Submission from Water for Indi group

regarding the National Water Reform 2020 – Productivity Commission Draft Report

Purpose of Submission

- To review the findings of the National Water Reform 2020 – Productivity Commission Draft report in the context of the Big Buffalo Dam proposal in North East Victoria.
- To endorse the key recommendations of the National Water Reform 2020 – Productivity Commission Draft report, which are relevant to the Big Buffalo case study, and confirm why it is so important the National Water Initiative (NWI) process has integrity, robustness and transparency.

Who is Water for Indi

Water for Indi is a voluntary community group who aim to encourage informed discussion and debate to contribute to strong evidence-based decision making about water issues in the Indi electorate. The group brings together extensive local experience and considerable technical expertise in relevant areas, including hydrology, agriculture industries, irrigation, farming, environmental issues, ecological systems, regional development, catchment management, business management and policy formulation.

The Indi electorate is the link between the mountains and the plains, which is crucial to the Murray Darling Basin from a hydrological and ecological perspective. The region has some of the healthiest rivers and wetlands in Victoria, and significant groundwater reserves which are an important component of the system.

The catchments of Indi are the Victorian side of the Murray catchment, along with the Mitta Mitta, Kiewa, Ovens, King, Broken and Goulburn river catchments. The rivers and streams in these catchments supply about 50% of the surface water to the whole Murray-Darling Basin. Indi contains the Murray-Darling Basin's largest water storages of Dartmouth and Hume dams, and Lake Eildon. These storages account for 63% of storage capacity in the southern Basin, and 45% of total storage for the whole Murray-Darling Basin.

The group's actions are underpinned by the following principles:

- Sustainability of water allocations for Indi must include valuing water's economic, environmental, social and cultural uses
- Water across Indi is finite, variable and impacted by climate change
- Water allocation and use requires an evidence base with accountability and transparency.

Why are we making a submission?

Speaking on ABC Radio National on 11th February 2021, following the release of the Draft Productivity Report into the National Water Initiative the Minister for Water, Keith Pitt, said the following.

We have $3.5billion on the table ….. we need to invest in infrastructure. Across the country we have any number of states who simply refuse to build this sort of infrastructure.

In Victoria, I am a great supporter of the Buffalo Dam – there is an expansion capacity. This would provide a lot more water into the state – meeting the needs of the environment and the community and the needs of irrigators.

Water for Indi have prepared a background paper regarding the proposed expansion of the Buffalo Dam (See attached paper). From this paper we conclude the following;

1. Building Big Buffalo will **not** provide a lot more water into the state. The modelling referred to in the attached background paper on Big Buffalo demonstrates that if Victoria continues to meet its obligations under the Murray Darling Basin plan, only a small volume of additional water (7GL) would be available for Murray Water users at a huge cost of generating this water.
2. Big Buffalo will **not** meet the needs of the environment. Creating this storage will compromise one of the few healthy rivers left in the state, and significantly alter the hydrological balance of the Ovens River Valley, and in particular the Lower Ovens Wetlands. It will also impact on the role the Ovens River plays in providing seasonal flooding of the Barmah wetlands.
3. The proposed building of a pipeline from Lake Buffalo to Lake Nillahcootie to avoid water flows being sent into the Murray River above the Barmah Choke will be both **expensive** and **problematic** and is highly unlikely to stand the test of a robust cost benefit analysis and environmental impact assessment.
4. The Victorian Government is the responsible authority for making decisions about the best use of Victorian tax payers' money. From our analysis the Victorian Government's position not to proceed with the proposal to build Big Buffalo is based on a sound interpretation of the hydrological modelling, the economics, the current National water policy position as agreed to under the Murray Darling Basin Plan and the potential impact on the environment. On this basis, the Victorian Government's position should be supported rather than undermined for political gain.

Support for the Productivity Commission recommendations regarding government investment in major water infrastructure

The Draft Productivity Commission report addresses issues related to government investment in major water infrastructure in Chapter 13. Minister Pitt's comments would appear to be inconsistent with several of the key points expressed in the Productivity Commission report (P.167), which are reproduced below.

- *Under the National Water Initiative (NWI), all jurisdictions agreed that proposals for new and refurbished water infrastructure (such as dams and irrigation distribution networks) would be*

assessed as both economically viable and ecologically sustainable prior to any investment occurring, and that costs would be recovered from users in most cases.

