid across the region facilitating and leading water harvesting and recycling projects.

Hunter Water has CN's full support in continuing the development of water harvesting projects. Considering the Newcastle LGA represents approximately one third of Hunter Water's customer base CN supports the continued efforts to efficiently use and recycle water from Newcastle's industrial water users. Stormwater harvesting and water recycling projects provide great opportunities to further reduce water consumption in maintaining CN's parks and recreational facilities.

CN recognises its consumption with respect to other councils in the region and thanks Hunter Water for its efforts in enabling us to achieve a 20% reduction of potable water usage as part of the region's combined drought response. CN's facility at 12 Stewart Avenue features as a consolidation of our ongoing efforts to reduce water consumption with an operating 5-star NABERS rating. CN would like to welcome further collaboration with Hunter Water to review and advocate for better water efficiency within BASIX for new developments, noting that the current version of BASIX is generally weaker with respect to residential water harvesting in comparison to the CN Development Control Plan.

The consideration and investment given to climate modelling and predictive data sets is acknowledged. While understanding the modelling is specific to water supply, CN requests greater transparency of the data used to make these informed assessments. This would ensure both organisations are working under the same predictions and constraints for the planning decisions made by each organisation.

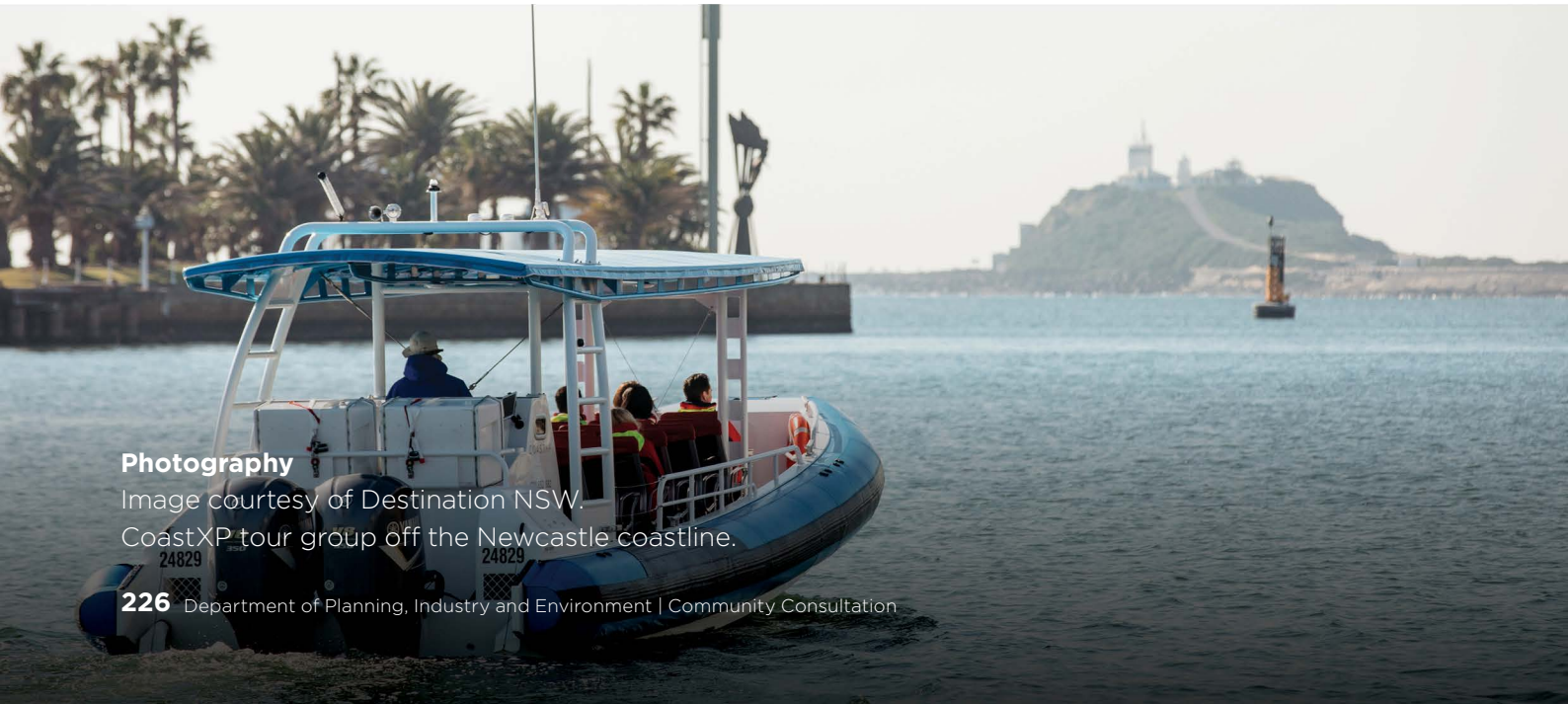
CN is currently drafting an Environment Strategy that will include a circular economy action plan. This plan which will articulate the vision and actions around the principles of designing out waste and pollution. Water management and security is a critical component of a circular economy, and as such Hunter Water has been identified as a key partner in developing this plan. We aim to engage in discussions with Hunter Water later in the year and anticipate Hunter Water will support circular economy initiatives as part of the plan.

CN appreciates Hunter Water's ongoing collaboration on the Hunter Regional Sustainable Development Goals Taskforce. Increasing discourse on the importance of a circular economic approach, especially with respect to water use and supply.

CN also welcomes the draft Lower Hunter Water Security Plan's commitment to further investigation of purified recycled drinking water. While noting that there is some hesitancy within our community around drinking recycled water, purified drinking water is commonplace throughout parts of the world, most notably in Perth.

We encourage Hunter Water to continue exploring this future option with its customer base, noting that the topic provides Hunter Water with a leadership opportunity that could be demonstrated by a controlled trial at some future time. Certainly, CN sees significant financial and environmental benefits from exploring purified drinking water at the expense of future hard water storage infrastructure within the catchment.

Should further information be required on any of the points in this submission, please contact us.



Photography
Image courtesy of Destination NSW.
CoastXP tour group off the Newcastle coastline.

Organisation submission 019 – Dungog Shire Council

Please accept this submission in relation to the Draft Lower Hunter Water Security Plan on behalf of Council. This submission was prepared after the Draft Plan was analysed and discussed by Dungog Shire Councillors and staff at a workshop on 30th August 2021. Council's submission will address the questions posed by the exhibition document as follows:

Are the priorities and actions appropriate?

