Submission No 116

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

Organisation: Inland Rivers Network

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INLAND RIVERS NETWORK

PO Box 528, PYRMONT NSW 2009

web inlandriversnetwork.org
ABN 34 373 750 383

Cate Faerhmann
Chairperson
Portfolio Committee No 7
Parliament House
Macquarie St Sydney NSW 2000

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SUBMISSION
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Introduction

The Inland Rivers Network ("IRN") is a coalition of environment groups and individuals concerned about the degradation of the rivers, wetlands and groundwaters of the Murray-Darling Basin. It has been advocating for the conservation of rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

Member groups include the Australian Conservation Foundation; the Nature Conservation Council of NSW; the National Parks Association of NSW; Friends of the Earth; Central West Environment Council; and Healthy Rivers Dubbo.

IRN has held a strong policy position against new dams in NSW. This is in line with international opinion in regard to the damage that instream storage infrastructure causes to river systems.

Many countries around the world are investing in the removal of dams because of a growing awareness of the benefits of free-flowing rivers and the costs of maintaining old dams. In America, 26 states removed 90 dams last year.[1]

[1] https://www.wsj.com/articles/bone-dry-australia-faces-backlash-against-dam-projects-dams-dont-make-it-rain-11595170800

The proposal to construct new dams and weirs and augment the size of existing large storages in NSW is a backward step contrary to international directions. There is a reason why no new dams have been built in NSW for over 30 years. Dams cause ongoing degradation of river health while increasing the cost burden on the community.

Some key impacts of dams and structures include changes to the ecological function and health of rivers and floodplain environments:

1. Alteration of timing, frequency and magnitude of flooding events
2. Disruption of upstream and downstream connectivity from headwaters to the floodplain necessary for the movement of nutrients, food and animals along the river
3. Disruption of lateral connectivity between the river and the floodplain preventing the uptake of food and nutrients and disturbing vital breeding processes
4. Disruption of vertical connectivity between surface water and groundwater
5. Loss of natural flow regime through capture of rainfall events, including prolonging drought for significant ecosystems such as downstream wetlands
6. Impacts on water quality through cold water pollution, deoxygenation and increased blue-green algal blooms
7. Changes to riverine geomorphology causing erosion, turbidity and increased sedimentation
8. Loss of breeding and feeding grounds for water dependent species

The current level of water storage and extraction in NSW has caused significant environmental damage. A range of important water reforms have been established to address these problems. The consideration of increasing the impacts of water storage is not a sustainable option.

The World Commission on Dams report in 2000[2] concluded that the '*business as usual scenario is neither feasible nor a desirable option*.'

The Commission commented that:

'*Dams fundamentally alter rivers and the use of a natural resource, frequently entailing a reallocation of benefits from local riparian users to new groups of beneficiaries at a regional or national level*.'

'*In too many cases an unacceptable and often unnecessary price has been paid to secure those benefits, especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment*.'

'*Lack of equity in the distribution of benefits has called into question the value of many dams in meeting water and energy development needs when compared with the alternatives*.'

'*Demand management, reducing consumption, recycling and supply and enduse efficiency measures all have significant potential to reduce pressure on water resources in all countries and regions of the world*.'

IRN considers that these issues are just as relevant in NSW in 2020 and must be fully taken into consideration before any more public money is committed for investment in dam projects.

[2] World Commission on Dams, 2000. *Dams and Development: A New Framework for Decision-Making.*

RECOMMENDATIONS:

1. Repeal the NSW *Water Supply (Critical Needs) Act 2019*
2. Cancel the critical State significant infrastructure development applications for the Raising of Wyangala Dam Wall, Dungowan Dam, Mole River Dam and Western Weirs projects and the State significant infrastructure development application for the Macquarie River Reregulating storage project.
3. Release all State government decision-making processes relating to the current funding commitments for the above project proposals.
4. Repeal the 2014 amendment to NSW *Water Management Act 2000* that restricts the use of the drought of record in determining annual water allocations.
5. Amend regulated river water sharing plans to include the lowest inflows on record under Part 10 *System operation rules*

Background

In October 2019 a joint announcement was made by the Prime Minister and NSW Premier to invest over $1b of public money in new dam projects in NSW.

In November 2019 NSW Parliament rushed through the *Water Supply (Critical Needs) Act 2019* that unnecessarily designated the dam projects as critical State significant infrastructure projects without any basic information other than political announcements.

The first detailed information on the projects available to the public appeared in WaterNSW referrals under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in May 2020.

The scoping reports lodged under the referrals state that the projects are aligned with the NSW Government's 20-year infrastructure investment plan set out in the State Infrastructure Strategy 2018-2038, and WaterNSW's 20-year Infrastructure Options Study 2018.

It is noted that the estimated costs of the projects, as announced with funding commitments in 2019, appear in the WaterNSW options study and are now out of date. The lack of business cases and updated costs estimates is a major failing of process and is misleading the public and Government about the true cost of the projects.

The key purpose of the WaterNSW prioritised projects is to improve reliability of supply to general security water licences. This purpose was reiterated in the referral documents under the EPBC Act. The purpose is not to provide critical human needs.

The State Infrastructure Strategy 2018-2038 recommended release of a NSW Water Statement and commenced development of Regional Water Strategies for all catchments by early 2019. Neither of these recommendations have appeared.

In June 2020 the Water Minister directed the Board of WaterNSW to advance planning and early works for raising Wyangala Dam wall, constructing a new Dungowan Dam and upgrading the Dungowan pipeline and investigating a new Mole River Dam.[3]

[3] NSW Govt Gazette 2020 - 116

It now appears that the prioritisation process within Regional Water Strategies has been circumvented for the new dam and weir proposals. These are now identified as existing Government commitments as Priority Infrastructure Projects.[4]

The key justification for these projects, announced by the NSW Water Minister,[5] is that they are election promises.

