

**Submission
No 64**

INQUIRY INTO WATER AUGMENTATION

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Submission re Water Augmentation

I am a resident of NSW, Australia. I live in the Blue Mountains and have worked in the Nepean area.

I am concerned with the proposed dams on the Belubula River and the protection of Cliefden Caves, because it is yet another example of poor planning that puts our countries environmental treasures at risk. There are alternatives to using dams for water supply.

I am concerned with the proposal to dam the Belubula River in Central West NSW. The proposed dam sites at both Cranky Rock and Needles Gap would impact the environmental, geological and cultural heritage values of the Belubula River Valley, and specifically the Cliefden Caves Area.

The Cliefden Caves Area is located on the Belubula River, southwest of the City of Orange in Central West NSW. The site is unique, containing internationally significant Ordovician fossils, limestone caves, a warm spring, a habitat for threatened bat species and historic cultural sites. The proposal is out of touch with what is really needed for long term water supply solutions in Central West NSW, with no forward thinking in terms of climate change or new technologies that offer more sustainable alternatives. There is growing evidence that the dam proposals are about new mines and not local agriculture or town water supply, with the Australian Federal Government proposing private enterprise funding for a dam on the Belubula River.

Examinations have shown that if the Cranky Rock dam proposals are built, the water level at Needles Gap will be raised by up to 50 metres. Early survey results indicate that any dam that floods above approximately 380 metres ASL will flood Cliefden Caves. Both the proposed Cranky Rock dams would well exceed this height.

The Cliefden Caves Limestone was the first discovered in mainland Australia in 1815 during the explorations of surveyor G. W. Evans. There are over 100 recorded caves and geological features at Cliefden in near pristine condition due to controlled access to the site. Some of the caves are up to 3km long and hold important records of past environments in cave sediment deposits.

The 450 million year-old invertebrate fossils at Cliefden have long been recognised as examples of Australia's paleontological heritage. More than 60 scientific papers have been published in a variety of peer-reviewed Australian and international journals, documenting 191 genera and 263 species of fossils from these and other sites in the vicinity of Cliefden Caves. Of these fossil species, 45 genera and 101 species are unique to the area threatened by flooding. The fossil deposits at Cliefden are used as an international paleontological reference site.

A thermal spring is located on the Belubula River adjacent to the caves. Warm springs such as these, rising from Paleozoic rock (as opposed to those from the Australian Basin), are rare in NSW with only three documented.

The Belubula River is already dammed at a number of locations upstream of Cranky Rock including at Carcoar Dam, Lake Rowlands and at the Cadia Valley Mine operations. The last millennium drought saw the Belubula run dry, with the entire Lachlan system running out of water. Native fish and Platypus also inhabit the river in the proposed area of inundation, and tributaries to the Belubula are known to have a high diversity of macroinvertebrate species compared to that of other watercourses. The Belubula River is a tributary to the Lachlan River system. The wetlands at the end of the Lachlan River are protected by commitments from the Australian Government under international migratory bird agreements.

Response to the Terms of Reference

Given the wide scope of the terms of reference, I am specifically focused with sections 1. b) and 1. f), with the NSW Government's future plans to build a dam on the Belubula, flooding the Belubula Valley and having and irreversible social, economic and environmental impacts on;

- *the Cliefden caves, fossils, thermal spring, geodiversity and cultural heritage values*
- *the ecology of the Belubula riverine environment*
- *downstream water users*
- *environmental flows into the Lachlan River and its downstream wetlands*

The Cliefden Area has previously been recognised as having national significance, with it being listed on the Register of the National Estate until its closure in 2007. The fossils deposits at Cliefden are of international significance, with the fossils being used as an international reference site for paleontological research. Flooding the area would permanently alter and destroy the fragile fossil deposits and prohibit future research on them. The impact of flooding the caves would also have similar consequences, with siltation and destruction of the sediment sequences and formations found within them, which are largely understudied. The cultural heritage values of the area are of great importance to the State's historical record. These include Cliefden being the first discovered limestone deposit in mainland Australia, early nineteenth century ruins built by the first land holders in Central Western NSW, and Indigenous sites in the area.

An additional dam on the Belubula River will reduce downstream flows, negatively effecting the ecology of both the Belubula River, and wetlands of the Lachlan River system. With the Lachlan River system already being over allocated, it will cause further degradation of migratory bird habitats in the Lachlan's wetlands including the Booligal Wetlands and Great Cumbung Swamp. Social and economic impacts of an additional dam will stem from the reduction of water for downstream water users. Combined with this, if private enterprise is the beneficiary of the water (as put forward in the Federal Government's Water Infrastructure Ministerial Working Group paper in 2014), it would likely increase water prices for local water uses.

Conclusion

The environmental impacts a dam would have on an already heavily dammed Belubula River and the Cliefden Caves Area need be considered carefully by the Inquiry. I acknowledge the real issues facing Central West communities regarding water. This being so, the Cranky Rock and

Needles Gap dams would harm and degrade the natural and cultural heritage values of the Cliefden Caves, and for this reason I am opposed to their construction.

In light of this, I submit in the strongest terms that the Inquiry reject the proposal for any future dam on the Belubula River, and that it examines other water sustainability, recycling and augmentation options apart from dam building in the Central West. The heritage values of the Cliefden Caves Area outweigh the need for any dam proposal that would compromised their protection.