Inquiry into the augmentation of water supply for rural and regional New South Wales

Post Hearing Response

Questions on Notice

CENTRAL NSW COUNCILS

Centroc's Mission is to be recognised as the lead organisation advocating on agreed regional positions and priorities for Central NSW whilst providing a forum for facilitating regional co-operation and sharing of knowledge, expertise and resources; effectively nurturing sustainable investment and infrastructure development.

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CENTRAL NSW COUNCILS

Centroc
Forbes Shire Council
PO Box 333
Forbes NSW 2871

Email: jennifer.bennett@centroc.com.au

Chairman: Cr John Medcalf, Mayor, Lachlan Shire Council

Reference bw:vp 081614

22 June 2017

The Hon Robert Brown MLC
Chairman
General Purpose Standing Committee No. 5
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Mr Brown,

Re: Inquiry into the augmentation of water supply for rural and regional New South Wales

Further to Centroc's responses to supplementary questions following is response to questions on notice as detailed in the transcript of the Portfolio Committee No. 5 hearing in Orange held on Wednesday 17 May 2017.

Responses to Questions on Notice

Question 1: *From the Hon. Paul Green (page 2 & 3)*
i) What is the water supply like in addressing your future needs and population growth? (page 2)
ii) Evidence of the limited opportunities for economic growth based on water shortages? (page 3)

Centroc response:

Providing evidence of where lack of security of water supply impacts on economic growth on a LGA by LGA basis is complex and the subject of a much larger piece of work than the timeframe for response allows.

However, the most recent completed study that has attempted to describe the extent of the water security problem for the Lachlan valley is the WaterNSW commissioned *Phase 1 -Belubula and Lachlan Dam Investigation Report* (MWH 2014) available at the link below.

http://www.waternsw.com.au/__data/assets/pdf_file/0016/118006/Belubula-and-Lachlan-Dam-investigation-report.pdf

Section 3 (page 10) of this report sets out to define the water security problem. In summary the report makes the following observations.

Water security in the Lachlan Valley has historically been an issue**.** Drought, notably the Federation drought and the Second World War drought, has had major impacts on both the urban and rural communities of the region.

The Millennium Drought exposed the lack of water security in the whole Lachlan Valley supplied from Wyangala Dam. Many of the region's cities and towns were forced to impose severe restrictions on domestic, commercial and industrial uses. Water dependent agricultural and mining businesses were also significantly impacted.

Trends in the temporary trade in the water market suggest that it is unlikely that this part of the regional economy will recover without a significant improvement in water security for high value agricultural investments.

As there is no market for town water supplies, it is not a simple exercise to determine the economic value of improving water security to towns. However, investments in ensuring water security for towns that have been made in the Central NSW region over the past 5 years have varied from $850/ML security improvement to $11,000/ML of security improvement. Costs are for capital and operation, discounted over time.

With respect to agricultural productivity, the records of available water for the Lachlan Valley illustrate that the valley is less secure for irrigation activities than other valleys in NSW

General security licences in the Lachlan Valley are subject to periods of zero allocation both in terms of 'announced allocation' at the start of the water year and in terms of 'actual allocation' by the end of the year.

The market price of permanently traded water in the different NSW valleys also indicates that water in the Lachlan Valley is less secure.

Lachlan Valley Water Association has also had an economic assessment of the value of irrigation water to the regional economy completed which highlights the importance of this sector in the region (WRI, 2011).

In terms of the security for other economic users of water the report references work by Regional Development Australia Central West undertaken in 2012.

In its Regional Economic Profile, RDA Central West found that the economy of Central NSW is driven by mining (18.5% of gross regional product), agriculture, forestry and fishing (6.1%) and manufacturing (8.3%).

These sectors are also significant in terms of employment in the region (RDA Central West, 2012). These industries consume water as a factor of production, and in particular, the growth of mining and agricultural endeavours can be limited by the availability of water supply.

A detailed assessment of the economic benefits to be obtained from investing in water supply in the Lachlan Valley was not undertaken as part of this study. However, consultation with stakeholders provided anecdotal evidence that the lack of water supply security in the region is limiting economic development. Examples cited included:

- Potential of a new gold mine in the Blayney area and discussion of a number of other potential mine interests
- Potential of a new abattoir in the Blayney area
- Possible food processing facilities

In general, irrigators, town water utilities, Water NSW customers and the potentially impacted landholders consulted agree that the lack of water security in the region is impacting on the economy and quality of life of the Central NSW region. These stakeholders also broadly agreed that investment in water storages is a key

component of improving water security.