Council considers that the priorities and actions of the Draft Plan are generally appropriate but the following comments are provided in relation to each Priority.

Priority 1

Council supports the continued investment in catchment management and protection initiatives. Council has worked in partnership with Hunter Water on projects such as the Septic Investigation and Rectification Project (SIRP) and The Williams River Catchment Assessment project as well as the multi stakeholder Williams River Erosion Management Advisory Committee.

Whilst these partnerships aim to establish a robust multiple-barrier approach to drinking water quality and the management of our river systems generally, Council has signalled its concern over the effectiveness of this approach through correspondence to the Premier and relevant Ministers. Council's concerns relate to the lack of coordinated leadership and management in these issues for our rivers.

Council's representations to Government in this regard are extremely relevant to Priority 1 of the Draft Plan and it is considered that a coordinated and properly resourced management and protection Authority for all rivers (and incorporating the drinking water catchments) would be of benefit to Hunter Water and Dungog Shire Council.

The LHWSP places substantial reliance upon the drinking water catchments from within Dungog Shire, with the Williams River and Seaham Weir Pool in particular a significant existing source of drinking water and the Paterson/Allyn river systems contributions also being amplified under the Draft Plan. Dungog Shire communities bear restrictions associated with living in the water catchment, and to date the community has not been compensated accordingly.

Council is very concerned at the gradual deterioration of water quality in the Seaham Weir Pool despite development regulations, strict measures for onsite effluent management and provision of a reticulated sewer system for Clarence Town. Hunter Water's own records confirm this.

The community has experienced algal red alerts over summer months whereby recreational use of the river has been prohibited. This has also impacted the viability of the Williams River Holiday Park and with extensive outbreaks of duck weed, hornwort and other aquatic weeds in addition to the algal infestations. This section of the river is a very important natural asset to Clarence Town residents.

The weir pool is a key element of the Lower Hunter Water Plan but it is located in a valley where dispersible clay soils predominate, leading to high nutrient loads in the river. The weir has now been in place for over 50 years and has not been subject of the natural flows and regular flushing with floods. It remains to be seen whether the recently announced increased environmental flows can overcome the problems with water quality.

Some sections of the community are very concerned about the impact of boating upon the stability of banks and water quality of the weir pool. Council has made numerous requests for the establishment of an independent body to be responsible for water quality in the Williams River.

Priority 2

Council supports the actions under Priority 2 aimed at "making the most of what we've got". These include leakage reduction programs, Water Conservation and Efficiency strategies, and the review of BASIX. Council also supports the development of objectives and priorities for water-enabled liveable communities, including irrigation of public open spaces and viable recycling opportunities for new developments.

Council is also interested in and supports Hunter Water's development of a circular economy framework to identify opportunities for greater resource recovery with Council having already commenced its own circular economy journey in partnership with the Hunter Joint Organisation of Councils.

Priority 3

The proposed actions under Priority 3 have the most potential to impact on the communities of Dungog Shire.

Council supports the Plan's actions to seek planning and funding approvals to transition plans for the Belmont drought response plant to a permanent desalination plant and the construction of this plant as a permanent and significant source of drinking water for the Lower Hunter.

Council also supports the actions surrounding drought management planning including water restrictions, the construction of the drought relief desalination plant at Walsh Point and the actions surrounding research and development aimed at maximising the viability of water reserves in ground water and the Tomago sand beds.

The actions that affect Dungog Shire significantly in Priority 3 are those relating to the Glennies-Lostock Scheme and the proposed Hunter Water connection to this Scheme via the Paterson River at Gostwyck.

In relation to this proposal, Council makes the following comments-

- Glennies Creek Dam is proposed to be used to increase the storage capacity of Lostock Dam and hence boost the amount of water available to flow down the Paterson River.
- Hunter Water propose a drinking water take off at Gostwyck.
- There are a significant number of irrigators and agricultural water users on the Paterson both above Gostwyck and in the tidal pool below it.
- Whilst the possible use of water from Lostock Dam offers important alternatives to the water supply of the Lower Hunter, this proposal should not be permitted to adversely affect irrigators with increased costs and less reliability of access to irrigation water.
- Hunter Water is a critical water user and hence will have priority for water.
- The modelling suggests that even in severe drought, there should be no impact on the water available for irrigators and agricultural users due to the other available sources of water for Hunter Water -these include two desalinations plants, sand beds, Central Coast pipeline, the Williams River and Grahamstown Dam. The second desalination plant would only be used in these severe circumstances.
- It is suggested that any approval, consent, license or other right given to Hunter Water to take water from the Paterson river be conditioned – to prohibit the taking of water if it would reduce the water available for existing and future agricultural users including irrigators both above and below Gostwyck.
- To ensure that there is a sufficient environmental flow in the Paterson River to maintain the water quality of the tidal pool for irrigation and other agricultural purposes.
- The drawing of water from the Paterson River is considered the removal of a valuable resource from a catchment predominantly within Dungog Shire for which local communities do not directly benefit. Council respectfully submits that local infrastructure investments should be considered as ancillary projects to the LHWSP, particularly where they can be considered as supporting the priorities of the Plan.

- Major infrastructure investment incorporating the sewering of the residential and rural residential portions of the towns and villages of Paterson, Vacy, Gresford, East Gresford and Martins Creek would serve to protect an extended drinking water catchment between Gresford and Gostwyk. This infrastructure is considered to align with Priority 1 of the Draft Plan and Council would request that Hunter Water revisit these sewer projects in parallel with the LHWSP.
- Council would also raise the potential need for significant upgrades to local road infrastructure as well as electricity upgrades in relation to the construction of new pumping stations and pipelines to either Balickera or to Maitland.
- Council would also like to flag the issues surrounding the acquisition of land for the construction of infrastructure as well as easements for pipelines. Council is concerned about the loss of rate revenue where private property is acquired by Hunter Water for these purposes.
- The establishment of a water draw off point at Gostwyk would in all likelihood necessitate the establishment of an additional drinking water catchment area extending from Gresford to Gostwyk. Council is aware of the land-use implications associated with this as a high percentage of Dungog Shire falls within a drinking water catchment area, however residents need to be assured that the implications on their land uses, both existing and proposed will not be detrimental.

Priority 4

Council supports the Plan's actions relating to engagement with First Nations and Aboriginal communities to incorporate their knowledge and values in decision-making and increase their participation in strategic planning processes.

All other actions contained in Priority 4 are supported.

