Submission No 107

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

Organisation: Mole River Protection Alliance

Date Received: 22 September 2020

Mole River Protection Alliance
PO Box 257,
Tenterfield,
NSW 2372

https://www.parliament.nsw.gov.au/committees/inquiries/Pages/lodge-a-submission.aspx?pk=2614

Submission to the NSW MLC Inquiry into the proposed Mole River Dam.

The Mole River Protection Alliance comprises landholders from the Mole River valley, local and regional business operators and others from further afield who care about the sustainable use and management of the waters of the NSW Border Rivers catchments and the wider Murray Darling Basin (MDB).

We welcome this opportunity to make a submission and thank Ms Cate Faehrmann MLC and fellow MLCs for establishing this wide-ranging Inquiry.

We preface our submission by highlighting the need to reduce water allocations in and extractions from the MDB to sustainable levels. We note that a total of 366.418GL is currently allocated to all classes of water users in the NSW Border Rivers system. CSIRO reported in 2010

> 'Current average surface water availability is 1096 GL/year of which 38 percent is diverted for use. This is a high level of use which has reduced end-of-system flows and reliability of water supply in the region.' [1]

In this context 'end-of-system' means flows reaching Mungindi. While irrigators using the Border Rivers may suffer low reliability, partly as a result of this river system having been over-allocated, the part of the northwest region downstream from Mungindi along the Barwon River, including Collarenebri, suffers most from reduced reliability caused by the existing level of diversion from the Border Rivers.

In our view this indicates a need to reduce allocations and change the operation of existing dams to ensure a healthy working river system with improved reliability of supplies.

We note that the four dams NSW proposes to construct or enlarge in the MDB total an additional storage capacity of 770GL, approximately one third of the volume supposed to be recovered from across the MDB to secure a healthy, working river basin. It is also our understanding that 5.1GL of water is still required to be recovered from the NSW section of the Border Rivers to meet the revised and legislated Sustainable Diversion Limit for that valley. In our view, it is totally inconsistent with that target to construct a new dam that would hold at least 100GL and possibly as much as 200GL[2].

To this we add the maxim that the solutions to the complex problems we face today will not be solved by the same thinking that created them. In other words, we cannot "supply" our way out of water shortages and must adapt to a drier future and employ innovation to find alternatives, rather than old thinking that will only compound the multiple problems we face.

Far too little has been done to date to investigate and discuss with the community the benefits of alternatives to a new dam on the Mole River.

oO0Oo

1 CSIRO November 2007 with 2010 erratum: Water Availability in the Border Rivers. CSIRO Murray-Darling Basin Sustainable Yields Project – a report to the Australian Government

2 WaterNSW Mole River Dam Factsheet 14.10.2019

(a) the need for the projects, including the historical allocation of water and consideration of other options for ensuring water security in inland regions,

One of the most recent documents discussing the proposed dam highlights the lack of information regarding potential "significant" impacts on surface water hydrology, water quality, cold water pollution and flooding. It notes that "a*dditional baseline data (flow and water quality) will need to be compiled and detailed flood modelling will be required to quantify and assess the potential impacts.*"[3]

The same document notes "*potential reduction of frequency of flooding and reduction in the volume of surface water runoff with potential loss of groundwater baseflow contributing to river flow;*"[4]

These statements ring alarm bells for MRPA members and should do likewise for all water users downstream of the proposed site.

The Mole River Dam Scoping Report [5] makes it clear that this dam is being proposed to improve security of supply to irrigation along the river system below the dam.

There is no mention in this or WaterNSW documents of using the dam to supply towns such as Tenterfield or any industries in the surrounding Granite Belt. Nor is there any information indicating how any of the water trapped by the dam might be used to ensure water security for any towns along the Barwon or Darling rivers downstream from the Border Rivers.

Existing dams in the Border Rivers can and should be used to improve reliability of supply to towns by holding larger reserves of water for droughts. The existing policies for allocating the water trapped by the dams did not protect enough water for towns – if rain had not fallen this year there would have been an even more dire situation. If more water is kept in reserve and not allocated for general security irrigation the risk of similar situations can be avoided. Other alternatives should also be considered. The Mole does not need to be dammed.