The study concluded that lack of water security for both current and planned future consumptive users sourcing water from the Lachlan Valley is limiting economic growth. Market information and stakeholder feedback provided in *Belubula and Lachlan River Dam Investigation Report* provides the following evidence of the issue:

- Severe restrictions have been in place on town water use during the drought;
- History of long periods of low or no general security agricultural water availability and high security water has been restricted;
- Depression of agricultural economy of the region as evidenced in the trading of licences and lack of investment;
- Limitations on the potential of mining industry in the region. See advice in 1 regarding the potential Kings Plain Mine;
- Consumptive extraction licences have been purchased to protect water for the environment, reducing the water available for consumptive water users.

The Centroc Water Security Study 2009 forecasts the demands of the cities and towns of the region for the next 50 years and compared them to the available supplies.

Using sophisticated modelling the study forecast urban demand from the dozens' of towns within the Centroc remit, for a 50 year horizon through to 2059. These forecasts took into account projected population growth tempered by the necessity for more efficient urban water usage. Surface and groundwater resources were modelled and the impact of both the current climate sequence and a climate change scenario considered.

The study concluded additional storage was required to meet future needs (Centroc, 2009) with 29 towns at risk and requiring substantial improvements to be made to their water security.

Economic development of the region relies on growth in skilled and flexible labour in order to support industry expansion. Meeting these labour needs means an increase in the urban population and subsequently results in more demand for water.

Decentralisation policy, affordable housing and over -crowding in our capital cities is seeing a growing interest for relocation to regional centres.

Recent anecdotal advice is of significant growth in a number of communities within the region. In 2016 Cowra reported a 30-40% increase in development applications; over 400 new dwellings were approved in Orange and a demand for housing in Lithgow where houses are selling within 24 hours of hitting the market.

The following tables are from the Centroc Water Security Study. Table 3.1 identifies the water demand nodes that were modelled as part of the study. Table 3.2 provides a summary of demand forecasts. The map on page 9, also from the Centroc Water Security Study highlights the 29 towns at risk and requiring substantial improvements to be made to their water security.

To access the Centroc Water Security Study please go to:
http://www.centroc.com.au/wp-content/uploads/centrocwatersecuritystudycomponent20120infrastructureauditreportrev20320board.pdf

3.1 FORECASTING DEMAND FOR WATER

Modelling the water demands of the towns of the Centroc region is a complex undertaking. To simplify the modelling process and improve the reliability of outcomes, the demands of neighbouring towns and villages are sometimes treated as a single modelling "node". The demand nodes, and the towns and villages they represent, are outlined in Table 3-1. Other smaller towns, largely dependent on rainwater tanks or minor surface and groundwater supplies, were excluded from the modelling. For more information on these towns, see Appendix B.

Forecasts of the water demands for each of the towns for the next 50 years were developed taking into account expected growth and the potential to conserve water.

Table 3-1: Water Demand Nodes Modelled

DEMAND NODE	WATER SUPPLY SCHEME	LWU/COUNCIL	URBAN CENTRES INCLUDED
Bathurst	Bathurst	Bathurst Regional Council	Bathurst
Blayney - Carcoar	Central Tablelands Water	Blayney Shire Council, Bathurst Regional Council	Blayney, Millthorpe, Carcoar, Lyndhurst, Mandurama, Garland
Boorowa	Boorowa	Boorowa Council	Boorowa
Canowindra	Central Tablelands Water	Cabonne Shire Council	Canowindra, Woodstock
Condobolin	Lachlan	Lachlan Shire Council	Condobolin
Cowra - Koorawatha	Cowra	Cowra Shire Council, Young Shire Council, Weddin Shire Council	Cowra, Koorawatha, Bendick Murrell, Brundah, Greenethorpe, Mogongong, Wattamondara
Crookwell	Upper Lachlan	Upper Lachlan Council	Crookwell
Cudal/ Cargo/ Manildra	Central Tablelands Water	Cabonne Shire Council	Cudal, Cargo, Manildra
Cumnock - Yeoval	Cumnock	Cabonne Shire Council	Cumnock, Yeoval