  - *Failure to abide by these requirements can burden taxpayers with ongoing costs, discourage efficient water use and result in long-lived impacts on communities and the environment.*

- *A renewed NWI should address poor project selection and funding decisions through a new water infrastructure element that establishes:*
  - *a commitment to all options being on the table, including both infrastructure and non-infrastructure options where these can meet the investment objective*
  - *criteria for how project proposals demonstrate adherence to the NWI requirements, including conditions for environmental sustainability and economic viability, as well as principles for cost sharing between users and (in limited cases) governments*
  - *a framework for government investment in major water infrastructure, including project assessment and selection processes and institutional arrangements.*
- *Governments should also consider how to ensure new infrastructure development is culturally responsive to the aspirations of Traditional Owners.*
- *Where governments choose to subsidise major water infrastructure in pursuit of broader strategic objectives, such as regional development, additional scrutiny is necessary to ensure water infrastructure is the best means of achieving that objective compared with alternatives.*
  - *Any investments made in pursuit of regional development must align with high-quality regional strategic planning, and only occur where water infrastructure has been shown to be a critical component of the most effective regional development option compared with alternatives (including those not reliant on new water infrastructure).*
- *State and Territory Governments should have primary responsibility for major water infrastructure, with a limited (if any) role for the Australian Government. Independent bodies should assess major business cases prior to funding decisions, and publish their findings.*

Conclusion

Our review of the key points listed in Chapter 13 of the Draft Report would give us confidence that the recommendations have properly considered the need for robust and independent scrutiny related to proposals for major water infrastructure investments.

The Big Buffalo project has been actively promoted as a positive major water infrastructure investment without evidence of

- A robust cost-benefit analysis
- Demonstrated adherence to NWI requirements, including environmental sustainability, economic sustainability and consideration of the cost burden on the tax payers for modest water returns.
- An open and transparent community consultation process.

The challenge ahead will be to ensure the NWI requirements are followed by all stakeholders for the benefit of the integrity of the system, and are not avoided for short term political gain.

Appendix 1. Water for Indi background paper on Lake Buffalo

Prepared By Dr Anna Roberts, for Water for Indi, Updated December 2020.

Lake Buffalo background

Lake Buffalo was constructed in 1965 and there are several detailed early reports available[1]. It was conceived as an initial project (Stage 1) of building Lake Buffalo with Stage II meant to expand the dam (which has been since termed as 'Big Buffalo'). The 1984 report states *'Stage 1 of Lake Buffalo, with a capacity of 24,000 ML, was constructed in 1965 with a view to securing pumping supplies for irrigation along the Buffalo and Ovens Rivers and urban supply to the city of Wangaratta. By the end of 1968, however, dry period regulated flow was fully committed for irrigation. The existing dam was designed to facilitate enlargement of the storage to 1,000,000 ML, however this is unlikely to occur in the foreseeable future. The area which would be inundated by Stage II is predominantly cleared grazing land, with shoreline slopes being gentle in most situations.'*

Lake Buffalo services the community in two primary ways[2]:

- By regulating the flow of water in the Buffalo and Ovens River, downstream users derive economic benefit from irrigation and provision of water for urban use;
- By providing a variety of recreational opportunities (including power boating, fishing, canoeing, swimming, bushwalking, hunting and picnicking) Lake Buffalo benefits the community by contributing to community health and wellbeing through recreational activity, and economic activity derived from visitors spending to participate in recreation. Alpine Shire Council has a responsibility to promote community health and wellbeing and economic activity in the municipality.

The volume of the storage in Lake Buffalo (24 GL) is small compared to the annual average river flow of 365 GL of the Buffalo River. The dam thus has little influence on the total annual river flow volumes. As an example of the comparatively small storage, the inflow of 54,000 ML/d that occurred in 1993 would have filled the dam from empty in approximately 12 hours. An overview of Lake Buffalo operation is available[3]. The Lake Buffalo Dam is believed to have had minimal impact on the Ovens River. In in dry periods it is likely to have impacted streamflows and river health of the upper reach 1. Overall due to the small dam size it has little influence on large floods, although the frequency of small to medium sized flow events may have been reduced[4]. It is therefore easy to understand why dam expansion appears attractive to some members of the community.

Interestingly, on the list of the National Party's priorities for dam building, released by Barnaby Joyce in 2014, Big Buffalo was not on the list[5].

