

**Submission  
No 102**

**INQUIRY INTO RATIONALE FOR, AND IMPACTS OF,  
NEW DAMS AND OTHER WATER INFRASTRUCTURE IN  
NSW**

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Dear Committee Members

Thank you for inquiring into the water storage projects proposed by the NSW Government, and for this opportunity to submit my views.

#### **A. Western Weirs Program**

I am pleased that the western weirs are being reviewed but concerned by some aspects of the program.

I am particularly concerned by the lack of community consultation and engagement at the earliest stage of the program to assist in directing it, and lack of ongoing engagement activities to build public interest, consideration, knowledge and discussion of the issues that the program is or should be addressing.

I understand that Covid 19 has been used as a reason for not undertaking engagement activities, delaying them until a business case is completed. The pandemic should certainly influence how engagement activities are undertaken, having regard to the health vulnerabilities of people in the region including Aboriginal communities. However other water policy development and implementation programs have involved webinars and digital meetings, and there are many other available means of engaging people and helping them learn or discuss issues.

Weirs have both benefits and environmental costs. It is **easy to see** and understand that they can store water for human uses such as swimming or boating as well as for later extraction. They store a larger volume that can last longer in times of little or no inflow than the natural pools, even in a big river like the Darling, and have therefore enabled people to use more water in times of low flow than Aboriginal communities would have, even in droughts. As flows in the Barwon and Darling have been greatly reduced by diversions upstream, especially in 'normal' and dry years, weir pools have kept people alive.

It is **much harder to see or understand the environment issues associated with weirs**, particularly where the weir has been there for a long time. It is then hard to imagine the same reach without the weir. The bed is only seen in extreme droughts not in as it would have been with low or normal or moderate flows without the weir. The natural pools, sometimes associated with rock bars, that were often the reason why a site was chosen for settlement, cannot be seen. Features that might once have supported low vegetation cannot be seen or imagined. Faster and slower flowing sections cannot be distinguished. When features, effects or issues are hard to learn about, people are unlikely to discuss or think about them. People like both big pools and riffle areas but tend to feel that more water is better and need to learn that fish may not see it that way. Less pooled water could mean less carp and more cod.

I trust that you will be able to learn from others making submissions to this inquiry about what the environmental costs of weirs are, whether larger weirs contribute to increased risks of blue green algae, and how to grow bigger fisheries and better river health.

I learnt a lot about weirs when I worked on river management issues through the 1990s including as a member of a NSW Weir Review Committee but I will leave it to others with deeper expertise to inform you. I am disappointed that in the intervening period there has been far too little progress in reducing the adverse effects of weirs.

I am pleased that removing unnecessary weirs is one of the proposed outcomes of the Program.

The most effective and economical way to reduce the adverse effects would be to remove or partly remove those weirs that are not really needed. Some adverse effects can be reduced, such as by constructing an effective fishway to improve fish passage, but old designs were found to have limited benefits and good fishways for some weirs have proved costly. Other adverse effects are much harder to reduce such as the replacement of many kilometres of a stream that had many shallow but noticeably flowing sections, with a very long pool in which the flow rate is often hard to notice – unless the weir can be lowered.

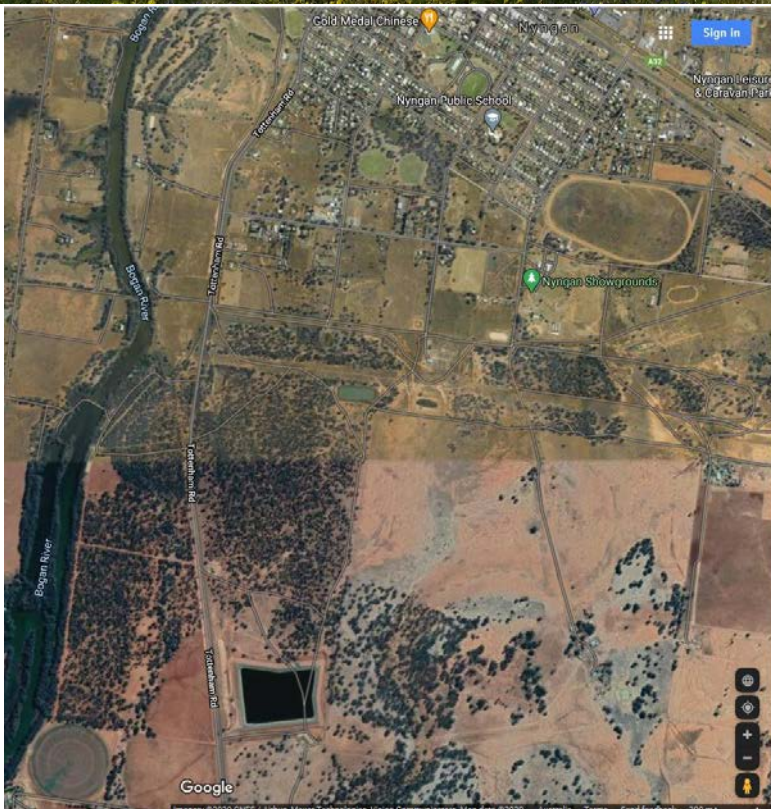
Community support for removal of unnecessary weirs will be critical to the success of this aspect of the program. That will only be obtained if the community has the time it needs to gradually learn about the relevant issues and to conceive of a positive future without particular weirs. People will not accept the Government simply asking for responses to a proposal to remove a weir that people didn't know was being reviewed. They need time to develop their own ideas and to be part of developing the Government's proposals. They should have the opportunity to contribute to building the Government's knowledge of the weirs and to listing which weirs might fit the category of unnecessary. If one weir is removed after careful planning to minimise any associated issues, and if the community is involved in monitoring it can become an example to learn from. I could suggest that Calmundi Weir on the Barwon south of Collarenebri be considered so that the river beside Barwon Nature Reserve is more natural, but I would not expect that the local community would just expect my suggestion even if I added detailed reasoning – they would need time to get a feel for how this could be a change leading towards some better future if any concerns they might have could be addressed.

