

Objection to the proposed raising of the Warragamba Dam wall (SSI-8441).

I am a resident of the Blue Mountains and have lived here since 1970. I am a keen bushwalker and have worked during my life to conserve the natural qualities of the environment in the Penrith and Blue Mountains City Council Areas. I am opposed to the raising of the Warragamba Dam Wall as I do not believe it will achieve its goal of flood mitigation, whilst destroying some of the nation's World Heritage area and some of its First Nation sites.

I have had the privilege of walking to the Kowmung River and can say that it was a particularly memorable experience of my life. Sitting amongst the river stones on the banks of this clean and beautiful river, with cliffs and bushland around me, far away from any civilisation in the quiet of the morning was truly amazing. These wild rivers are so important to our environment and to the human population in the restorative benefits they offer the soul. For our first Nations people, this is their cultural and spiritual landscape as well as their country.

I am dismayed to read reports that the concerns of two and a half thousand submissions from the community and government agencies have been all but dismissed in the Preferred Infrastructure Report. It is very demoralising when expert advice from so many quarters is saying that raising the Warragamba Dam Wall will not prevent floods in the Hawkesbury-Nepean River Catchments. Looking at a map showing the rivers that flow into the Nepean and Hawkesbury Rivers downstream of Warragamba Dam shows that some 45% of the water reaching the plains does not originate from above Warragamba Dam or its catchment area.

The Preferred Infrastructure Report has downplayed the destruction that will be caused within the Blue Mountains and World Heritage Area as a result of the increased flooding behind the dam. An estimated extra 65 kilometres of Wilderness Areas and 5,700ha of National Park would be inundated by this dam project. Even one inundation can cause the destruction of the bushland, as one can see by the denuded sandy banks around Lake Burragorang as the dam storage water level drops.

The area behind Warragamba Dam is home to unique eucalyptus species that have outstanding universal value under the World Heritage listing. This area is also habitat for the Critically Endangered Regent Honeyeater which depends on these eucalypt trees for its food and survival. There are also the Threatened Ecological Communities of Grassy Box Woodland and Sydney's last Emu Population.

What are the alternatives to raising the Dam Wall and helping the people who currently live on the floodplain? This is not something new. Even in the early 1970s, I raised the prospect of inundation of some of Penrith's highly populated areas during a one-in-100-year flood episode. This was dismissed with the fact that this does not happen very often. However, we have seen, that as our climate changes, these kinds of events do happen, and happen more often than they did. The people of Lismore have suffered from flooding there or four times recently.

We cannot ignore the people who live on the floodplain now. Years of development have taken place allowing people to live in areas that are flood-prone. The whole Nepean Valley was once a huge lake in ancient geological time, and evidence can be found far from the present River's course in the form of rounded river stones. Hence the quarrying industry has located widely on this old very large floodplain.

What alternatives are there? Briefly, they are as follows:

1. Limiting further development on the floodplain now would be the first option. Do not develop any more homes or land in areas that are prone to flooding. A study by Associate Professor Jamie Pittock from the ANU is referred to in more detail later in this submission.
2. Increase and improve the escape routes for residents who would be subject to flooding in areas already developed. Increase public education about these routes and the dangers of flooding.
3. Using the method of having the dam water storage levels lower such that in times of higher rainfall there is a buffer towards helping to lessen the impact of a flood. Build more desalination plants. Educate and provide incentives for the population in methods to conserve drinking water as well as encourage more water tanks attached to people's homes to help provide an adjunct water supply.

For a deeper study of alternatives to raising the Warragamba Dam Wall by 14 metres, I would like to refer the Department of Planning, Industry and Environment to the paper by Associate Professor J. Pittock from the Australian National University, entitled "Managing flood risk in the Hawkesbury-Nepean Valley" September 2018.

He recommends four approaches to managing the flood risk of the Hawkesbury-Nepean Flood Plain.