DEMAND NODE	WATER SUPPLY SCHEME	LWU/COUNCIL	URBAN CENTRES INCLUDED
Forbes	Forbes	Forbes Shire Council	Forbes
Gooloogong-Eugowra	Central Tablelands Water	Cowra Shire Council, Cabonne Shire Council	Gooloogong, Eugowra
Grenfell	Central Tablelands Water	Weddin Shire Council	Grenfell
Lake Cargelligo	Lachlan	Lachlan Shire Council, Tullibigeal	Lake Cargelligo, Murrin Bridge, Tullibigeal
Lithgow - Portland	Fish River, Lithgow	Lithgow Shire Council	Lithgow and Portland
Molong	Molong	Cabonne Shire Council	Molong
Murrumburrah (Harden)	Harden, Goldenfields Water County Council	Harden Shire Council	Galong, Murrumburrah, Jugiong, Wombat
Oberon	Oberon	Oberon Council	Oberon, Oberon timber industry
Orange	Orange	Orange Shire Council	Orange, Clifton Grove
Parkes	Parkes	Parkes Shire Council	Parkes, Peak Hill, NorthParkes Mine
Wellington - Geurie	Wellington	Wellington Council	Wellington, Geurie, Nanima
Young	Young	Young Shire Council	Young

Key factors considered in forecasting demand included:

Table 3-2: Summary of Water Demand Forecasts

DEMAND NODE	POPULATION SERVED WITH WATER		BASELINE AVE ANNUAL DEMAND (ML)	
	2009	2059	2009	2059
Bathurst	30,054	32,749	6,420	7,618
Blayney - Carcoar	4,143	4,464	907	1,044
Boorowa	1,075	954	178	172
Canowindra	1,519	1,637	332	385
Condobolin	2,882	3,581	883	1,291
Cowra - Koorawatha	8,837	9,687	2,836	3,494
Crookwell[8]	1,999	1,936	331	335
Cudal/ Cargo/ Manildra	1,187	1,279	260	302
Cumnock - Yeoval	601	618	177	201
Forbes	8,161	8,499	2,761	3,074
Gooloogong-Eugowra	713	768	156	180
Grenfell	2,018	2,174	441	513
Lake Cargelligo	1,397	1737	428	626
Lithgow - Portland	11,379	11,301	1,794	2,069
Molong	1,586	1769	278	387
Murrumburrah (Harden)	2,243	2,249	792	863
Oberon	2,514	2,667	839	960
Orange	36,766	42,107	5,837	7,373
Parkes[9]	11,203	14,118	6,731	8,150
Wellington - Geurie	5,245	6,304	1,348	1,946
Young	7,373	8,590	1,618	2,039