Council notes that one of the three key planning priorities of the Hunter Regional Plan 2036 for Dungog Shire is-

Protect Water Supply

The Dungog Local Strategic Planning Statement supports the Hunter Regional Plan in the following planning priorities –

Theme	Planning Priority	Action
Infrastructure supporting growth	Planning Priority 3 – Protect Regional Water Security and Quality	23. Work with Department of Planning Industry and Environment to finalise and implement the Greater Hunter Regional Water Strategy. 24. Work with Hunter Water to ensure planning controls are appropriate in drinking water catchments to protect source water quality.
A sustainable environment	Planning Priority 2 – Build resilience to the impacts of climate change	35. Work with Hunter Water as a key stakeholder in adapting and building resilience to climate change.
	Planning Priority 3 – Protect water security and improve water	37. Update planning controls to resource land in response to locally important agricultural lands mapping to ensure protection of agriculture and water supply.

Council considers that the Draft LHWSP is not inconsistent with its Local Strategic Planning Statement.

Has something been missed?

Council would request that the following matters be further considered and become actions of the Plan or be considered as ancillary matters deserving of Hunter Waters attention.

1. Hunter Water's role in advocating for an independent body to be responsible for water quality and catchment management of all River systems in NSW. This Authority would assist in delivering key actions contained in Priority 1 of the plan.
2. Hunter Water's commitment to major infrastructure projects within Dungog Shire to offset the impacts of the proposal to establish an additional water source from the Glennies-Lostock Project. Council's preference in relation to these projects is the provision of reticulated sewer systems to Paterson, Vacy, Gresford, East Gresford and Martins Creek. These projects would not be inconsistent with the theme of Priority 1 of the Plan in that they would protect the drinking water supply.

Which priorities and actions are most important to Dungog Shire?

It is considered that Priorities 1 and 3 of the Draft Plan are of particular importance for Dungog Shire. The protection of existing resources is very important for not only the maintenance of quality drinking water, but to support the economy of Dungog Shire through its tourism, agricultural and recreational sectors. This is perhaps more relevant to Dungog Shire than any other Local Government area impacted by the Plan.

As detailed above, the proposed actions relating to the Glennies-Lostock project and Hunter Water's connection thereto is also a matter of significant importance to Dungog Shire and Council's comments relating to this are contained in this submission.

Thank you for the opportunity to provide Dungog Shire Council's feedback on the Draft LHWSP. Should you require any clarification of the points made, please contact either myself.

Photography
Image courtesy of iStock.
Lake Macquarie NSW.

Organisation submission 020 – Save the Williams River Coalition

Introduction

As a representative of the SWRC serving on the above Hunter Water (HWC) committees, my aim has been to focus on a sustainable approach to water supply planning for the Lower Hunter region. SWRC has always considered that HWC needs to take a more diverse, integrated, sustainable and flexible approach to water supply/security, whilst following current research/technology and best practice.

SWRC supports the general direction HWC has taken with the draft LHWS, however is of the view that the water utility needs to do more in the areas of demand management, water conservation, recycling and storm water harvesting. This seems to be the way the water utility is heading. HWC has rightly moved away from rainfall dependent strategies and ruled out new dams as part of the mix of options to be included in the plan. The plan should be monitored/evaluated on a five yearly basis and be adaptive to changing technologies.

Research has shown that the three most important things that could be done to meet water supply requirements are: (1) using innovative sources such as recycling and stormwater harvesting (2) lowering the demand for water through education and (3) raising the price of water to reflect its scarcity. User pay is an important principle. Those who use more water should pay more and incentivization programs established to discourage the use of potable water for industry, manufacturing, processing and mining.

It is disappointing that price reform is not considered as a means of managing water demand. The community has long been concerned that current high levels of fixed charges provide a strong disincentive for customers to reduce water use or invest in water efficient appliances, equipment and management practices. We strongly believe that by reducing the level of fixed charges and placing a greater total reliance on volumetric charges would assist in reducing the demand for water. Water, sewage and drainage should be on an inclined block pricing structure. This should be assessed and included in the review of options. We are also strongly opposed to the maintenance of Hunter Water's 'location based' prices that provide discounts for certain high volume industrial water users. These discounts provide a disincentive for industrial customers to invest in more water efficient production processes or convert to recycled water. We strongly believe that the abolition of 'location based' prices should be included in all options for future water management in the Lower Hunter water area.

The climate is changing - HWC has recognised that we need to do things differently to build a safe, reliable and resilient water supply.

With climate change and its consequent severe weather events, evidence shows diversity of source options to be the key. Infrastructure Australia has recently supported this view.

In climate change warnings recently released by the CSIRO and BoM, there is an expected increase in extended dry periods and droughts becoming longer and more severe, a predicted reduction in rainfall frequency and streamflow runoff, fewer East Coast Lows and increased evaporation from water storages.

The report goes on to say, *"It is important to recognise that climate change is not only about potential changes in average rainfall. It is also expected to involve greater volatility and duration in rainfall patterns. This may potentially result in a greater chance of being at relatively low storage levels necessitating a greater reliance on water restrictions."*

"Climate change is also about a higher level of uncertainty regarding future supply. That is, there is no information about the probability of the extreme events occurring. In situations of increased uncertainty water supply strategies that offer greater flexibility in responding to new situations are likely to be more 'valuable' compared with those more traditional approaches."

These predictions are re-enforced in the 2021 NSW Draft Water Strategy and the NSW Productivity Commission Green Paper (2020) which highlight many of the key challenges facing the water sector, noting the following:

"The recent drought highlighted many vulnerabilities in metropolitan and regional water services in NSW. These vulnerabilities indicate that we need much better long-term strategic planning and to fundamentally rethink and improve how we use and manage water."

"We must plan and prepare for a future where we may need to deal with more extreme and more frequent droughts and floods than we have experienced in the past. This means that we need to reduce our reliance on traditional climate dependent water sources to supply our towns, cities and industry, while protecting the communities and natural environments sustained by our waterways."

"Our water supplies in NSW could be less secure than we thought. This is because we now understand that droughts longer than those of the last 130 years are likely at some point, and that we could also see higher temperatures and less rainfall. Projected changes in rainfall patterns, warmer conditions and increased evaporation will impact future water availability. The frequency, intensity and duration of droughts are also predicted to increase, which may affect water quality and the ecology of our rivers."