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[1] Cormack, *Buffalo Dam. Progress report no. 1, Regional geology, dam geology, geomorphology*, State Rivers and Water Supply Commission, 1963. (Not available digitally. In the State Library Victoria); Cormack, *Buffalo Dam. Progress report no. 2, Materials of construction*, State Rivers and Water Supply Commission, 1963. (Not available digitally. In the State Library Victoria); Fyfe and Ransome, *A report on the Buffalo River (Lake Buffalo) water supply catchment*, Soil Conservation Authority, Kew, May 1984 http://vro.agriculture.vic.gov.au/dpi/vro/neregn.nsf/0d08cd6930912d1e4a2567d2002579cb/f7fcde653c621c72ca2574c8000af535/$FILE/buffalo.pdf

[2] Lake Buffalo land and on-water management plan https://www.g-mwater.com.au/recreation-tourism/lowmp

[3] North East Catchment Management Authority (2015) Ovens River Environmental Management Plan https://www.water.vic.gov.au/__data/assets/pdf_file/0028/403939/Ovens-River-EWMP-Final-Report-3-July-2015.pdf

[4] PC&A and MDFRC 2007, cited in the Ovens River Environmental Management Plan.

[5] https://www.bordermail.com.au/story/2638595/its-our-priority-even-if-its-not-yours/

A 2014 project into Water Security for Wangaratta also conducted a feasibility study into expanding Lake Buffalo but the project reports, fact sheets and consultant reports that were at the now-defunct DEPI Water Security for Wangaratta website are now not publicly available.

Given that part of the reason to construct Lake Buffalo was to augment urban water supplies, it is worth noting that a 2017 North East Water Strategy report[6] suggests that accessing groundwater from the Lower Ovens aquifer to augment Wangaratta's supply is the preferred strategy.

A key fact is that although the presence of the Lake Buffalo and Lake William Hovell storages within the upper Ovens system impose some form of regulation on the system, this system is the largest mostly unregulated Victorian waterway entering the Murray River and the most significant in the Murray-Darling Basin[7]. Significant environmental value is associated with the system's status as mostly unregulated, its relative intactness, near natural flow regime, and its support of a variety of threatened and endangered flora and fauna species.

Regarding the secondary issue of piping water from an expanded Lake Buffalo to Lake Nillahcootie there is limited information available[8]. The reasons for doing so are to improve the reliability of the Broken system irrigators and to bypass the Barmah Choke[9]. The distance between Lake Buffalo and Lake Nillahcootie is approximately 60 km as the crow flies, without considering terrain and land tenure issues associated with pipe building.

2017 North East Water Strategy report[10] states that, '*The main constraints of supplying water from secure water sources is the high capital cost of the infrastructure required and energy cost to pump the water over distance and uphill. Pipelines are less viable over long distances and for small volumes, and where water has to be pumped to a higher elevation'.* Construction of a pipeline to Lake Nillacootie would be expensive and the benefits for doing such would need to be very large.

The most comprehensive analysis regarding expansion of Lake Buffalo have been undertaken in the Victorian Government[11]. Analysis was undertaken to determine the potential hydrological benefits and impacts of expanding Lake Buffalo to a storage capacity of 1,000 GL under different climate change scenarios for the following model runs:

1. Additional storage capacity used to supply new entitlement in the Ovens system, assuming compliance with the Murray-Darling Basin Cap;
2. Additional storage capacity used to supply new entitlement in the Ovens system, assuming no compliance with the Murray-Darling Basin Cap;
3. Additional storage capacity used to supplement supply for existing entitlements in the Murray system, assuming compliance with the Murray Darling Basin Cap;
4. Additional storage capacity used to supplement supply for existing entitlements in the Murray system, assuming non-compliance with the Murray Darling Basin Cap.

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[6] https://newater.com.au/Portals/0/NE-Water/Sections/About-Us/Corporate-documents/Urban-Water-Strategy-2017.pdf

[7] North East Catchment Management Authority (2015) Ovens River Environmental Management Plan https://www.water.vic.gov.au/__data/assets/pdf_file/0028/403939/Ovens-River-EWMP-Final-Report-3-July-2015.pdf

[8] https://www.benallaensign.com.au/local-news/2019/10/29/883475/nats-want-buffalo-expansion-to-feed-nillahcootie

[9] https://www.countrynews.com.au/water/2019/10/29/882316/nats-push-for-big-buffalo

[10] https://newater.com.au/Portals/0/NE-Water/Sections/About-Us/Corporate-documents/Urban-Water-Strategy-2017.pdf

[11] Victorian Government, Department of Sustainability and Environment (2009) Northern Region Sustainable Water Strategy. Appendix 5 https://www.water.vic.gov.au/planning/long-term-assessments-and-strategies/sws/northern-region-sustainable-water-strategy

The main conclusions from modelling conducted were:

- If the additional storage capacity was allowed to result in a breach of Victoria's share of the Murray-Darling Basin Cap (model runs 2 and 4), this would result in reduced supply to New South Wales and South Australia (up to 105 GL and 400 GL respectively). In addition, it would have significant environmental impacts. For example, the number of years that the Barmah Forest was flooded could be halved. Water availability for the environment could also be significantly reduced in the Ovens River. In addition, these hydrological results demonstrate there would be unacceptable impacts to New South Wales, South Australia and the environment if Victoria did not comply with the Cap as a result of enlarging Lake Buffalo;
- If the additional storage capacity was used to supply new entitlements in the Ovens system (model runs 1 and 2), this would be at the expense of existing entitlement-holders in the Murray system. In short, water availability for Murray water users could be reduced by up to 175 GL a year. Under the more severe climate change scenario, the number of years with full allocations could be reduced from 68 per cent to 52 per cent. Again, this is clearly an unacceptable impact;
- The only remaining option is to use the additional storage capacity to supplement existing Murray entitlements, ensuring compliance with the Cap (model run 3). This would increase water availability for Murray water users by a maximum of 7 GL a year. This is a relatively limited benefit, given the significant economic cost of enlarging the dam. This is particularly true when the environmental impacts are considered.

The Victorian Government states clearly[12] that does not support the construction of new on-stream storages for the following reasons:

- a) New dams do not create new water. They take water from rivers and downstream irrigators;
- b) The amount of water that can be diverted from the region's rivers (to be stored in reservoirs) is determined by the Murray-Darling Basin Cap. Under this Cap, any increased consumptive harvesting associated with upgraded or new dams would need to be offset through equivalent reductions in other parts of the Basin. New or enlarged dams would capture flows that would otherwise have been captured further downstream or used to fulfil Victoria's commitment to provide flows to South Australia;
- c) It would take large investments to create new dams – someone would need to pay for the construction and maintenance. The most cost-effective and reliable storages have already been built;
- d) New dams would seriously impact on the health of rivers and wetlands, many of which are already stressed;
- e) Expanding the water grid (interconnecting supply systems) reduces the need for increased storage capacity, by improving the movement of water to where and when it is needed.

In the case of raising the Lake Buffalo dam wall to increase its storage capacity the Victorian Water Minister has also stated this has been assessed previously and was not considered viable, would have

[12] Victorian Government, Department of Sustainability and Environment (2009) Northern Region Sustainable Water Strategy. Appendix 5 https://www.water.vic.gov.au/planning/long-term-assessments-and-strategies/sws/northern-region-sustainable-water-strategy

significant negative environmental impacts and because there are already limitations on additional diversions this would not increase the amount of water for extractive use[13].

What are the implications of an expanded Lake Buffalo?

Regardless of how additional water would be used, expansion of Lake Buffalo would result in significant negative environmental impacts, particularly for the Ovens River and associated ecosystems, as well as negative amenity impacts[14] and possibly negative recreational impacts for some of the current activities. Depending upon how the water is used, there could be very large downstream impacts on water users downstream of the Ovens in Victoria, NSW and South Australia. Whilst there could be some local benefits for the Ovens system, these would be at the expense of existing entitlement holders.

The financial costs of building Big Buffalo will be very large and given the limited and highly contentious benefits, a business case is highly unlikely to stack up. Building a pipe from Lake Buffalo to Lake Nillahcootie adds additional complexity in terms of benefits, dis-benefits and costs.

Conclusion

We recommend that the expansion of Lake Buffalo is not supported for both environmental and economic reasons. The net benefits would need to be very large indeed compared with the costs and the chances of this are extremely low.

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[13] There is likely to be a loss of private land, affecting the community of Dandongadale, and loss of public reserve, including part of the Mount Buffalo National Park. There would be negative environmental impacts in the currently unregulated Ovens River and the wetlands that rely on this river system. The Murray Darling Basin Plan also places limitations on additional diversions and water is fully allocated. Even if there was a larger dam, there could not be an increase in the volume extracted for consumptive use. This proposal has been assessed and rejected before and would have significant negative impact on Murray system water users. It would simply be taking water from other users.
http://qon.parliament.vic.gov.au/PARLIAMENT/general/qon/prod/qon.nsf/viewQuestion.xsp?action=openDocument&documentId=1AFD3FD2B2AAF3C4CA258494007A5B9C

[14] As stated in the 1984 report by Fyfe and Ransome[14], the area of land within 60 metres of the Buffalo River is specified as being an area of natural beauty, interest and importance and, as is land within 100 m of the fully supply level contour of Lake Buffalo.