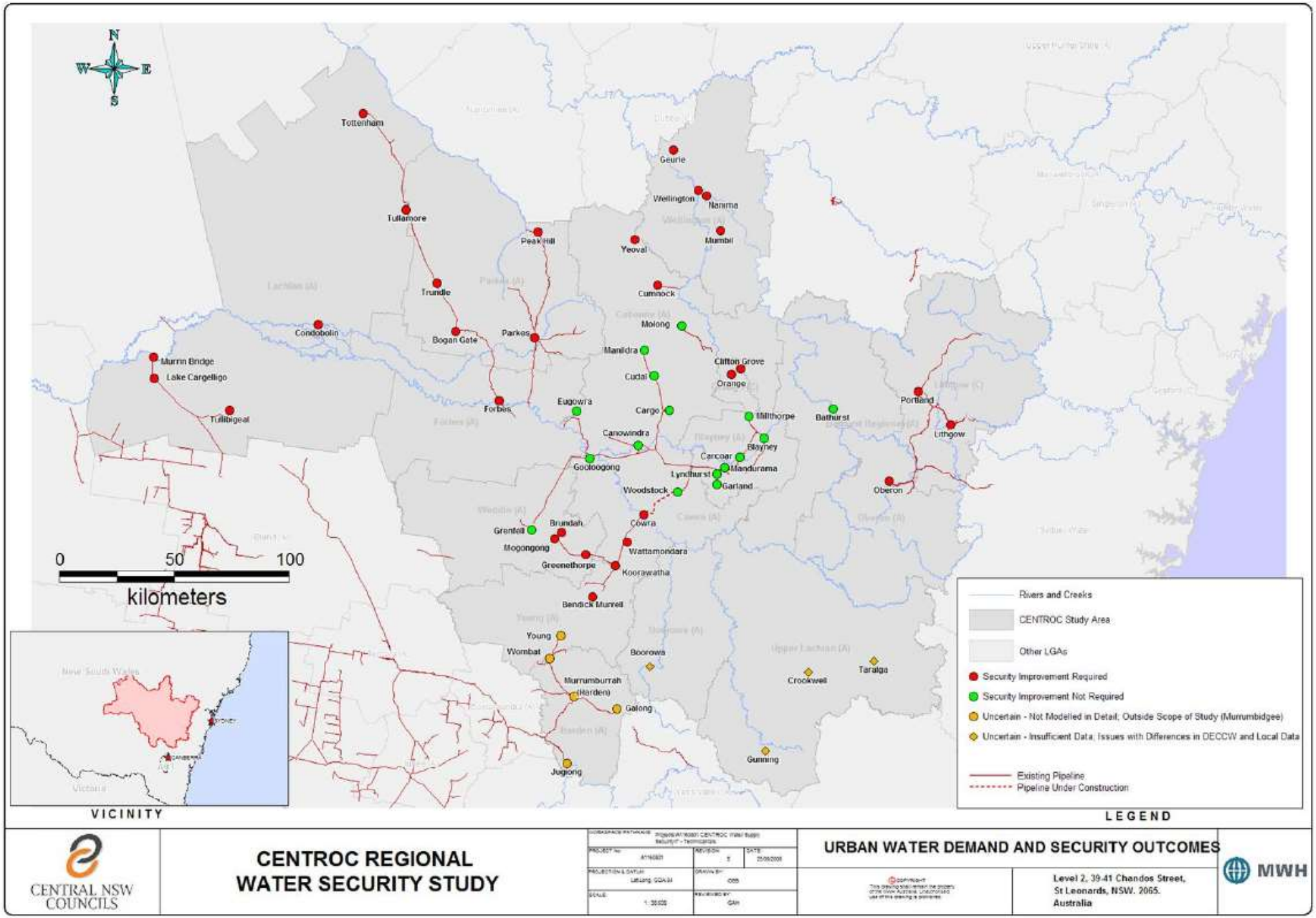


Figure 4: Water Security Outcomes of Urban Demand Nodes in the Centroc Region

***Question 2**: From the Hon Penny Sharpe (page7)*
Provide a copy of the Infrastructure Australia document

Centroc Response:

Infrastructure Australia Audit, 2015

The figure below from the Infrastructure Australia, *Australian Infrastructure Audit, 2015* shows projected gross regional product to 2031. The Central NSW region is slated to be in the top 7 in the nation with an estimated $17.4 billion in gross regional product.