The Scoping Report claims that the 3 major existing dams in the Border Rivers catchment are 'relatively small' and inadequate, despite their combined capacity being 642 GL. Pindari Dam, which was enlarged 8-fold in the early 1990s because construction of a new dam on the Mole was considered uneconomic, has a capacity of 312 GL, while Glen Lyon Dam can store 261 GL. These are not small. They trap 70% and 88% of their respective inflows. The vast majority of the stored water is allocated to irrigation. When they occur, low to moderate flows from undammed tributaries including the Mole are often used as an alternative to releases from the dams to meet orders from allocations. Irrigators have been allowed to divert water from high flows in the river or on the floodplain in addition to their allocations. Those with sufficient suitable land have built on-farm storages (ring tanks) which in 2015/16 had a total storage capacity of 460GL.[6]

The climatic conditions in the Border Rivers include high variability of rainfall from year to year, and even with the existing dams to regulate flows supply for irrigation has lower reliability than some catchments further south. However, it attracts risk takers. People and companies who chose to become irrigators in this valley and keep investing in irrigated crops know they are taking commercial risks in the hope of high returns. People who aren't prepared to cope with the risk have sold their licensed shares or can do so. The water resource could be described as 'overallocated' but low allocations in this valley are accepted as normal.

Along the Dumaresq River there is high use of alluvial groundwater, particularly in drier years. The alluvial aquifer relies on high river flows or floodplain flows for recharge, so such flows from the Mole are already being used along the Dumaresq. Along the Macintyre there is high use of 'supplementary' water pumped

3 EMM *Mole River Dam Project Scoping Report* (March 2020) p25

4 Ibid

5 EMM 9March 2020: *Mole River Dam Project Scoping Report*

6 CSIRO November 2007 with 2010 erratum: Water Availability in the Border Rivers.

into on-farm storages from unregulated storm flows from the Mole and other tributaries. Substantial volumes are diverted from overbank flows as floodplain harvesting into the on-farm storages, some of it from the Mole when that is a source of floodwater.

In our view, the desire to further increase reliability of supply to Border Rivers irrigators is a wish, not a critical need.

The key determinant for economically viable irrigation in a future with less rainfall and runoff is flexibility at the individual property scale. Where supplies can't be guaranteed, producers must be able to tailor irrigated production to available water – in terms of choice of crop and area to be planted – on a seasonal basis. It is therefore appropriate that there are only very small areas of permanent plantings (e.g. pecans) located where groundwater as well as dam water is available.

The expansion of the total area planted with permanent crops in the Border Rivers would be an extremely risky strategy to pursue. Yet Jacobs 2017 [7] feasibility study for this dam suggests that it would enable increased permanent plantings and more regular employment or income to towns. That study based its economic assessment on the example of almonds which are not sited to this valley. While a small increase might be possible, replacing annual with permanent crops is not a critical human need.

We note that in the Water Resource Plan submitted to the MDBA for accreditation, 1.5GL (at 100% available water determination [AWD]) is currently allocated to High Security licence holders and 210.6GL (at 80% AWD) to General Security. Is it proposed to change the Plan and increase high security licences or would the dam only marginally increase the security of General security licences?

In our view it would be negligent to advocate the widespread adoption of crops with permanent watering requirements given the alarming downward trend in rainfall and runoff. There is absolutely no guarantee that this would lead to greater economic returns year on year.

In practice much of the Mole River water is already being extracted. The remaining unextracted flows have what is left of their natural flow characteristics in timing, height and water quality and are either used by the environment in and along the Macintyre and its floodplain or become 'end-of-system' flows at Mungindi. Here they provide essential inflows to the Barwon where they contribute to meeting environmental, town water supply and social needs. They may be extracted for irrigation if flows exceed licence trigger levels.