- *"the risk that traditional rainfall-dependent water supply will become less reliable as demand pressures grow, and that the combination of population growth, changing climate and ageing infrastructure will test the water sector's ability to meet the evolving water needs of NSW."*
- *"The overall message from new modelling is that our water supplies in NSW could be less secure than we thought. This is because we have now factored in that droughts longer than those of the last 130 years are likely at some point and potentially to reduced river flows and more frequent low flow periods, decreased inflows into dams and water storages, and lower water storage levels."*
- *"Climate change means that NSW will confront more frequent and more severe droughts, temperature and storm events. Over the next two decades, towns and cities should aim to transition to more secure water storage options, diversify water sources and increase the proportion of non-rainfall dependent sources. At the same time, we should invest in more efficient and valued uses of water by households and industry. We will also need to better integrate the way that we capture, provide and manage urban water through land use planning and urban design."*
- *"Use diverse water sources for greater water security."*
- *"Many regional towns are dependent on a single source of water for town water supply. This makes them particularly vulnerable to drought, as well as other incidents that could compromise the viability or safety of water supplies. Diversification of water sources—which may be across surface water and groundwater, recycling and desalination—and the use of other standards of water for non-drinking water purposes can significantly improve water security."*
- *"Stormwater and recycled water remain largely underused water sources with significant potential to improve water security for towns and communities. Options may include purified recycled water for drinking. Recycled water also provides options for supplying fit-for-purpose water for industry and agriculture, and for maintaining 'green' spaces—reducing reliance on drinking water supplies and relieving the pressures on the wastewater system."*

- *The outstanding highlight of this NSW* Draft Water Strategy is clearly the need to "diversify water sources and increase the proportion of rainfall independent sources.

HWCs stated in their December community engagement meeting that: "the challenge is drought", and that "storages fall 1% per week in severe drought". Total storage levels fell from 88.5% to 52.6% in the 15 months from October 2018 to February 2020. HWCs total storage has never been at 100% capacity in the last 40 years.

Net evaporative losses from Hunter Water storages is in the order of 60,000 ML/year (around 90% of average supply). Add this to the real water loses (leaks) of about 6,000 ML from the supply system each year and the system is losing approximately as much water as it supplies each year - a very inefficient and wasteful water supply system, particularly when it is paying to pump the water which is subsequently lost from the supply system.

During the recent drought, because of either lack of water or water quality issues in Seaham Weir.

- According to Hunter Water, just over 3% (2,449 ML) of their average annual allowance (78,500 ML) of water was able to be transferred from Seaham Weir to Grahamstown dam in 2019.
- In the last six years to November 2020 an average of only 53% of the average annual allowance of water was transferred.
- Over those six years, 222,000 ML of the allowance was unable to be sourced from the Williams River.
- To put that in perspective, Hunter Water customers consumed just over 66,000 ML last year.
- So that is more than 3 years supply, that either wasn't available, or wasn't safe enough to be pumped from Seaham Weir to Grahamstown Dam.

Water toxicity and poor catchment management by HWC is a huge threat to the Lower Hunter's water supply. Water quality with respect to dams is already limiting the ability of the water utility to extract the allowable, licensed allocation. This threat will not be alleviated by building more dams and will become an even greater threat as climate uncertainty affects streamflow and evaporation levels. HWC have acknowledged this by moving away from the construction of new dams.

Statements made by HWC:

Grahamstown Dam upgrade ("Why Tillegra Now" Hunter Water 2010)

"Further investment in Grahamstown Dam would result in an increased reliance on the Grahamstown Scheme and reduced source diversity, essentially 'putting all our eggs in one basket'. This would significantly reduce Hunter Water's capabilities in contingency planning for extreme water quality events."

KEY RISK "Increased reliance on the Grahamstown Scheme." 2019 MERI

"A number of supply side risks exist which did not impact upon yield in 2018-19, although these could be an issue in the future. These issues will be monitored and considered in the calculation of yield for the next LHWP, including reduced inflow to Grahamstown Dam due to water quality risks."

HWC has recognised that a diverse range - and rainfall independent water supply options are required to build resilience and reliability. The Lower Hunter region presently has too much reliance on dams and one catchment.

Reliability can only be achieved through climate independent strategies such as recycling, stormwater harvesting, desal and aquifer recharge being added to the mix of water conservation, demand management and pricing reform.

The Williams River Catchment is obviously not a reliable enough supply on which to base the long-term water security of the Lower Hunter particularly during extended drought.

After the axing of Tillegra Dam in 2010, Hunter Water were directed to diversify its options.

This is because over 94% of all water supplied by HWC comes from the Williams River Catchment, so there is already an over-reliance on this catchment and rainfall dependent systems.

Independent government reports during and after the axeing of Tillegra Dam have all emphasised the need for HWC to change its practices and diversify its water planning for the Lower Hunter region.

Dams are well known to cause major environmental impacts. Any new dam in the Williams, Chichester catchments would have had adverse implications for the whole of the Hunter River systems, its ecology and the Ramsar listed Kooragang Wetlands. Reports by Professor Richard Kingsford, during the Tillegra Dam debacle reinforced this view.

The World Commission on Dams found that dams, generally, have an overrun cost of 50%. For the 40 dams constructed in Australia and over a wide historical period (built between 1888 and 2012), estimated cost immediately prior to commencement of construction and final cost were available. For these dams the median cost overrun is 49% with the exceedance range being 20% and 131% respectively. The overall range varies from 48% to 825%. The mean cost overrun of all 40 dams is 120%.

HWC has recognised that making the most of what we've got will improve water efficiency.

Water efficiency makes our supplies go further. It also slows the need for large-scale infrastructure supply options and is a cheaper alternative for the community.

A Parliamentary Call for Papers by Independent Justin Field, on 26 August 2020, uncovered a detailed report which demonstrated that HWC needed to do more when it comes to water efficiency.

The report, Water Efficiency and Demand Management, Institute for Sustainable Futures (ISF), University of Technology, Sydney, January 2018, was commissioned by Hunter Water with the goal of delaying the need for a decision on supply augmentation for 10 years.

Hunter Water's 2017+3 Strategic Plan Water Resilience states:

"Each year we defer a major augmentation saves our customers $20 million in avoided investment costs. Keeping our options open would add an additional $9 million in avoided costs, in excess of the direct deferral benefit, due to the ability to take advantage of shocks and shifts to the yield-demand balance (e.g. technological change) that further defer the need for a source augmentation."

The ISF Report was also intended to set a new direction for Hunter Water in relation to water efficiency and demand management.

The report showed HWC's water efficiency record in comparison with other major Australian water utilities and its need to improve on its performance.