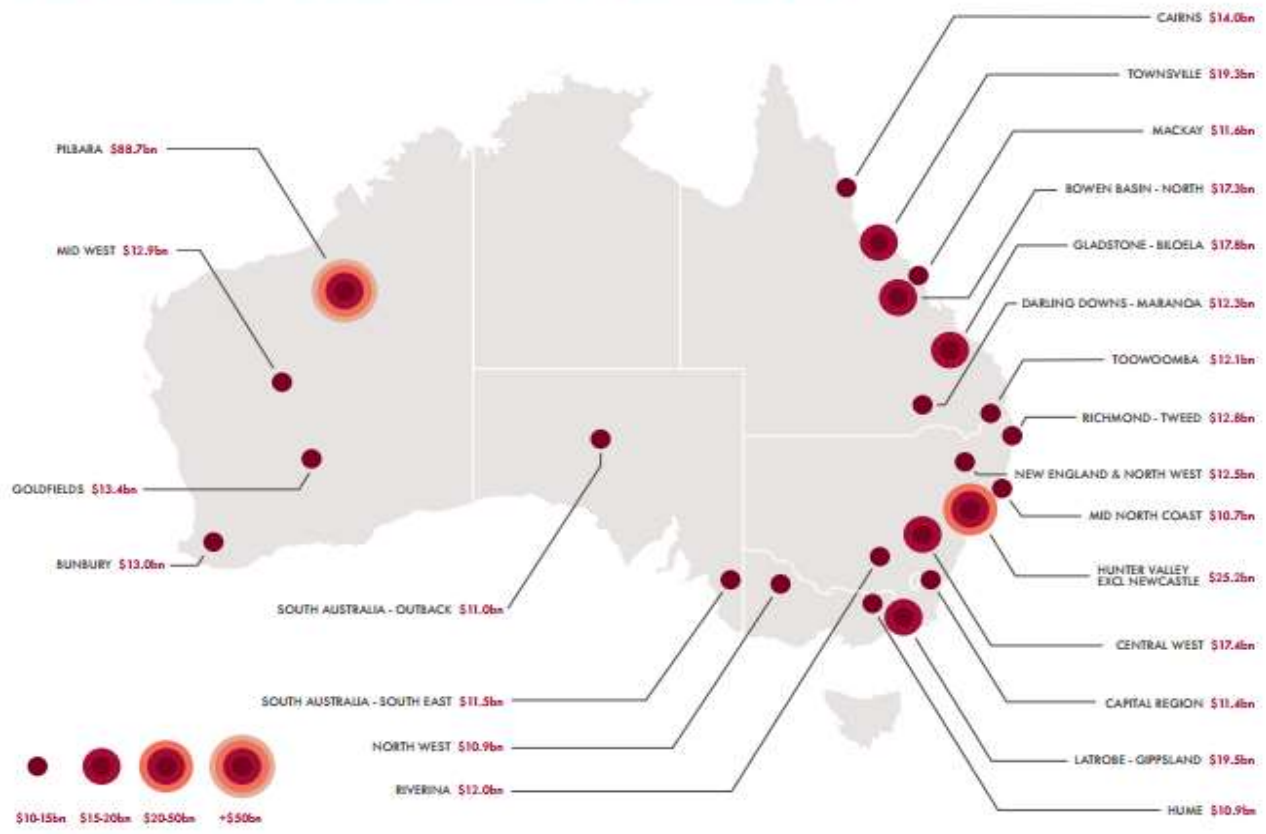
The 2016 NSW Population and Household Projections for population of the Central NSW region by 2031 is 220,250.

The average contribution to GRP per person in 2031 is estimated to be $79,001.

A full copy of this report is available at the following link:

http://infrastructureaustralia.gov.au/policy-publications/publications/Australian-Infrastructure-Audit.aspx

Figure 4.1: Projected gross regional product for major regional centres in 2031



Source: Australian Infrastructure Audit, 2015

***Question 3**: From the Hon. Robert Brown (page 8)*
Options for urban water supply from investigations into a new dam at Cranky Rock 2?

Centroc Response:

A dam at Cranky Rock 2 supplemented by linkages between Lake Rowlands and Carcoar Dam has the potential to benefit downstream stakeholders by enhancing regional water security catering for future population growth in the region while also helping local communities improve agricultural productivity and combat drought conditions.

Critical to note is that options such as Cranky Rock 2 are for water storage principally to manage irrigation water and floods so that general security water can be made available on a reliable and regular basis to producers. Any potential benefits for town water security hinge of what happens to Carcoar Dam.
It has been suggested that if the new dam went ahead it would free up water currently required for irrigation from the existing Carcoar Dam and if linked to Lake Rowlands and the Central Tablelands network would extend the network providing back-up drought supplies and secure water to a number of towns beyond the current network. Concerns have been raised previously, however, regarding licence entitlements attached to Carcoar Dam and whether these would remain with Carcoar Dam or be transferred to the new dam.

An outline of the potential project to supplement the new dam proposal for town water needs is detailed below.

Lake Rowlands and Carcoar Dam Linkage Project

1. The Project

This infrastructure project links the two dams so as to combine their adjoining catchments and maximise the volume of stored water using existing infrastructure.

The concept works because:
- the dams are about 6 kms apart;
- Lake Rowlands overspills several times its capacity each winter/spring; and
- Carcoar Dam is rarely full, so has unutilised storage capacity.

Carcoar Dam (35.8 GL) is on the Belubula River and has a catchment of 230 kms². It is owned by WaterNSW and is used to supply water for irrigation and mining along the regulated Belubula and Lachlan River valleys.