In relation to the important question of **how best to improve town water security**, multi-faceted solutions are needed. This could, for example, involve a combination of using groundwater if available, filling off-river storages from the river in periods of higher flow, funding reductions in demand through efficiency so storages are not drawn down more quickly than necessary, and some continued use of pools in the river assisted by changing the rules for dam management and diversions in tributaries and the Barwon Darling (particularly to not empty the dams so quickly after they fill).

**Raising of weirs should be avoided** because this extends the area and length of stream that are pool habitats at the expense of the flowing habitats that most of our native fish prefer or need. I have heard that raising Walgett weir by 1 meter has resulted in the loss of about 50km of flowing habitat. Adding fishways is great but only addresses the fish passage issue. Our threatened fish urgently need more suitable habitat. It is necessary to return more of the habitat characteristics they need including flowing rather than pool habitats. Similarly, replacing existing weirs with larger weirs that inundate more of the river, such as Wilcannia weir, is not appropriate.

Returning more volume of flow is really needed and should be part of the solution. Climate change is already reducing inflows. CSIRO predicted in 2007 that average Barwon inflows would decline by 12 % by 2030. This should be prevented. The costs of upstream diversions have long been born by the Barwon and Darling. The costs of climate change in terms of reduced river flows should so far as possible be borne by people in the catchments upstream rather than letting the people of the Barwon-Darling cop avoidable additional flow reductions.

I encourage you to consider and form opinions on the concept of building **off-river storages for town water storage** – turkeys nest ring tanks on the floodplain near the river and town, such as has been built at Nyngan on by Bogan Shire Council (and in other parts of the world). See aerial image – 9ha of water. I expect that the Council could advise you of details about the design and initial operation of this storage. Nyngan has a similar population to Bourke and Walgett so the requirements and costs might be similar.



It is likely to be possible to reduce evaporation from an off river storage in a way that is not possible in a river, for example by installing a [floating solar farms](#) on it or largely covering it with appropriate materials that do not trap heat in the water.

Our rivers are a precious resource, particularly the one great ancient river that runs through northwestern NSW from the Queensland border to the Murray. It was once a much more productive aquatic ecosystem supporting Aboriginal communities from its complex food chain. Now it is a declared threatened aquatic ecosystem. It was for a while used as paddleboat highway. Then it was converted into a series of weirpools – fortunately not all of the planned weirs were built. Just because it is a channel that brings water from wetter regions does not mean that it should also be the primary place for storing such water as people might wish to later extract. Irrigators have learnt to store water off-river – so can towns.

The concept of changing the existing weirs substantially and possibility that this will be funded are welcomed - their heritage value should not result in them being left for ever. Operable weirs may have advantages. On smaller streams in other regions I have seen weirs with removable boards. Gates could be useful but until there is discussion of the objectives that operability could achieve are discussed along with alternative means of achieving these objectives I, for one, will not be able to form a view on what is warranted. Smaller weirs might be useful in some locations where the natural deep pools are inadequate.

Please ask the relevant agencies or Ministers to release a lot more information about which weirs they are reviewing and about the range of alternatives they are considering, and to start engaging with the community about these very important issues immediately. This should be a discussion, not the Government telling the community what they have practically decided about. The discussion of opportunities to regenerate the fish and other values of the river while providing better water supplies for towns could be a valuable positive hope-inspiring process.

## **B. Other dams and storages**

I do not support any of the proposals to build new dams. They do not make water. They would just make water management even more complex. We have to keep learning more about how to use existing water supplies more efficiently in ways that maximise social benefits for our diverse communities while reducing threats to other species and ecological communities. This requires changes to the way existing dams are managed. Chaffey dam was enlarged, supposedly partly for Tamworth, and filled then emptied without keeping sufficient for another year of drought in Tamworth.

The dams do threaten ecosystems by trapping the types of natural flows that the riverine and wetland ecosystems need and converting them into lower level flows. Even if diversions do not increase, they will have this serious adverse impact. It is likely that there will be some increase in diversions before the action is taken to get diversions back within the SDL.

There should be more focussed effort on supporting efficiency improvements and changing what we do so that ordinary people can live better with less.

Yours sincerely  
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