If there are critical human and environmental needs anywhere in the MDB they are most urgent in the Barwon-Darling where several towns ran out of water in 2019-20. The Scoping Report claims on page 14 that the dam project will include "Environmental benefits for the downstream Barwon-Darling system through increased flow reliability and associated environmental health outcomes". It does not explain what these benefits will be nor how they will be achieved. It does not refer to town water supplies directly. Is it now proposed to keep a large amount of water in the dam for this purpose instead of using it for irrigation in the Macintyre? Or is this referring to the Commonwealth Environmental Water Holder's share that is already included in allocations from Pindari? The Barwon and Darling get more environmental benefits from natural pulses of flow, which are best achieved with Mole River water if it starts at a high flow rate because the flow rate is dissipated as it travels downstream. Is the dam proposed to have an unusually large offtake achieve this? If there is any intention to use the dam to meet needs in the Barwon-Darling, rules governing diversion of flow for irrigation in both the Border Rivers and Barwon Darling may need to be changed. Is this really being considered?

We are pleased to note that during preliminary consultation with key stakeholder groups "the need to consider other measures for drought proofing"[8] was flagged. In our view, this is an extremely important

7 Jacobs *Mole River Dam Feasibility Study* (2017)

8 EMM - *Mole River Dam Project Scoping Report* (March 2020) p20

matter and should be the subject of extensive public discussion. The extent to which irrigation tailwater is recycled and reused on farms and the potential for efficiency measures including minimising evaporation and other losses should be determined as alternatives. Other alternatives are needed to increase efficiency of town, domestic and stock water use. Means of achieving multiple objectives concurrently such as improving habitats for fish and birds, should be a priority, rather than single objective projects.

(b) the economic rationale and business case of each of the projects, including funding, projected revenue, and the allocation and pricing of water from the projects,

Feasibility study conclusion: uneconomic

In 2016 a feasibility study for a dam on the Mole River was commissioned despite two previous proposals rejecting its construction as uneconomic. This was funded at least in part by $550,000 from the Commonwealth. The 2017 report by Jacobs gives the rationale for the project as improving the reliability and security of supply for the existing General Security users (i.e. from the Dumaresq and Macintyre rivers). This would involve increasing regulated supply, but to stay within the MDB Plan's Sustainable Diversion Limit for the Border Rivers it is necessary to reduce use of Supplementary water by the equivalent amount (making assumptions about differences in evaporative losses from on-farm storages). It assessed the costs and benefits of 100 GL, 200GL and 300GL storage sizes using the same dam site. The benefits assumed increased investment by irrigators (in response to improved security of supply) would lead to increased production of cotton or increased prices for cotton and that some of the water would be used instead to grow permanent crops such as almonds producing higher financial returns with higher economic benefits to the community. The study also estimated recreational and amenity benefits from the dam and associated fishing but failed to cost the lost benefits from the present value of the farmland, naturally flowing river system and fishing for species threatened by the dam such as Murray Cod. The Jacobs report concluded that the project is **not** economically viable. The 100GL dam costing $345M was the closest to being economic.

Using the usual NSW Treasury recommended cost-benefit analysis discount rate of 7% MRPA calculated that the current proposal has a substantial negative value (-$170 million). A discount rate of around 2.78% would be needed for the project to be deemed a worthwhile investment; this is very low and not consistent with NSW government recommendations. We understand these require a positive return on investment in water infrastructure with a long life using a discount rate of at least 3%.

Business case

So why did the NSW and Commonwealth Governments subsequently decide to each invest $12M in a "final business case" for this project?

The decision to spend $24M of public money on a business case for a Mole River Dam was made without consulting the general community as to the wisdom of this or whether they would prefer alternative uses of this money or alternative infrastructure to achieve different objectives in the Tenterfield or Border Rivers areas.

How is this $24M being spent and what products must the consultants produce on what timeframes? What information has been obtained so far? It appears that preparation of an environmental impact statement is part of the business case. The Secretary's Environmental Assessment Requirements for the project are available but no details of other studies have been released.

Are assumptions in the feasibility study that were not well-founded being thoroughly tested, such as the likelihood of irrigators increasing their production by exchanging Supplementary water for slightly more reliable regulated water, or changing to permanent plantings? Are the effects on the pattern and height of flows in the lower Macintyre, onto its floodplain and into the Barwon-Darling being modelled? This requires assumptions about how much access to Supplementary water is simply swapped when high flows from the Mole become rare, for increased use of high flows from other tributaries.