Lake Rowlands (4.5 GL) is on Coombing Creek and has a catchment of 197 kms². It is owned by Central Tablelands Water (CTW) and is used for town water supplies to 14 towns and villages over 5 local government areas in the Lachlan valley. The confluence of the Belubula River and Coombing Creek is less than 10 kms downstream of the dams.

2. Core Concept

The basic linkage project would be to capture and store in Carcoar Dam the Lake Rowlands overspill water (on average about 18 GL of water each year) which would then be available for and allocated to:

- town water supplies (via CTW) of say 10 GL of first security allocation;

- high security water for new economic development (in particular, Regis McPhillamys mine) of say 6 GL pa (via CTW or WaterNSW); and
- irrigation water for the balance (via WaterNSW)

The two dams, thus linked, could then be managed as a single multi-purpose water storage.

It is important to recognise that this project is not an alternative to the new dam proposal. It is ancillary or supplemental to it. In order to maximise the region's potential for growth (in population and economic development) the linkage project alone would not be sufficient and may be at the expense of other users. It is just one component of the solution to make available additional storage to achieve water security for all consumers in the Lachlan valley. If the new dam proceeds, the combined storage would be available for town water security and to support new local economic development, with the irrigation component of the Carcoar dam storage sized to meet the requirements of irrigators downstream of Carcoar Dam up to the new dam.

The cost of the linkage project is estimated to be in the vicinity of $25m to $35m, comprising approximately 10 kms of 900 mm pipeline and pump stations.

3. Variation

The capacity of Lake Rowlands could be increased, which would increase the total combined storage capacity of the linked dams. There are 2 options:

- raising the wall of Lake Rowlands to increase its capacity from 4.5 GL to 10 GL. This was the original intended capacity; and
- augmenting Lake Rowlands by the construction of a new dam wall approximately 2.5 kms downstream. This would increase capacity to approximately 26 GL and combined capacity to 62 GL. The augmentation proposal was the key recommendation of the Centroc Water Security Study in 2009.

4. Key features of the linkage project

- Modest new investment in pipeline and pump stations.
- Innovative use of existing infrastructure.
- Environmentally sound and unobtrusive.
- Joint State /Local (and potentially Federal) Government initiative.

5. Outcomes

- Utilises built but unused storage capacity.
- Captures excess flows for new water-dependent developments: mining and intensive agriculture
- Underpins economic viability of the new infrastructure.
- Enhances water security for agriculture, industry and town water for the entire Central West of NSW.

Lake Rowlands and Carcoar Dam Linkage Project

1 Core Concept

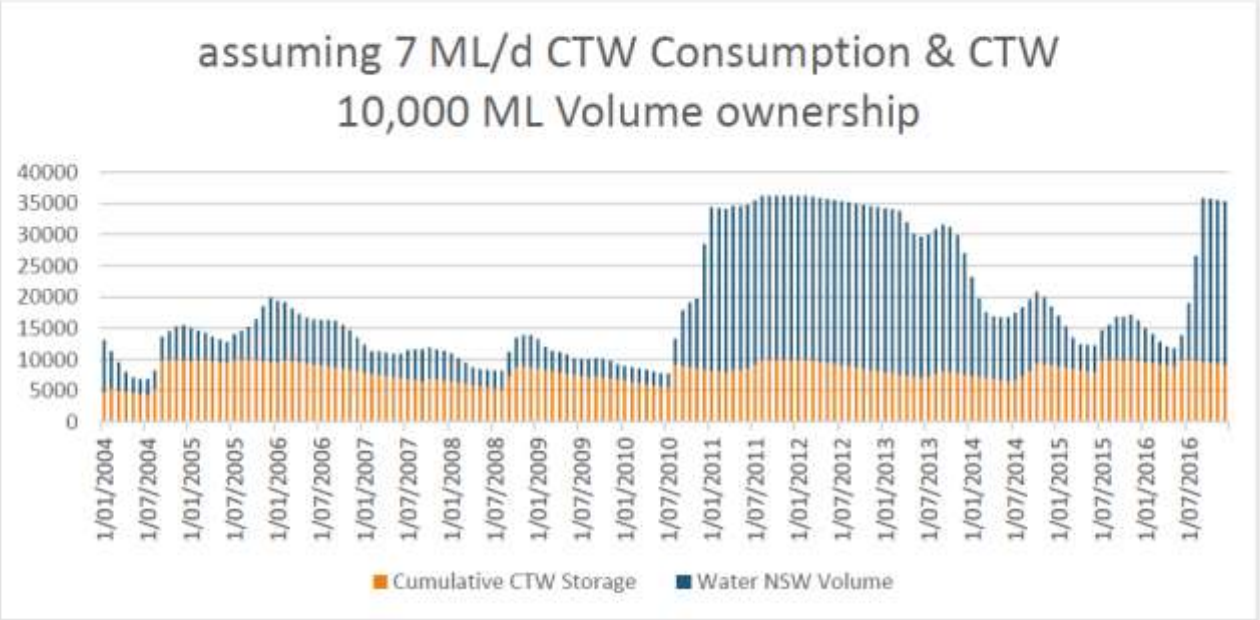
Transfer Lake Rowlands overspill water into Carcoar Dam each winter/spring:

Lake Rowlands

Carcoar Dam

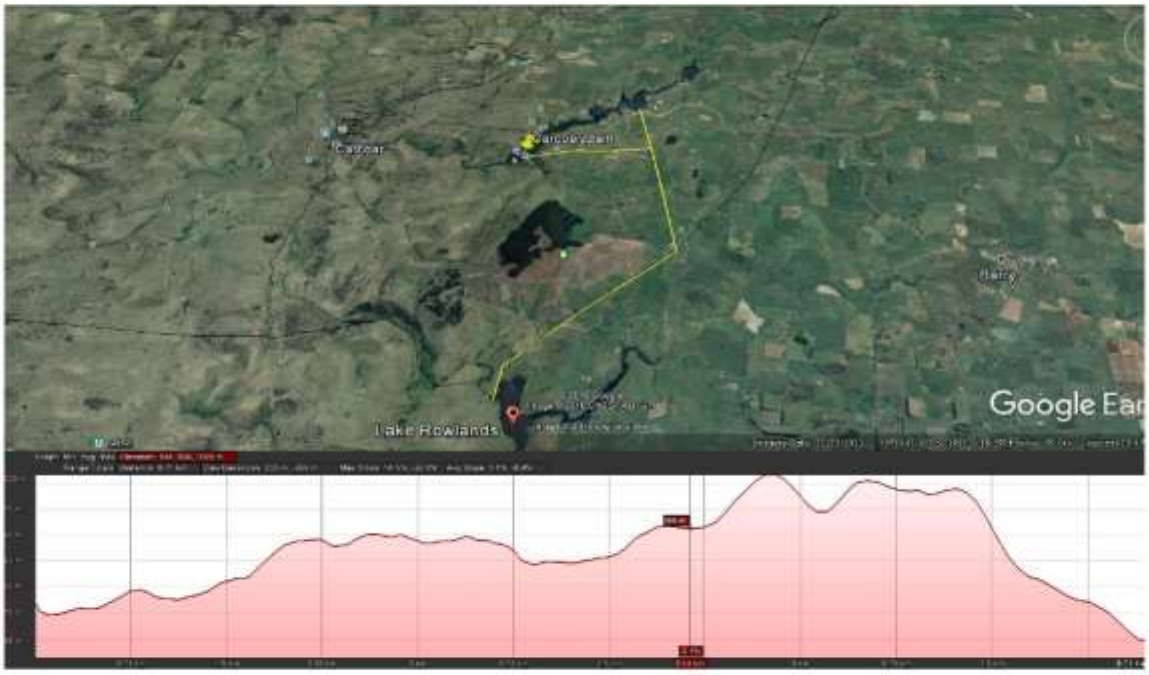
2 Outcome

Quarterly combined volumes stored in Carcoar Dam:



3 POSSIBLE PIPELINE ROUTE

Lake Rowlands has a top water level of 877.82m AHD
Carcoar Dam has a top water level of 847.18m AHD
Peak elevation is 1,009m
Pipeline route is approximately 10kms



Thank you again for the opportunity to provide response to questions on notice for the inquiry into the augmentation of water supply for rural and regional NSW as it pertains to the Central NSW region.

Please contact our Executive Officer Ms Jennifer Bennett or Meredith Macpherson, Program Manager, Centroc Water Utilities Alliance if you require further information or clarification on any of the information provided in this response.

Yours sincerely,

Cr John Medcalf
Chair
Central NSW Councils (Centroc)