Some of what the ISF report Says:

- Although there has been a number of demand management and water efficiency programs run by Hunter Water, the data collection and evaluation processes have been limited. This data scarcity creates challenges for developing and justifying future programs.
- Many HWC residential programs have not achieved the same participation rates as other jurisdictions.
- A lack of regulatory and environmental drivers and associated lack of funding and incentive mechanisms by HWC have limited the uptake of programs and the implementation of savings.
- Considering the participation rates and the population size of the Hunter, there still appears to be water conservation potential in both the residential and non-residential sectors.

- There needs to be detailed market segmentation of customers to better understand how to develop more sophisticated tailored demand management programs.
- There were gaps identified in the suite of demand management/water efficiency programs run in the Lower Hunter region compared to other jurisdictions, most notably in the limited targeting of high users and multi-dwellings; limited rebates for efficient appliances; and the absence of garden programs (except for water wise rules and trigger nozzle giveaways).
- HWC have generally not reached the depth of adoption or covered the breadth of customer groups for non-residential programs of other utilities with mandatory programs imposed in the Millennium drought.
- Given the high amount of rainwater tanks in the region (around 40,000) HWC have not capitalised on programs associated with these to support water efficiency.
- HWC have not followed through with programs for high-end water users (the top 30 non-residential customers with average demand over 50ML/yr account for 50% of non-residential use).
- Incentivisation programs for medium water users is limited (the top 200 non-residential customers in the Hunter have a demand 10-50ML/yr accounting for 20% of non-residential use).
- A need to take advantage of 'best practice' demand management programs.
- Gaps in the suite of demand management and water efficiency programs run in the Lower Hunter region compared to other jurisdictions, most notably in the limited targeting of high-end users and multi-dwellings, limited rebates for efficient appliances and the absence of garden programs (except for water wise rules and nozzle giveaways).

Very few water efficiency gains have been made by Hunter Water in the last ten years. In 2010 real losses totalled 7% of supply. In 2020 real losses totalled 9% of supply. More water was recycled in 2009-10 than in 2019-20. Water consumption gains of 11% made in 2019-20 could be partly attributed to water restrictions applied during the recent drought.

HWC has recognised that the Lower Hunter community highly value its environment – community consultations demonstrated this.

Dams, through disruption of physiochemical and biological processes, have water and associated environmental impacts that have far reaching social and economic consequences. The construction of a dam results in "discontinuities" in the river continuum (Ward & Stanford, 1995). Post impoundment phenomena directly and indirectly influence a myriad of factors that affect natural processes and so, ultimately, alter the ecological structure of ecosystems, sometimes tens or even hundreds of kilometres downstream.

Dams also alter the downstream flow regime and produce large amounts of greenhouse gases. The environmental impacts of building a dam have already been proven to be disastrous in the Williams River catchment through the Tillegra Dam proposal, with the 'Decision' media release stating that a dam in the Lower Hunter would place an "unacceptable level of uncertainty about potential impacts on the environment, particularly the Hunter Estuary and its internationally-recognised wetlands"

Environmental assessments completed for HWC during the options evaluation process highlighted and confirmed that dam options were likely to have devastating effects on many species of threatened flora and fauna in the dam and pipeline areas as well as on downstream aquatic ecosystems, industries and nationally and internationally recognised wetlands. Threatened koala and critical koala habitat, as well as platypus were also found at the proposed dam option sites.

Stormwater harvesting requires more investment by HWC.

Currently Hunter Water operate and maintain about 92 km of storm water drains in the Lower Hunter which is all discharged into waterways or the ocean. None is currently collected, treated and added to the supply storage network.

The local community continually advocates to have this precious source of water added to the supply network, but to date, nothing has been done.

Desalination as part of the mix of water security options is important for the mix of rainfall independent options.

Used extensively in many parts of the world and in particularly in drier climates such as the Middles East and Australia, the technology is proven but is continually becoming more efficient and cost effective. The long-awaited introduction of desalination into the regions supply will be the lynchpin that will hold together all the other components of the LHWSP by securing a safe and reliable permanent supply source while having the capability to be upscaled as and when required as a drought response and for any increased demand due to population and industrial growth.

A recent study from Finland's Lappeenranta University of Technology predicts the global average levelised cost of drinking water (LCOW) from desalination plants could decline from around $3.78/kL in 2015 to $1.65 by 2050 if solar, storage systems and other renewable energies are used to decarbonize the sector. This needs to be considered.

Regional Water Sharing makes sense providing the Lower Hunter region does not become the principal contributor HWC currently has a two-way pipeline connecting with the Central Coast supply system, enabling water to be transferred either way when required due to water shortages in either region.

As part of the Greater Hunter Regional Water Strategy, NSW Water is in the final planning process for a new two-way pipeline to connect Lostock Dam on the Paterson River and Glennies Creek Dam in the Upper Hunter. As part of the LHWSP, to increase regional water sharing, it is planned to connect into this system by accessing water from the Paterson River sourced from Lostock Dam and piping it either to Maitland or to Grahamstown Dam.

If connected to the Maitland system, this will result in an increased resilience of the Lower Hunter's water supply system, by providing a new independent water supply source to Hunter Water. Regional water sharing will result in improved regional system resilience, linking the Upper Hunter, Lower Hunter and Central Coast water systems and will have comparatively low ongoing operating costs.

Increased recycling needs to occur to match community expectations.

The Lower Hunter community has strongly endorsed recycling as a priority for water security planning (94%) so should be featured more heavily in the LHWSP and considered for major expansion into the future. The Greater Hunter Regional Water Strategy recommends the implementation of a large water recycling plant. Currently, around one third of potable water is used for non-domestic purposes and only around 10% is recycled.

As noted by the NSW Productivity Green Paper (2020): "Options may include purified recycled water for drinking. Recycled water also provides options for supplying fit for purpose water for industry and agriculture and for maintaining 'green' spaces- reducing reliance on drinking water and relieving the pressures on the wastewater system.

Non-residential customers attributed 37% of water consumed in 2019-20. To reduce the use of potable water where not required, an incentivisation program needs to be introduced as part of the LHWSP to encourage high water using industries to develop their own on site and stormwater harvesting schemes.

Planning regulations (such as BASIX in NSW) incentivise or require alternative water sources such as rainwater tanks or third pipe recycled water solutions to reduce potable water demand and thus obtain development approval. Typically, rainwater tanks are a cheaper way for developers to satisfy such regulations; but sometimes third pipe dual reticulation is offered up as a competitive alternative (Australian Building Codes Board, 2016).

