

Submission
No 317

**INQUIRY INTO PROPOSAL TO RAISE THE
WARRAGAMBA DAM WALL**

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We the undersigned are writing to express our opposition to the NSW Government proposal to raise the wall of Warragamba Dam by 14 metres as a flood mitigation measure.

The greater Blue Mountains contains NSW's largest tract of native bushland remaining in a near pristine state, comprising over 1 million hectares. Its outstanding natural beauty and biodiversity have been recognized through its inclusion in a series of eight connected national parks and nature reserves. Its value on a global scale has also been recognized with the Greater Blue Mountains inclusion on the list of UNESCO World Heritage sites in 2000. Around 65% of the area is prescribed wilderness under NSW legislation.

Perhaps ironically in hindsight, the World Heritage listing included the observation that in part the ongoing integrity of the Greater Blue Mountains World Heritage Area (GBMWA) would be supported by "the closed and protected catchment for the Warragamba Dam"¹.

During high rainfall events, it has been estimated that the raised dam would inundate 4,700 hectares of the GBMWA and 65 kilometres of wild rivers upstream of the Dam including reaches of the Coss, Kowmung, Kedumba, Nattai, Wollondilly and Little Rivers². Examples of the current natural state and beauty of these rivers are included in the images included at the end of this submission.

Environments of this type in their natural state are rare. An examination of topographical maps across New South Wales will most commonly show agricultural and urban development extending up river valleys, even where the steeper slopes and ridge tops are protected in conservation reserves. That such areas remain in a natural state within close proximity to Australia's largest city is remarkable.

The Greater Blue Mountains inscription onto the prestigious list of world properties occurred because the place tells an extraordinary story about Australia's antiquity, its diversity of life and extraordinary beauty. The Greater Blue Mountains is the best representative of the evolution of Australia's unique eucalypt vegetation. It contains over 100 eucalypt species and nearly ten per cent of Australia's vascular plant species³.

In addition, more than 400 animal species live within its rugged sandstone gorges and tablelands. These include threatened or rare species of conservation significance such as the spotted-tailed quoll, the koala, the yellow-bellied glider, the long-nosed potoroo, the green and golden bell frog and the Blue Mountains water skink. Flora and fauna of conservation significance and their habitats are a major component of the World Heritage values of the area⁴.

1 <https://whc.unesco.org/en/list/917/>

2 WaterNSW, 2016. Warragamba Dam Raising Preliminary Environmental Assessment.

3 <https://whc.unesco.org/en/list/917/>

4 <https://whc.unesco.org/en/list/917/>

The flora and fauna which make the lower valleys their home are often different from those which inhabit the higher ground. There are 48 threatened plant and animal species which inhabit the proposed inundation area⁵. Two of the better known examples are the largest remaining population of Camden white gums in the Keduma Valley and the critically endangered regent honeyeater, which has documented breeding sites in the valleys to be flooded under this proposal. It has been estimated that flooding under the Warragamba Dam proposal will remove habitat for around 50% of the remaining wild population of the regent honeyeater. This is totally at odds with the Australian Government's conservation plan for these birds, which includes as its first strategy to "improve the extent and quality of regent honeyeater habitat"⁶.

Internationally significant environments that are recognized within the GBMWSHA would die from sedimentation, erosion and invasion of exotic plants.

The outstanding natural beauty of the Blue Mountains is a major drawcard for tourists. NSW Government figures indicate that in the year to March 2019 the Blue Mountains received over 4 million visitors, which is a 60% increase in less than 10 years. These same data indicate that visitors are estimated to have contributed around \$772 million to the Blue Mountains regional economy⁷.

Over half a million of these visitors were Australians visiting the Blue Mountains for the purpose of visiting or walking in national parks, including to walk the multi-day Kanangra to Katoomba trail, parts of which will be flooded when the Dam at the new and higher level is full. The potential exists to develop and promote greater use of such trails to become iconic walks which could rival the Overland Track in Tasmania. Options for any such trail would most likely be cutoff through inundation of the lower Coxs and Kanangra rivers.

Insensitive developments which erode the environmental character and value of the Blue Mountains landscape can only lessen the area's appeal as a tourist destination.

In addition the Blue Mountains are known to contain large numbers of Aboriginal occupation and rock art sites. The World Heritage listing recognized that "Aboriginal people from six language groups, through ongoing practices that reflect both traditional and contemporary presence, continue to have a custodial relationship with the area"⁸.

