
From: Helen Dalton
Sent: Tuesday, 21 March 2017 10:53 AM
To: GPSC5 GPSC5;
Subject: RE: Inquiry into the augmentation of water supply for rural and regional New South Wales - Post hearing responses
Attachments: Burrinjuck Dam is the Key.jpg; Burrinjuck Storage Reservoir.jpg; Burrinjuck Reservoir p2.jpg

Hi Jodi,

I'm happy with the transcript. There were two issues that I needed to follow up on -:

1. Burrinjuck Dam – please see attachments for basic information. Paul Pierotti would have more detail on this
2. Aquifer recharge.- NSWFW to my knowledge has done no work on this. They are basically a lobby group.

Cheers,

Helen Dalton

Burrinjuck Dam Is the Key

Burrinjuck dam is the logical place in which to store more water

It was the best site for a dam 100 years ago and it still is today

Burrinjuck Dam catchment area is 13000 square kilometres as opposed to 1600 square kilometres for Blowering Dam In fact the catchment area for Burrinjuck Dam is larger than the catchment area for the whole of the Snowy Scheme Dams

Burrinjuck has a very small surface area

of 5500 hectares and presently only holds a bit over 1 million mega litres (less than 2 Sydney Harbours)

The release of flood water earlier this year was the equivalent of Burrinjuck Dam's total storage capacity flowing down the Murrumbidgee River every five days

It would be possible to quadruple Burrinjuck Dam's storage capacity by building a new dam wall downstream from the existing wall

This new wall could be designed to always release warm water from the top thus eliminating the chill factor currently experienced with existing dams

The new dam could have twenty five per centile air space for flood mitigation and fifty percentile environmental water without affecting irrigators current usage

The raising of water levels in this area would have less impact than any proposed new dams at completely new sites

The increase in storage capacity of Burrinjuck would give greater control for flood mitigation and allow the Murrumbidgee ecosystems to be better managed in times of drought

Burrinjuck Storage Reservoir.

Burrinjuck wall is currently 93 metres high and 361 metres above sea level

The wall is 233 metres long and Burrinjuck dam has a surface area of 5500 hectares and dam capacity is 1028 gig litres

On a topographical map if the 400 metre above sea level contour is used the dam surface area would increase to an estimated 8000 hectares

The 400 metre contour has been chosen as it would not impact on Yass

A new wall would need to be built 133 metres high and could be located 4 kilometres downstream from the existing wall.

Capacity would increase to between 3500 gig litres and 4000 gig litres

At 133 metres high the new wall would be relatively low compared with the world's tallest dam walls which are 300 metres high

Wee Jasper would be inundated (population 80) and several properties, portions of properties, recreational areas, Eco resort and holiday houses would need to be resumed

If Wee Jasper is not to be inundated (379 metres above sea level)

The new wall could be 16 metres higher than the old wall giving a two metre buffer for the village of Wee Jasper (Wee Jasper is the same height above sea level as Blowering Dam at full supply)

This would result in a much smaller dam of 2100 gig litres and a surface area of 6500 hectares

A present Burrinjuck covers an area of 5,500ha. The catchment area of Burrinjuck Dam is 12,953km², which is larger than the catchment area of the whole of the Snowy Mountains

Burrinjuck catchment is 1,200,000 hectares (100 mm of runoff per hectare of catchment area totals 1200 gig litres)

The average annual rainfall of the Burrinjuck catchment is 900 mm

In 2012 floods 200,000 Megs per day were spilled from Burrinjuck

NB This all only preliminary research and areas and quantities would need to be verified by mapping authority and surveys

1200,000 Ha.
25
75

Burrinjuck currently (source State Water)

Location: On the Murrumbidgee River, 60km from Yass

Nearest town: Yass

Local Government Area: Yass Valley

Year completed: 1928 original, 1957 enlarged

Dam type: Concrete gravity

Dam height: 93m

Length of crest: 233m

Water depth: 61m

Full supply level: 361m above sea level

Storage capacity: 1,028,000ML

Surface area: 5,500ha

Catchment area: 12,953km²

Spillway: Three sector gates plus two side channel spillways

Spillway capacity: 250,600ML/day

Burrinjuck Future

Scenario 1 (Estimates)

Dam Height 133 metres

Length of crest 750 metres (Google Earth)

Water Depth 101 metres

Full Supply level 400 metres above sea level

Surface Area 8,000 hectares (estimate)

Storage Capacity 4,000,000 Megalitres (estimate)

Scenario 2 (Estimates)

Dam Height 109metres

Length of crest 700 metres

Water Depth 77 metres

Full Supply level 377 metres above sea level

Surface Area 6,500 hectares (estimate)

Storage Capacity 2,100,000 Megalitres (estimate)

Preliminary Study for a Larger Burrinjuck Dam

There may be a possibility to build a new dam wall downstream from the existing wall (100 years old)

The new dam wall could raise the level by forty metres (400 metres above sea level) and increase the potential storage volume to four million megalitres

There are many advantages in a much larger storage being built

1. An extra two million megalitres could be stored for the environment (Burrinjuck can deliver environmental flows below the "Barmah choke" on the Murray River thus reducing flood damage to Murray River properties)
2. A pipeline (54 kilometres) connecting Blowering Dam could be constructed as the two dams would now have a similar wall crest height above sea level
3. A pipeline (250 kilometres) could be constructed to provide water to Sydney Canberra and Goulburn to drought proof their water supplies. Sydney's water supply dam Lake Burragong (Warragamba Dam) is 125 metres above sea level
4. The new wall would be of similar dimensions to Dartmouth Dam completed in 1979 at a cost of \$139 million which in today's dollars would be \$454 million
5. If a value of \$1000 a megalitre is given (much less than the federal government has been spending on buybacks) a budget of \$2 billion dollars is on the table
6. With a difference in elevation of 250 metres between the wall crests of Burrinjuck and Sydney's Warragamba dam there would be great potential for more hydroelectricity to be generated with the Sydney pipeline
7. There will need to be an extensive study of costs for relocation of residents of Wee Jasper (population 80) resumption of land and rerouting of roads which will be inundated in order to arrive at a total cost for this project