A more cost-effective method of recycling large quantities of recycled water is by using large scale purified recycled water schemes for a resilient, secure and sustainable water supply using much of the existing distribution network.

HWC has recognized that aquifer recharge/re-use & recycling is an important strategy for the future Perth is treating wastewater to drinking water standards, with its groundwater replenishment scheme adding around 28 GL per year of recycled water to the city's aquifers with upgrades expected to deliver 115 GL per year by 2060.

Potable water reuse offers a potentially significant, relatively drought- proof source of water. The degree of significance is, to a large extent, a consequence of the 'multiplier effect' that comes with reclaiming water which, once reused and returned to municipal sewers, becomes available to reclaim a second and subsequent times.

In the case of water recycling, an injection of 'new' water into a municipal system is made to meet new and growing demand. Some of that water (such as that used on gardens and other outdoor uses) will be lost from the system, but in a highly urbanised scenario, much of it will be returned to the sewage collection system and become available for re-treatment and re-injection back into the system. A city, which is able to capture and recycle 50% of the drinking water it supplies, will capture 50% again (thus a total of 75%) on the second time around. Capturing 50% on the third time around gives a total of 88%. This practice of 50% capture and recycle will ultimately lead to a doubling (an extra 100%) of the city's available potable water supply. The impact of the multiplier effect becomes exponentially more effective as the percentage of water recapture and reuse increases.

Aquifer/storage recharge and re-use must become a priority for HWC as the uncertainty of reliability of traditional supplies increases with climate variabilities.

Unfortunately, most public perception of recycled water use is using non-potable recycled water systems for outdoor irrigation of gardens, parks and sporting facilities. There is a major education program required to broaden this perception to include all uses of treated, recycled water for industrial use and for potable water.

On 21 March 2021 results were released from a 7 Portfolio Survey of options for water security in the Lower Hunter region. Portfolio 3 (deliver choices for water conservation, recycled water, storm water harvesting; increase interregional transfers, community engagement for purified recycled water for drinking) was the top performing Portfolio with a score of 73%. 805 participants supported this option out of the 1,167 responses.

The continued exploration of groundwater sources needs to occur.

The continued investigation into the deep water Tomago paleochannel, as well as the search for additional groundwater sources needs to be ongoing. Groundwater could become a long-term, sustainable source for the region and could incorporate an aquifer recharge scheme. Aquifer recharge schemes enable suitable aquifers to store surplus surface and treated recycled water to be used in times of drought while also maintaining critical groundwater levels benefiting groundwater dependent ecosystems and reducing the threat of seawater ingress in coastal groundwater supplies.

Organisation submission 021 – Correct Planning and Consultation for Mayfield

It is critical for water authorities to have water plans that indicate how the communities that they serve will be able to provide water that is fit for purpose and in the quantities required by the customers they serve.

Water authorities are in the main monopoly suppliers to their communities.

Water authorities provide three main commodities to their geographic areas. Namely

- Water supplies
- Sewage services
- Drainage services.

All these are critical services for the community to function and all three services are strongly linked. All must be strongly provided for in the major plan.

The "plan" produced by Hunter Water is called The **Lower Hunter Water Security Plan. It is claimed to be** a whole of government approach to ensure the region has resilient, secure and sustainable water supply, now and for future generations. The new long-term plan is aimed at better enabling Hunter Water to adapt to future uncertainties, such as population growth and climate variability.

It is arguable that population growth and climate variability are not uncertainties. Both are highly predictable and are the product of sound planning strategies and government policy.

The uncertainties for Hunter Water are factors such as:-

- Technology
- Invention
- Fads
- Health
- Political changes
- New laws
- Natural disasters
- Amalgamations
- Etc.

The draft LHWSP has not adequately considered these and this submission provides some examples:-

The implementation of Hydrogen as a fuel will have major and long reaching impacts on water demand and use.

The Hunter is likely to be at the forefront of the change to Hydrogen as it is a politically identified location. Quality water is a key ingredient as the hydrogen is extracted from the water molecule.

What volume of water will be needed to meet our Hydrogen demands? Eg water used to make Hydrogen fuel? (10kg water makes 1 kg of Hydrogen.)

What quality of water will be required?

Where will the water need to be delivered to?

Covid called for the community to wear masks. What if xxxxx pandemic calls for us all to have three long showers each day?

If the Government disbanded Hunter Water and handed the water responsibility back to each Lower Hunter Council how would the plan stack up? (remember that many LGA's handle their own water now).

If the law required all potable water to be kept below 10 degrees C?

If there was an earthquake at Chichester Dam and the dam failed?

If there was an amalgamation of Hunter Water and Central Coast Water?

Uncertainties like the real examples above do not seem to have been considered or provided for in the draft LHWSP.

The LHWSP draft would seem to have considered the supply options to the point of even considering new dam sites in the northern parts of Hunter Wates area. Strangely it did not consider options in the south or west.

The pipeline between the Central Coast and the Hunter does not seem to play a significant role in the LHWSP. Why is this?

The potentials of the Hunter River and a connecting pipeline with Sydney or the Mid North Coast are not considered.

The notion that the Hunter Water supply dams could run dry does not seem credible. In the last forty years the Hunter Water Storage Level has reliably maintained levels between 60% and 80% capacity. Only on one occasion has it dropped below 50%. Rarely has there been overflows.

It would seem that storage levels are a function of Hunter Water management and not precipitation.

Clearly there is absolutely no need for desalination plants and these should be removed from the LHWSP. The energy costs and environments impacts should also disqualify desalination plants in the Hunter Region.

The LHWSP does not seem to have charted the demand for water in the future.

Further the LHWSP has not broken that demand into water quality groups. It is extremely wasteful to be supplying almost all water to customers that is treated to a potable water standard when only about 8% of water needs to be of potable water standards.

Hunter Water should be providing three classes of water to customers.

Potable water for drinking cooking and other potable water standard uses etc.

General purpose water for gardens, pool filling, industrial purposes, cleaning, cooling, toilet , firefighting, dust suppression, etc.

Most customers should also have tank water for rainwater harvesting and water reuse activities.

Most households would have dual water supplies. This is not as difficult as it may seem. Most households now have three garbage bins (unthinkable in the past!)

The LHWSP does not contain details of an adequate water reticulation framework.

The current system has massive water leaks, high levels of evaporation, inadequate storage capacity and no infrastructure of rain water harvesting or water reuse. The ability to recycle water is sub minimal.