The proposed inundation area is home to hundreds of Gundungurra Aboriginal Heritage sites and sacred waterholes. Gundungurra traditional owner, Kazan

5 <https://npansw.org/2018/06/01/raising-warragamba-dam-wall/>

6 <https://www.environment.gov.au/system/files/resources/286c0b52-815e-4a6c-9d55-8498c174a057/files/national-recovery-plan-regent-honeyeater.pdf>

7 <https://www.destinationnsw.com.au/tourism/facts-and-figures/regional-tourism-statistics/blue-mountains>

8 <https://whc.unesco.org/en/list/917/>

Brown has said “Our history and our stories are in the landscape that surrounds Lake Burragorang. When Warragamba Dam flooded the valley in 1960, our lands and cultural sites were flooded. We do not want to see this story repeated with the remaining sites. Each time we lose a site, we lose part of our identity.”⁹

Raising the Dam wall is also only a partial flood mitigation solution. Around 50% of inflows into the floodplain below Warragamba Dam come from the southern catchments such as the Nepean and Bargo rivers as well as the Grose and Colo Rivers further north, none of which flow through Warragamba Dam.

There are also alternatives to this proposal – the most obvious of which is not to allow further housing development in the flood prone areas below the Warragamba Dam. As reported by Infrastructure NSW in January 2017, the proposal to raise the Dam wall is part of a broader NSW Government plan to allow further housing development in what has been recognized as the most flood exposed area in New South Wales¹⁰ to accommodate an additional 100,000 people over the coming decades. To allow further development in such an area is madness in any event, but all the more so when we consider what is being lost to accommodate this partial flood mitigation measure.

It has also been acknowledged that current roads in western Sydney would not allow for the safe evacuation of the existing population from flood prone areas in a major flood event. Given that the raising of the Dam wall is not a failsafe flood mitigation measure, increasing the population of these areas will only exacerbate this evacuation problem.

In this period of such clear and overwhelming evidence of climate change further urban sprawl is not a sensible solution to housing Sydney’s growing population. Sydney’s geographic expansion over the past decades has already seen the loss of valuable market gardens. These gardens have historically provided valuable produce close to its end use without the need for long distance transport or large-scale irrigation. Remaining market gardens in the Sydney basin should be preserved. Urban sprawl in such areas also involves ever expanding network of carbon intensive and expensive transport options and long commute times for their inhabitants.

The Nepean plains are already experiencing extremes of heat in summer, and as such are not ideal places to situate more housing. Far better options exist, such as allowing medium density housing development in Sydney’s middle ring of five to ten kilometres from the CBD. This measure alone has been estimated to allow for housing an additional 1 million people¹¹.

9 Assessment of the Aboriginal Cultural Heritage Values of the Greater Blue Mountains World Heritage Area, Department of Environment and Water Resources, 2008.

10 <https://www.waternsw.com.au/projects/greater-sydney/warragamba-dam-raising>

11 https://www.planning.nsw.gov.au/~/_media/Files/DPE/Manuals-and-guides/draft-medium-density-design-guide-2016-10.ashx

There are also options to greatly improve water use efficiency and reuse in Sydney which would lessen Sydney's dependence on maintaining high storage levels in Warragamba Dam. Despite the per capita improvement over recent decades in Sydney's per capita water use, total water use for Sydney hovers around 600 gigalitres per annum. Of this, only around 10 gigalitres are saved through reuse while over 50 gigalitres are lost per annum through leakages. The three large sewerage treatment plants in Sydney's east at North Head, Bondi and Malabar discharge over 300 gigalitres of treated effluent per annum into the Pacific Ocean, much of which could be reused¹².

With many other cities of the world recycling water on a scale that dwarfs that in Sydney it is clear that there are many opportunities to vastly increase water use efficiency in Sydney.

Through increased water use efficiency, water reuse and the occasional use of the Sydney desalination plant, Warragamba Dam could be operated at lower levels without jeopardizing Sydney's water security. The second spillway installed at Warragamba in the early 2000s allows for controlled water releases prior to forecast flood events as a flood mitigation measure without the need for increasing the height of the Warragamba Dam wall.

While Infrastructure NSW considered this strategy ineffective¹³, it can be complimented by greater water use efficiency as well as improvements in weather forecasting including more timely and accurate forecasts of flood events into the future. In March 2019 the Bureau of Meteorology reported that its 7 day forecasts had reached the level of accuracy as its 3 day forecasts from the early 2000s. The resolution of forecasting is also improving, with current forecasts in eastern Australia using 1.5 square kilometre grids. Not so long ago these forecasts were based on 25 square kilometre grids. Such increases in resolution allow for improved predictions of which catchments will experience rainfall, and so improve the ability to forecast flooding by catchment.

