

INQUIRY INTO WATER AUGMENTATION

Organisation: Save Cliefden Caves Association

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SAVE CLIEFDEN CAVES ASSOCIATION

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SAVE CLIEFDEN CAVES ASSOCIATION SUBMISSION TO NSW UPPER HOUSE INQUIRY INTO WATER AUGMENTATION

Background

Campaign

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 Save Cliefden Caves Association (SCCA) works with a broad coalition of individuals and environmental organisations concerned with the NSW Government's hastily developed plans to construct a dam on the Belubula River, flooding the Cliefden Caves area.

The SCCA is a member organisation of the Nature Conservation Council of New South Wales and has a supporter base of over 15,000 individuals across the Central West and Australia. A petition against the dam proposals has gained over 8,500 signatures to date and continues to grow. In conjunction with our partner organisations, we have held public meetings in both Sydney and the Central West concerning the dam proposal, all with large turnouts.

The SCCA is alarmed that the NSW Government is rushing towards dam construction which would flood and destroy the unique natural and cultural heritage values of the Cliefden Caves area. The proposed dam sites at both Cranky Rock and Needles Gap on the Belubula River would impact the environmental, geological and cultural heritage values of the river valley, and specifically the Cliefden Caves area.

An investigation report released by WaterNSW in February 2015 on the proposed dam locations greatly underplayed the significance of Cliefden and the impact a dam at either of the Cranky Rock sites would have on the area. The report also did not rule out the Needles Gap dam site.

The SCCA published a detailed response to the WaterNSW investigations, with our examinations showing that if either of the proposed Cranky Rock dam sites were 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 dam sites would well exceed this height. See the attached appendix for map illustrations showing the approximate locations and inundation areas of the proposed Cranky Rock dam sites.

Cliefden

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 karst features at Cliefden in near pristine condition due to the controlled access to the site. It is the most significant cave system outside the National Park estate in NSW. Some of the caves are up to 3km long and hold important records of past environments in sediment deposits and calcite formations.

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 due to both the quantity and diversity of fossil species found at the 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.

Belubula River

The Belubula River is currently 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. 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, the SCCA is specifically concerned with sections 1. b) and 1. f), with the NSW Government's *future* plans to build a dam on the Belubula River, flooding the river valley and having and irreversible *social, economic and environmental* impacts on;

- i) the Cliefden caves, fossils, thermal spring, geodiversity and cultural heritage values
- ii) the ecology of the Belubula riverine environment
- iii) environmental flows into the Lachlan River and its downstream wetlands

Dam construction always has irreparable and irreversible impacts on both the living and non-living environment. As such, when considering dam construction, the precautionary principle must remain paramount.

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 on the caves and karst features would also have similar consequences, with permanent siltation and destruction of the sediment sequences and formations found within them, which are largely understudied. The habitats the caves provide for threatened bat species and other cave dwelling animals will also be destroyed.

The NSW Government itself acknowledges the importance of karst environments generally when stating that "*NSW karst environments are amongst the oldest and most complex in the world.*" The NSW Government also acknowledges that karst environments are of "*significant*

economic, scientific, educational, recreational and aesthetic value which are highly sensitive to pollutants and human disturbance.” The NSW Parks and Wildlife Service has described Cliefden’s karst deposits as having “high significance due to its outstanding fossil deposits, abundance of karst features, extensive cave systems, diverse range of speleothems and cave fauna. Collectively these values make Cliefden Caves an important site for education and scientific research.”

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, the location of early nineteenth century ruins built by the first land holders in Central Western NSW, and Indigenous cultural sites in the area. These historical values are of state significance and would be irrecoverable if inundated by flood waters.

An additional dam on the Belubula River will reduce downstream river flows, negatively impacting 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.

Alternative options to a dam on the Belubula River have been put forward by Water Sustainability Specialist, Associate Professor Stuart Khan, of the University of New South Wales. He has suggested both water augmentation and recycling options, including urban stormwater harvesting, non-potable water recycling, direct potable reuse and managed aquifer recharge. Consideration of water demand is also crucial. Current mining in the Central West is placing significant pressure on the regions water needs at the expense of both the environment and other, more established, water users.

Social and economic impacts of an additional dam coming from the reduction of water for downstream water users is also a major concern. 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 users.

Conclusion

The environmental impacts a dam would have on an already heavily dammed Belubula River and the Cliefden Caves area need be thoroughly considered by the Inquiry. The SCCA believes damming the Belubula River 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. The Cranky Rock and Needles Gap dams would harm and degrade the natural and cultural heritage values of the Cliefden Caves area, and for this reason we are opposed to their construction.

In light of this, the SCCA submits 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.

The unique values of the Cliefden Caves area mean that it must be protected by relevant heritage registers. Until there is significant legislative protection for Cliefden, the site remains vulnerable. While the site remains threatened, our campaign will continue.

For further information on our campaign please visit our website at www.savecliefdencaves.org.au and contact us at campaign@savecliefdencaves.org.au.

Members of our committee, including University of Sydney cave research scientists currently undertaking research at Cliefden, are available to appear before the committee if required.

Thank you for the opportunity to provide a submission to the committee.



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