Will the Government seek community views on what infrastructure the community actually wants before

deciding whether to invest in this dam? We believe the Tenterfield community would benefit much more from new hospital facilities and a substantial youth centre.

Costs to water users

Will the usual procedure by which IPART determines water access charges to cover part of the costs of operating the dam apply to NSW licensees, putting the cost of water up significantly? If so, what is the likely future cost of supply?

If any of the water is to be supplied to towns, which towns? Is the cost of supplying them and the likely increase in cost to those communities being modelled now, and compared with costs of alternatives such as off-river storages?

We understand that the Queensland department has not been advised as to how NSW proposes to operate and maintain the dam nor discussed water charges and pricing issues for licence holders. Will Queensland licence holders get access to shares of water from the Mole as has happened historically? If so, will they have to pay the same amount?

Has any decision been made as to where the cost of building this dam will come from? When Pindari Dam was enlarged the benefitting irrigators had to pay a levy to cover part of the cost over many years. Will some or all the licence holders plus towns and some domestic and stock licensees have to pay back part or all of the costs of building this dam?

The Commonwealth bought some NSW and Queensland licences to use the water to partially restore more natural flows for ecosystems along the Macintyre, Barwon and their flood-runners. Under the Murray Darling Basin Plan more water is supposed to be recovered for the environment. Yet the dam will further reduce natural flows (that is what 'flood mitigation' does). Will the Commonwealth Environmental Water Holder have to contribute payments either for dam operation, if any of its allocations are to come from this dam, or construction?

Presumably NSW licence holders along the unregulated Mole River will have their licences changed to regulated access licences. This will certainly increase their costs, but by how much? They would have access to a minimum allocation set each spring – much more certainty than their present rain-dependent access – but in droughts lasting several years this may be zero. Only the few businesses that can afford high security licences would get access to Mole River Dam waters in the latter stages of droughts – years like 2019. The new dam could improve reliability of supply if most of the water is kept stored for droughts, not used to enable increased production in normal years as has become the normal way NSW dams in the MDB are operated. Keeping the water for droughts would mean there would not be much if any water trapped in normal years – only during and after droughts, so little water would be sold and the cost of dam operation would make the cost of supplied water very high – unaffordable and uneconomic.

MRPA members are concerned that some existing businesses taking water from the Mole River may become uneconomic or less economically productive as a result of the dam due to the cost of general security regulated access licences and water charges.

(c) the environmental, cultural, social and economic impacts of the projects, including their impact on any national or state water agreements, or international environmental obligations,

We note that the feasibility study conducted for WaterNSW in 2017 showed that the project was not financially viable. [9]

The National Water Initiative (NWI) was signed in 2004. Clause 65 of the NWI addresses *Water Storage and Delivery Pricing* and (65ii) states *" full cost recovery for water services to ensure business viability and avoid*

9 Jacobs *Mole River Dam Feasibility Study* (2017)

monopoly rents, including recovery of environmental externalities when feasible and practical;"

Further, clause 69 *Investment in new or refurbished infrastructure* states "*The parties agree to ensure that proposals for new or refurbished infrastructure continue to be assessed as economically viable and ecologically sustainable prior to the investment occurring."*

While there may have been very targeted consultation with vested interest groups (i.e. some big irrigators) there was no community consultation with other stakeholders, not even water access licence holders along the Mole River, regarding whether to proceed to a $24M business case for the Mole River Dam. These are examples of NSW stepping away from its commitment to NWI principles.

MRPA members understand that the Border Rivers Agreement specifies waters in the combined catchments are shared 57% to NSW : 43% to Qld. It has not been made clear how water sharing arrangements will be managed downstream in the regulated reaches of the Dumaresq and Macintyre rivers. Will both NSW and Queensland surface water licence holders continue to access water originating in the Mole in this 57:43 proportion? Does Queensland wish to contribute to the cost of the dam? How will Goondiwindi's town water supply and use by Queensland water license holders be affected?