Greater ability to predict flood events will in future allow for releases to be made in a timely manner from major storages such as Warragamba Dam prior to flood events, and so create the air space required to accommodate high rates of inflows without flooding areas below the storages.

To conclude, to flood a world heritage area, even temporarily, as a partial flood mitigation measure is extremely short sighted. Raising the Warragamba Dam wall by 14 metres would drown threatened, rare and restricted plant communities, including dry rainforest. It would extend weed invasion and create extensive new areas of eroded banks visible from Blue Mountains vantage points.

¹²https://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdq3/~edisp/dd_047419.pdf

¹³ <http://www.infrastructure.nsw.gov.au/media/1723/warragamba-dam-raising.pdf>

The ecological integrity of such areas can never be replaced once lost. Lowland valleys such as exist in the Coxs, Kowmung, Natai, Keduma, Wollondilly and Little rivers in a near pristine state are extremely valuable. If near pristine World Heritage areas such as these are not to be preserved, it begs the question of what natural areas can we protect for future generations?

We implore the NSW Government to consider alternative options in preference to the proposal to raise the Wallagamba Dam wall. The images below have been included in this submission to show:

- (i) the scarring which is left behind when reservoir waters recede. This photo includes a denuded stretch of the lower Coxs River;
- (ii) a reach of the Coxs River near Kelpie Point which will be inundated by raising the Dam wall; and
- (iii) a reach of the lower Kowmung River, a true wild river on Sydney's doorstep.



Image 1: back reaches of the Warragamba Dam and scarring along the lower Cocks River.



Image 2: the Cocks River near Kelpie Point. This reach will be inundated by raising the Dam wall.

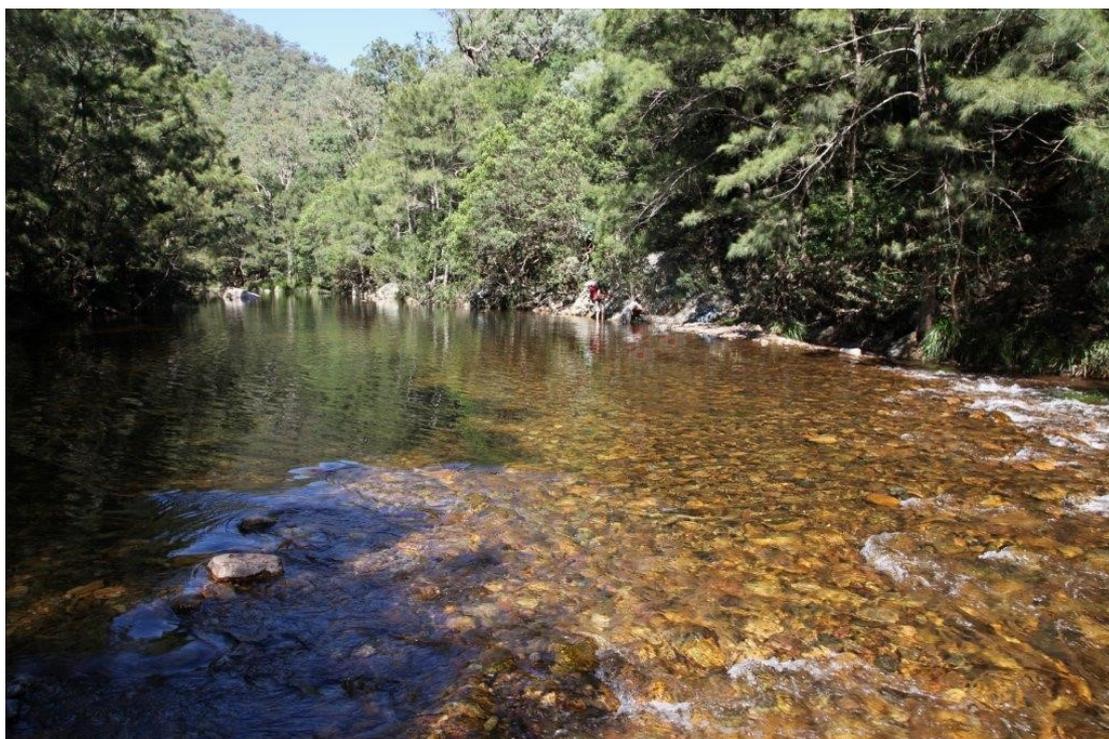


Image 3: the lower Kowmung River, a true wild river and an area of outstanding beauty. Areas such as this will be subject to inundation.

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