1. Provide alternative flood storage in Warragamba Dam by lowering the full storage level by 12 meters and implementing current and new desalination plants in the region to supply Sydney with water. Warragamba Dam was built to supply Sydney with 80% of its drinking water, not as a flood mitigation dam.
2. Stop putting people in harm's way. At present, the NSW Government plans to double the population of the floodplain. Pittock mentions that more stringent planning controls are used overseas where a 1:500-year flood level is used in the USA, a 1:1,250-year flood level is used in the Netherlands, whereas here in NSW development is permitted immediately above the 1:100-year flood level. The 1867 flood in this Hawkesbury-Nepean Valley, when no dam existed, was higher than the most recent damaging floods.
3. Improve the Evacuation routes. "Previous government investigations into flood mitigation strategies have found that effective evacuation is the only measure that guarantees a reduced risk to life in the Hawkesbury-Nepean Valley (Infrastructure NSW 2017)", states Ass. Professor Pittock. A report and evacuation analysis prepared for Infrastructure NSW (M. Stewart 2012c) found that significant evacuation upgrades of roads were needed in the Hawkesbury Nepean Valley. Routes surrounding Bligh Park, Richmond, and Penrith needed to be significantly improved. "New flood plain development proposals in the northwest" of "Sydney, including Penrith Lakes would put significant pressure on evacuation routes into the future." (Living in the Blue Mountains with only 2 -3 possible evacuation routes in case of a severe bushfire, concerns us greatly each year.)
4. Relocate most flood-prone residents. Relocation has already happened in Queensland after the severe floods in Grantham. In other countries relocation of people in floodplains already happens in Europe, the USA and China. Overseas, the vacated land is being restored for agriculture, forestry, fisheries, recreation, and nature conservation. At present, there are 5,000 houses under the 1:100 year flood level and 7,000 more under the 1:500 year flood level on the Hawkesbury- Nepean floodplain. Damage bills can reach into tens of millions of dollars from floods. The cost of relocating in 2017 was estimated by NSW Infrastructure to be \$3.3 billion. For example, the insurance costs of the resulting flood from the Wivenhoe Dam on the Brisbane River in 2011 was \$2.55 billion.

Ass. Professor Pittock provides a map, "Figure 2. Proposed Development areas overlaid with flood extend on western Sydney Floodplains (Infrastructure NSW, Molino Stewart 2012a)," which is vital to this discussion. One can easily see the areas affected by a 1:100 year flood, and then superimposed on this are areas where development is being considered. These include the North-west Growth Centre, and many other areas either being discussed by developers or discussed publicly. Some of these include areas in Bligh Park, Richmond, Penrith Lakes, ADI Site, North Penrith Urban release, Riverstone West. This map is from 2017 so some these areas may already have been developed in the past five years.

Whilst the attraction of the metropolis of Sydney is enticing for people wanting to reside nearby, the absolute requirement to be close to the capital city is starting to decline as people working from home becomes normalised. Could encouragement of decentralisation be an option, rather than crowding people into the Sydney Basin, which is already affected by poor air quality and increasing temperatures? If the proposed airport at Badgery's Creek continues, the particulate pollution and noise pollution will increase, affecting the health of the population in this geographical basin of trapped circulating air currents.

The whole question of flood mitigation on the Hawkesbury-Nepean floodplain needs a multi-pronged approach. Raising the Dam wall will not be enough to stop floodwaters from affecting many many people as time goes on if the present trajectory is maintained. Another 134,000 people will be allowed to live and work on the floodplain. Can the dam wall support another 14 metres of additional burden and hold back the additional weight of stored water? What disaster awaits if this bigger dam wall fails?

I am saddened and concerned about the threat to our First Nations' sacred sites and other cultural objects and sites that may be destroyed if this dam wall is raised. There have been 1541 cultural heritage sites identified that could be in danger of inundation. A proper assessment of these and other sites need to be undertaken.

I ask that the government reconsider this proposal to raise the wall of Warragamba Dam a further 14 metres for flood mitigation purposes. I feel it will also give a false sense of security to the people of the river valley catchments, and give the green light to developers to continue to increase the population of this huge floodplain in the future.

I sincerely hope my concerns for the loss of habitat in our World Heritage Area and National Parks, damage to the Wild Rivers within the area, and loss of First Nation sites will be taken seriously, along with other points raised in this submission.

Thank you for the opportunity to comment.

Yours sincerely,