The Lostock dam pipeline proposal would seem to be outside the scope of the LHWSP as it is a water transfer scheme outside the Hunter Water boundary. The is little opportunity of water transfer eastwards. Lostock was constructed for flood mitigation purposes.

CPCFM is concerned that the LHWSP provides little about the essential reforms to billing to customers. The reforms must include:

- The implementation of a Customer Contract to the person or entity responsible for each and every meter.
- Pricing should eliminate the fixed charges now in use and placing a total reliance on volumetric charges. Pricing for water, sewage and drainage should be on an inclined block pricing structure with the first block being free. There would be an incremental price rise for each block.

Large consumers generally have the ability to pass on their costs to their customers. They also have the most to financially gain by implementing usage minimising methods and procedures.

A 100% user pays inclined block pricing structure would drive savings and efficiencies for all consumers and for Hunter Water. As such this strategy should be the most important tool in the LHWSP.

Hopefully a new water pricing structure will make the operators of public spaces, sporting fields and the like make their decisions to use water based on the real value of water etc.

Conclusion

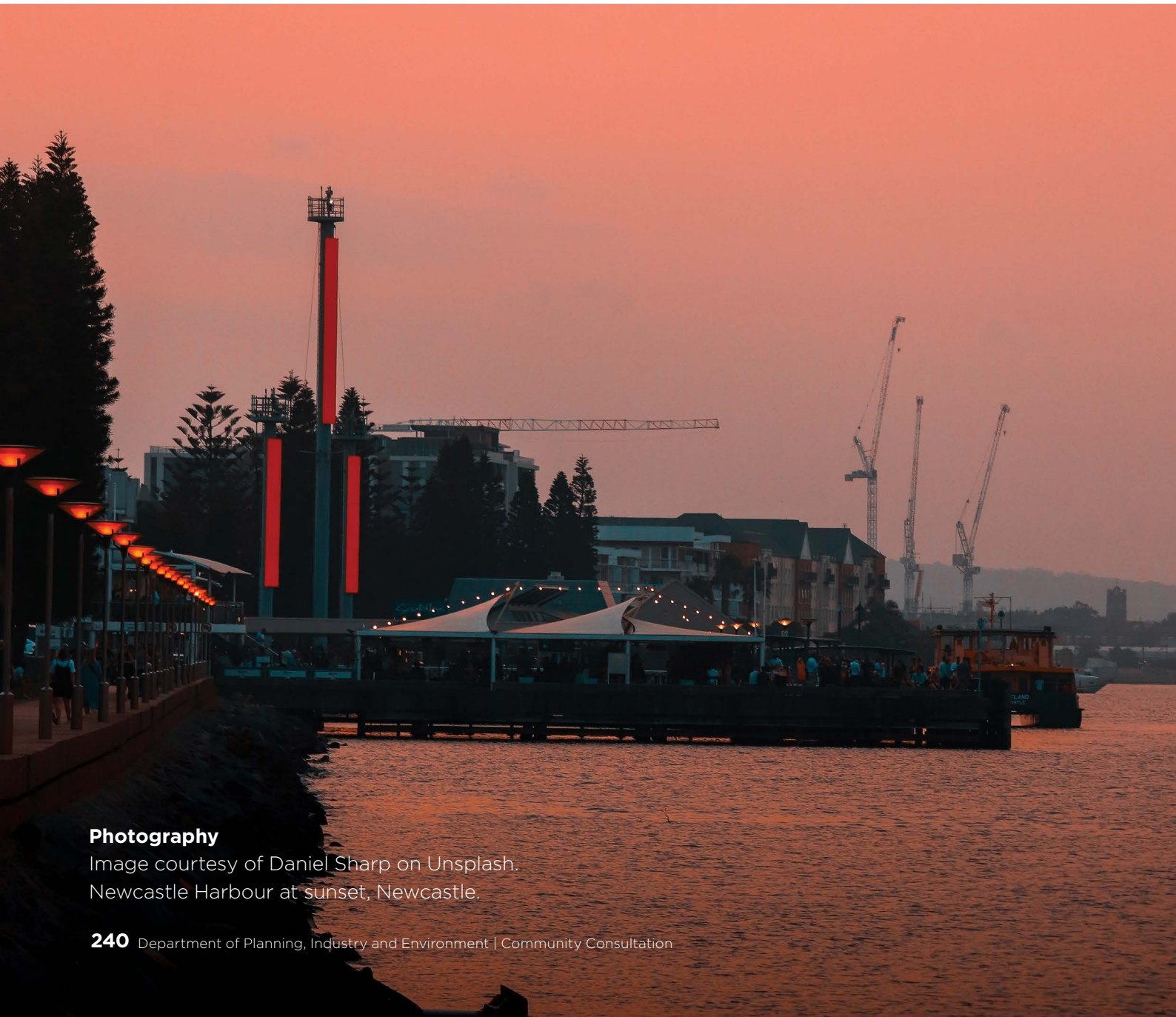
The Lower Hunter Water Security Plan contains major projects that will consume considerable funding. The LHWSP acknowledges this will put upward pricing pressure on customers bill.

The adoption of 100% user pays pricing strategy based on inclined block pricing will give bill relief to a significant number of Hunter Water Customer Contract holders in return for them reducing their demand for Hunter Water services.

Scrapping the Lostock dam proposal and the desalination proposals will allow those funds to be used to greatly improve the reticulation system, greatly reduce waste and evaporation and to implement a duel water supply and a rain water harvesting provision.

Using potable water for potable water tasks should be the driver for water use reform. The cost of that reform should be in part funded by the saving in processing almost all of the water supplied to potable standards.

Correct Planning and Consultation For Mayfield group trust that the draft LHWSP will be modified to accommodate our comments.



Photography
Image courtesy of Daniel Sharp on Unsplash.
Newcastle Harbour at sunset, Newcastle.

Organisation submission 022 – Gresford and District Community Group

The Gresford and District Community Group submits the following in response to the Draft Lower Hunter Water Security Plan proposed by Hunter Water, part of which involves taking water from the Paterson river catchment, the head of which is the Lostock Dam (the "Dam").

It is our view that there is no surplus water from this catchment and Dam and information to the contrary is, in the jargon of today, fake news. In future climate change will only increase the present demands of the Paterson Valley on the need of the water from the Dam.

There are basically two Water Sharing plans affecting the Paterson river, both of which are required to pay licence fees to the Government. The Regulated plan is for the stretch of river from the Dam to Gostwick Bridge: the Unregulated plan, amongst other areas in the Hunter Catchment, is below the Gostwick Bridge to the confluence to the Hunter River.