Native vegetation

MRPA notes that 3 listed ecological communities *may* be present at the site. Two are 'endangered' under NSW legislation (*White Box /Yellow Box /Blakely's Red Gum Woodland* and *White Box/ Yellow Box-/Blakely's Red Gum Grassy Woodland and Derived Native Grassland)* while the third *(Box Gum Woodland*) is 'critically endangered' under the Commonwealth's *Environment Protection &Biodiversity Conservation Act 1999* (EPBC Act).

A total of 76 individual threatened terrestrial species (41 plants, 35 animals) occur in the area – clear evidence of the high nature conservation value of the Mole River valley. Six plant and eight animal species are at risk of 'serious and irreversible impact', <u>where impacts may contribute significantly to the risk of extinction of the species.</u> (Our emphasis).

In the context of a global extinction crisis, wilfully damaging the habitats of threatened species is vandalism while actively facilitating their extinction is unconscionable. To ensure adequate assessment of the potential impacts survey work must be conducted across all (not cherry-picked) seasons, to ensure migrating, nocturnal and hibernating/aestivating animals are identified and to account for the various growth/flowering/seed set periods of plants present in the area.

MRPA members share concerns about the effectiveness of offsets to protect and conserve 'like for like' areas. Further, we understand that offsets are not afforded any legal protection. The EIS should identify potential offset areas and all available options to protect these areas in the long term.

Riverine environment

Two of the treaties that Australia is signatory to, the International Convention on Biological Diversity and the Ramsar Convention on Wetlands of International Importance underpin the Commonwealth Water Act 2007 and the Murray Darling Basin Plan.

The Mole River has been assessed as having high environmental diversity and is recognised within the MDB Plan as being a high ecological value aquatic ecosystem – in large measure because it is unregulated and its pattern of flows has not seriously disrupted its ecology. It is now a valuable refuge area. There are other areas of high environmental value along the rivers downstream and on their floodplains which depend in part on flows from each of the tributaries of the Macintyre, including flows from the Mole. It must be noted that the Mole is one of the Border Rivers' most reliable tributaries.

Several native fish species found in the Mole River are listed threatened species under NSW *Fisheries Management Act 1995* and/or the *EPBC Act*. These include the Southern Purple Spotted Gudgeon, Western

Olive Perchlet and Eel Tailed Catfish (all listed as 'endangered' in NSW) and Murray Cod which is considered nationally 'vulnerable'. Silver Perch certainly occurs in the Dumaresq River and may still be in the Mole. Of these, at least Southern Purple Spotted Gudgeon and Murray Cod have been found in the Mole in 2020 since the drought, confirming the importance of the Mole as a refuge area. River regulation by dams is recognised as one of the processes threatening these species. The loss of these fish populations can never be offset.

It has been suggested that the Mole and Tenterfield Creek catchments may now be the only part of the Murray Darling Basin in NSW where Southern Purple Spotted Gudgeons still occur. Olive Perchlets may be in a similarly precarious situation, depending on the natural flow characteristics and habitats of the Mole. We request that the Committee seek information from NSW Fisheries on where each threatened fish species has been confirmed to still occur in 2020.

In addition, the Lowland Darling River aquatic ecological community is listed as an Endangered Ecological Community (EEC) under the NSW *Fisheries Management Act 1995.* This community includes the Dumaresq and Macintyre Rivers. The dam and its management primarily for irrigation will further threaten this community by replacing the natural variability which the ecological community evolved in with a flow pattern that meets irrigation needs but lacks most high flows and other natural characteristics.

It has been known for decades that dams and weirs are significant barriers to fish migration and in our view, fewer such obstructions are required in the MDB, not more. Fish populations will be affected by a new 60 metre dam wall and we doubt that these impacts can be offset (by eg translocation) without presenting new risks to the Mole River's high ecological values. The threatened fish species will not thrive in the dam.

MRPA notes there has been no assessment of potential impacts of changed water flows, flooding regimes, sediment flows and/or cold-water pollution on the downstream environment. The downstream environment includes wetlands listed in the Directory of Important Wetlands of Australia (eg Boobera Lagoon, Morella Lagoon) and others that have regional significance (eg Pungbougal Lagoon, Malgarai Lagoon, Wombyanna Lagoon). Further, many species/ecosystems are dependent upon ground water, natural river flows and/or flooding for their health and persistence including Coolibah Black Box Woodlands, an endangered ecological community listed under both NSW and Commonwealth legislation, and River Red Gum communities.

Flood mitigation is cited as a benefit of the project. This is to be a rock fill dam without gates to lift and store flood peaks. Such dams are unlikely to reduce the most severe floods because they usually occur after a catchment is thoroughly wetted by preceding rainfall that will have filled the dam. Except when it is full, the dam will tend to trap or reduce the duration or peak of high flow events including small floods, events for which existing water users currently plan. This will have the <u>disbenefit</u> of reducing the Mole's contribution to the moderately high flows that are needed to connect the Macintyre to its floodplain and the very high flows that are needed in the Barwon and Darling riverine environment. The Border Rivers' contribution to high flows in the Barwon is already greatly reduced in height, frequency and/or duration by the existing dams, giant pumps taking Supplementary water and floodplain harvesting so, cumulatively, this is a serious additional impact.

Cultural impacts

The Mole River dam site lies in lands of the *Ngarabal* and *Jukambal* First Nations people[10].

Limited archaeological survey work has been conducted in the impacted area. Cultural and spiritual associations with water and connections to country are highly valued by First Nations people and critical to the transmission of culture and cultural knowledge to their younger generations. The river has always been central to social and cultural activities. The area is highly likely to contain significant cultural heritage values such as scar trees and indications of First Nations economic activity near the water source.

10 EMM March 2020 Preliminary Heritage Assessment

We are aware the Moombahlene Local Aboriginal Lands Council members are very concerned about the likely destruction of their cultural heritage: we share their concern. Further downstream, Boobera Lagoon (20km south west of Goondiwindi) is of very significant cultural heritage value to Bigambul and Kamilaroi people[11].

There is also a strong European cultural heritage presence in the early settler history of the region.

Social impacts
The loss of farming land will have effects on existing local industries and those employed in them, which will in turn disrupt the social fabric of the rural community. Two homes, a woolshed, accommodation cabins and other buildings will be inundated, and another home will be lost due to proximity to works. These residents do not wish to leave.

Natural areas are a source of inspiration and recreation for entire communities and the well-being of those who live in them. The loss of amenity values and recreational activities such as fishing and camping on a natural river with high environmental diversity need to be considered.

While an artificial water body would be created, this will be at the expense of natural riverine areas including sections valued by visitors to the valley both in and below the dam. The dam will suit some people but people who value being in a natural place will miss it.

The predictable decline of native fish in response to river regulation, notably species loved by fishers including Murray Cod and Silver Perch, will be a sad loss - a reduction in social as well as environmental value of the Mole all the way to the Dumaresq and probably reduction in the fishing value of the Dumaresq as well.

There is a private camping area beside the Mole River which families from both Tenterfield and distant places have been coming to for decades, including the local Aboriginal community. As it is not far below the proposed dam, it is in the reach that is likely to be substantially affected by erosion due to trapping of sediment in the dam and the natural tendency of high velocity flows that lack sediment to pick it up (e.g. when the dam is spilling). The flow characteristics will also be changed by the regulation of flow. This is likely to change both the appearance and the amenity value of this site.

(d) the impacts of climate change on inland waterways, including future projections, and the role of dams and other mass water storage projects in ensuring security of water supply for social, economic and environmental outcomes
We note that preliminary assessments were made using a "simplified" WaterNSW model.[12] We further note that "*for any of the options to be economically viable there is a need for greater land-use change from improved water reliability and security. Therefore, further consultation with irrigators to better understand likely land-use change from improved water reliability and security is a priority.*" This would appear to be putting the cart before the horse! The need for 'greater land-use change to make the project economically viable' is a clear indication that the business case is doubtful at best.