The licence fees charged by the above 2 plans vary. Those licencees on the Regulated River have access to fresh water from the Dam. At the Gostwick bridge there is a commitment by the Government to ensure a flow of 10ml per day. Licencees below the Gostwick bridge on the Paterson River have the right to take their licensed amount of water that flows by their properties. The fees payable by the licencees on the Unregulated river are less than those on the Regulated river in recognition that the water below the Gostwick Bridge is tidal and the salinity increases as the river flows towards the sea.

Our understanding of the facts is as follows;

a. The Paterson Valley has been an agricultural community for nearly 200 years producing a triple bottom line to the valley and the wider community.
b. The Lostock dam was built primarily to enable all farmers on the Paterson river to irrigate.
c. Today, at no net cost to the Government, the dam and the Paterson River provide triple bottom line benefits.
d. Environmental water is required by the Regulated Water Sharing Plan. There has never been a study on the environmental needs. Whilst the Dam can spill in times of heavy rain, these spills combined with the flooding in tributaries are needed for environmental purposes.
e. The ways in which water has been used has changed over the course of history but the need has not diminished.
f. Significant infrastructure has been installed to achieve the benefits now enjoyed by the community.
g. The economic, social and environmental wellbeing of the valley are dependent upon the flow from the Dam being undisturbed.
h. The recent drought has demonstrated the size of the Dam is barely sufficient to meet the social, economic and environmental needs.
i. There is an abundance of water storage in the Upper Hunter.
j. The Upper Hunter is at the start of a significant transition away from fossil fuels for both the power generation and coal mining industries which will free up the water referred to in (i) above.

If the above facts are not disputed – and there is no known scientific or other evidence disputing them – then why is the government contemplating taking water from the Paterson river catchment?

The Dam works really well and as it was intended. Do not devastate the Paterson Valley by taking water away from it. As mentioned above, climate change, and more extremes in temperature and weather conditions, will ensure water from the Dam for the Paterson Valley will become even more essential in future years.

Organisation submission 023 – Water Services Association of Australia

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry in Australia and New Zealand. Our members include the water utilities supplying water and wastewater services to over 24 million customers.

We commend Hunter Water and the NSW Government on the development of the Draft Lower Hunter Water Security Plan. In our view, the Plan is a good reflection of 'best practice' water planning approaches.

For example, it takes an 'all options' planning approach, to investigate all options with an open mind, recognising that all water supply options can all make a contribution. This approach is well recognised and publicly supported, for example by the Federal and NSW Productivity Commission; Infrastructure Australia; Infrastructure Victoria, and the NSW Water Strategy, which all emphasise that all options should be looked at.

It also provides climate resilience. As evidenced by the recent IPCC report, the climate is getting hotter, and rainfall more variable. Dams have generally been the backbone of our water supplies in Australia, but this Plan recognises the need to complement dams with sources of water that are not dependent on rainfall, such as desalination, recycled water and purified recycled water for drinking.

We have seen a strong shift around Australia and the world towards diversifying traditional water supplies with options like this; in Perth, Brisbane, California and other parts of the US, Europe and Africa. In Australia, it is likely that non-rainfall dependent options will play an increasing role in future.

This overall push towards diversification sets the region up well for the future. Having a mix of supply sources means the Lower Hunter will not be 'putting all its eggs in one basket'.

This provides flexibility – for example the transfer pipeline allows water to be moved around to where the water is most needed, when water is plentiful; but at the same time, the region will be prepared for times when water in dams and rivers is not plentiful, by being able to access seawater through desalination and reuse the existing water supplies, through recycling. Overall, this will help the region cater for the growth it is experiencing, as well as uncertain weather conditions.

The Plan also ensures that as a first step, we use the water we have wisely – through leak management, and encouraging water-wise behaviours in the community's everyday lives. This means that investment in new water supply options only occurs when needed.

The Plan is based on a deep and thorough engagement with the community, to understand their values, and let them contribute their views, questions and priorities. We strongly support this engagement and dialogue with the community. It has shown that the community see safe drinking water as paramount – an absolute priority which the water industry shares. They have also shown that they do not necessarily want the least cost options, but rather value minimising environmental impact, and future-proofing the water supply system. Communities have crossed many frontiers with the water industry as we adopt new technologies that help us best manage our water resources, and it is vital to proceed hand in hand with our customers and communities.

We believe the demonstration plant for purified recycled water for drinking is an excellent next step for deepening this relationship with the local community. Around the world, many cities that have explored purified recycled water for drinking, have found that a demonstration plant was extremely valuable as it allowed them to explore this technology with their communities in a transparent way. A demonstration plant

lets both communities and regulators see how the purification processes work, and the robust testing and monitoring that goes along with ensuring any new water supply option meets our strict health and safety guidelines, before any decisions are made. This investment in continuing to learn about innovation elsewhere, is an excellent 'no-regrets' step to help the region be prepared and able to adapt for the future.

We encourage Hunter Water and others involved in water supply planning, to accompany the demonstration plant with education about the water cycle. Sometimes in modern life, the community is less aware that all water is recycled, in both the natural water cycle of rainfall and evaporation, and in the urban water cycle where the water that has been used by communities is treated carefully and released back into the environment to begin the cycle again, and be used by other communities.

In fact, seemingly 'new' technologies like desalination, recycling and purified recycled water for drinking simply recreate what happens in the natural water cycle, but more quickly. These technologies have actually been in use for a long time and are well proven – for example, desalination is widely used in many parts of the world as well as Australia; and purified recycled water for drinking is used by over 35 cities world-wide, many for decades. Perth in Western Australia uses both desalination and purified recycled water, and the capacity of Perth's purified recycled water groundwater replenishment scheme is currently being doubled. Many more cities are now exploring purified recycled water through demonstration plants or other studies. See the map of cities at the end of this submission.

We strongly support making greater use of First Nations knowledge about water – we have much to learn from the people who have looked after this land and its resources for thousands of years.

Lastly, we support the strong linkages between the Draft Lower Hunter Water Security Plan, and the Draft Central Coast Water Security Plan.

WSAA has published two reports on 'all options on the table' water supply planning, and engagement on purified recycled water for drinking, they are:

- All Options on the Table: Urban Water Supply Options, which provides levelised cost and other information about all water supply options.
- All Options on the Table: Lessons from the Journeys of Others, a guidebook for the Australian water industry on how to approach the conversation with the community about purified recycled water for drinking.

Thank you for the opportunity to make a submission.

dpie.nsw.gov.au