Of critical importance to water security and reliability is the climatic data underpinning the NSW Border Rivers Regulated Water Sharing Plan. The Mole River will become part of this Plan area when dammed. This is a concern to us as we know that models are only as good as their inputs and the assumptions applied to those inputs. MRPA understands that the model on which management and planning decisions are made in the new Border Rivers Regulated Water Plan utilises data up to 2009. The model does <u>not</u> include the recent climate record covering the longest and deepest drought ever recorded. There could be disastrous consequences from excluding the recent climate record - which would make a mockery of the so-called

11 Hal Wootten, A.C. Q.C., Report to Minister for Aboriginal Affairs re Boobera Lagoon, April 1996.
12 Jacobs *Mole River Dam Feasibility Study* (2017)

justifications for the project (viz) to:

- "improve long term water availability and reliability of water supply to Border Rivers irrigators;
- reduce the likelihood of zero general security allocations in any given year; and
- reduce reliance on supplementary water."[13]

It is impossible to know exactly how much a drying climate will affect the Border Rivers rainfall and runoff characteristics but there has been a clear downward trend. In 2010 CSIRO[14] predicted that their best climate estimate was that by **2030 average water availability would be reduced by 9 percent, end-of-system flows by 12 percent lower and total diversions by 2 percent**.

What are the current predictions for this river system? What assumptions about climate change are being used for the business case? It seems likely that irrigators will do anything legal to avoid a loss in diversions and maximise diversions when they can, for example by putting extra flows from other tributaries into on-farm storages instead of the Mole storm flows trapped in the dam rather than leaving their storages empty. They can also order Mole water later to apply directly to crops. They may thereby avoid that 2% reduction in diversions but this will result in even greater decline in end-of-system flows at Mungindi and inflows to the Barwon-Darling. There could initially be an increase in diversions until action is taken to bring use back to the SDL. Will opportunities for this sort of irrigator response to the dam be modelled? Will anything be done to ensure that flows into the Barwon are significantly increased instead of reduced?

What is certain is that dams do not make it rain. They capture water that would otherwise provide for downstream communities and the environment.

The project will significantly reduce the volume and frequency of moderate to high flows which will have serious consequences for river ecosystems and communities along the Barwon-Darling. If they are replaced with additional regulated low flows this may be better than just taking trapped high flows but will not make up for reducing the higher flows reaching the Barwon. Higher flows are needed to get any flow down to the Darling for critical human needs. Pulses of higher flows also have greater ecological value. Not only must the Benefit Cost Analysis (BCA) carefully investigate and appropriately value the social and economic impacts of reduced connectivity in the Macintyre floodplain and Barwon-Darling system; the impacts on flows into the Barwon-Darling system must be accurately modelled.

The Mole River Dam has the potential to become a very expensive white elephant. **We strongly recommend the Border Rivers IQQM model be updated with the recent climate record and re-run as an essential pre-requisite to accurate modelling of the economic viability of the entire project. It should also be re-run with assumptions about future changes in climate.**

Specifically, the Jacobs report assumes growth in cotton production, investment in new farm infrastructure to support additional cotton production, and investment in new value-added crops. It is far from certain that this growth and investment will happen at all, let alone at the rates apparently assumed for the feasibility study.

Economics

The dam will shift local economic activity and benefits downstream to users in the regulated section of the Dumaresq and Macintyre Rivers. A large piece of the most productive area of the Mole River valley (ie its alluvial soils) will be permanently lost to agricultural production. People who use relatively small amounts of unregulated water and some regulated water users area likely to be unable to afford the regulated Mole water and may therefore reduce production. The water may go to 'higher value' use by people who can afford to buy it (e.g. from producing hay to cotton or even pecans). If licences move down to the cotton growing area associated economic and community benefits will move to the Goondiwindi area and

13 EMM *Mole River Dam Project Scoping Report* (March 2020) p14

14 CSIRO November 2007 with 2010 erratum: Water Availability in the Border Rivers.

wherever the profits go. There is likely to redistribution of economic benefits away from people who are not so well off to those who have more capital to invest.

If we are correct in suggesting that the project will enable irrigators to avoid the impacts of climate change by maintaining diversions at the expense of people along the Barwon-Darling, this will be a shift of economic value upstream to the Goondiwindi area and wherever profits are spent.

Part if not all of the cost of building the dam seems likely to be paid for by the wider public. This is both a subsidy to irrigated agriculture and a cost to the public in alternative projects foregone. At least some of the dam operation costs are also likely to be paid for, perhaps as alternative public services foregone. Benefit cost analyses rarely put an economic value on distributional fairness or compare alternatives with different objectives. Will the business case for this dam do so?

The socio-economic impacts of downstream communities and landholders running out of water or of only having access to poor water quality with high treatment costs should be part of the assessment process and central to the BCA.

(e) water infrastructure technologies that may promote enhanced environmental outcomes,

MRPA holds the view that the Mole River Dam project is an expensive opportunity lost, conceived in short term political thinking of the worst slush fund / pork barrelling variety rather than in the careful assessment and consideration that our society can sometimes do well. This project is grounded in the anthropocentric 20th century thinking that created our long-standing water woes. We do not need and cannot afford to sacrifice productive farmland, nor rip holes in the web of life because of an unwillingness to embrace new ways of living in our landscapes. Clinging to 'old ways' stifles much needed innovation. Putting all our financial resources in one, big supply-side option means we kiss goodbye to a suite of smart water options that would be a better fit for the 21st century and the multiple challenges of a post-Covid world.

Recent advances have been made in irrigation techniques and infrastructure and in reducing evaporation, seepage and other losses. The scope for these to increase water efficiency should be thoroughly investigated along with alternatives for towns in need. A serious option for towns like Boggabilla, Goondiwindi and those along the Barwon-Darling is to build off-river storages nearby to be filled from high flows, instead of damming or raising weirs in rivers. Evaporation from town and irrigation storages could be reduced in ways that are not possible in rivers, for example by building floating solar farms on their surface. Such alternatives could deliver multiple benefits and should be investigated instead of progressing the business case for this damaging project.

(f) any other related matter.

One of justifications and benefits identified in WaterNSW *Mole River Dam Factsheet 14.10.2019* is that the dam will "Support[s] the downstream Barwon-Darling system through increased flow reliability and associated environmental health outcomes."

MRPA recommends that the Committee carefully investigate this claim. We have found no public information explaining it and are wary that the proposal, if there is one, could, despite intentions to improve the Barwon-Darling's environmental health, be counter-productive.

In our view, the Mole River Dam should be removed from the NSW Water Supply (Critical Needs) Act 2019. There are no towns or localities, including Tenterfield, listed with a critical water supply in the vicinity of the Mole River Dam Project under that Act.

However, towns and localities on the Barwon-Darling listed under NSW Water Supply (Critical Needs) Act 2019 between the Border Rivers and its junction with the Murray River do need assistance that achieves multiple objectives for the residents, notably Aboriginal people, concurrently with improving water supply. For example, if flowing habitats for fish can be increased in extent by replacing weirs with off-stream

storages rather than decreased by raising weirs, Aboriginal people as well as visiting fishers and tourism operators will benefit. As we saw in the summer of 2019-20 several of these towns ran out of water and had to rely on water trucked in from other areas – much of it was donated. Towns like these will be further impacted if the Mole River Dam Project is built and captures more flow pulses from the headwaters of the NSW Border Rivers.

Conclusion

The Border Rivers form part of the headwaters of a flood-pulse river system. Aquatic life evolved with and is adapted to its pattern of flows. Dams reduce the frequency of these flow pulses and stretch the intervals between them. We again point to the current extinction crisis and the need for innovative new approaches before we hit an ecological tipping point.

The rationale for the dam to improve water security for downstream general security licence holders is not justifiable. A few will benefit at the expense of many and at unacceptable social, cultural and environmental costs.

Thank you for considering our submission. There is nothing confidential in it and we consent to it being made public.

Yours sincerely
Kate Boyd

Convenor
Mole River Protection Alliance