There is no demonstrated critical need for these projects. All storages in NSW are now at a level to supply critical human needs and water allocations for all categories of water license.

Inquiry Terms of Reference

That Portfolio Committee No.7 - Planning and Environment inquire into and report on the rationale for, and impacts of, new dam and mass water storage projects proposed by Water NSW including Wyangala, Mole River and Dungowan Dam projects, the Macquarie River reregulating storage project, the Menindee Lakes Water Savings Project and the Western Weirs project

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

1. **Need for the projects**

There is no demonstrated need for these projects other than being National Party policy and an election promise.

WaterNSW's *20-year Infrastructure Options Study 2018* is based on communication with the state corporation customer base, ie water licence holders, and focusses on the reliability of general security licences.

General security water licences have the lowest priority under the NSW *Water Management Act 2000* (WMA). Environment, basic rights and town water supply have a higher legal priority. These higher priorities, especially planned environmental water and basic rights, will be impacted by the proposals through the capture of water that currently flows downstream.

The hierarchy of the WMA is being ignored by WaterNSW and by the State infrastructure strategy.

WaterNSW, as a state corporation, has a conflict of interest in advocating for additional water to sell to its general security customer base, at the expense of water now available to the environment and end of system basic rights.

The political announcements made in October 2019 were knee-jerk reactions to the scale and intensity of the 2017 – 2019 drought, exacerbated by poor water management policies in NSW.

[4] DPIE Water, 2020. *Regional Water Strategies Guide* p54
[5] Meeting with IRN on 14 August 2020

Rainfall events commencing in February 2020 have improved water availability across the state and lessened the immediate threat of towns and cities running out of water. The predicted above average rainfall across the state will continue to improve storage levels and water availability. The key threat to future water availability is the current policy for determining annual water allocations from storages.

Water allocations have been announced for the 2020-2021 water year from new inflows. Storage levels as at Friday 18 September in the key project areas:

Wyangala Dam:	58.9%
Burrendong Dam:	44.6%
Chaffey Dam:	25.9%
Pindari Dam:	17.1%
Glenlyon Dam:	14% and rising (Border Rivers Qld)

There is no rational justification for the Menindee Lakes Supply Measure Project. This was rushed through the Sustainable Diversion Limit Adjustment Mechanism process as a last minute addition, as part of the implementation of the Murray-Darling Basin Plan in 2017. There was a lack of modelling, business case and community consultation at the time. Information regarding this project is still limited. It will not achieve the desired outcomes.

2. Historical allocation of water

Major water storages are generally managed to supply 2 years of drought. This is has been impacted by the current policy caused by amendments made to WMA in 2014.

The Department of Planning, Industry and Environment – Water (DPIE-Water) makes annual allocation water determinations based on models using low inflow records

Under the original WMA annual water determinations were made using the "*worst period of inflows into this water source, as represented in flow information held by the NSW Office of Water*".

The amendments made in 2014 changed this to: "*worst period of low inflows into this water source (based on historical flow information held by the Department* ***when this Plan commenced***)". (IRN bold)

For most of the major inland river systems this meant drought of record as at 2003. Thus ignoring the impacts of the Millenium Drought and the most recent intensive drought.

For the project areas this means that water allocations are based on the following lowest inflows:

Wyangala	July 1979 to June 1981
Burrendong	July 1937 to June 1939
Chaffey	July 1964 to June 1966
Border Rivers	Dec 1979 to May 1981

Water allocations in the Lachlan, Macquarie and Peel catchments are based on predicted inflows to the storages or tributaries, not on water physically available at that point in time.

Town water supply along the Darling River has been impacted by NSW Government water management policy for access to tributary flows below the main upstream storages and the rules in the Barwon-Darling unregulated water sharing plan.

3. Other options for ensuring water security in inland regions

The 2014 amendment of rules in the WMA that restrict the use of the most recent drought of record in determining annual water allocations must be repealed. This will enable the amendment of regulated river water sharing plans to include the lowest inflows on record under Part 10 *System operation rules*

This will improve the provision of critical human needs during intensive periods of drought by ensuring more conservative management of water storages and water allocations.

The recent raising of Chaffey Dam to hold 100 GL is a prime example of the impact of the current water allocation rules. The dam filled on completion in 2016 and was down to 8% by 2018 when the latest severe drought commenced. The promised improved security for Tamworth town water supply failed because of the high allocations to irrigation.

The focus on improving water security for general security water licences is an inappropriate direction for Government policy at great expense to the general public, river health and downstream communities.

Predictions provided by WaterNSW for the key storage proposals is that water availability to general security licences will increase:

Raising Wyangala Dam Wall	Additional 21.05 GL/yr
Macquarie River reregulating storage	Increased storage to 6 GL
Dungowan Dam	5 GL/yr
Mole River Dam:	No figure provided, but rationale is to mitigate high evaporation rates in on-farm storage

The Coalition policy to increase agricultural production by capturing more water from rivers is a misguided and unrealistic approach to water management in the Murray-Darling Basin. Dams do not increase rainfall runoff.

This policy approach trades off water security from one sector or community along a river system to provide for another, generally in the mid-section of the river catchment. The cultural, social and environmental consequences will not be adequately assessed or considered through an unnecessary fast-tracked critical State significant infrastructure planning process.

Investment by industry in more efficient water use technologies would have a far greater benefit. A move away from flood irrigation of cotton crops would improve general security water availability through improved water use efficiency. This is a much cheaper, quicker and more sustainable solution to water management than public investment in large new instream storages.

Improved management of evaporation from on-farm storages should be encouraged so that industry bears the responsibility of efficient water use, without relying on public funding and loss of river health to shore up water security.

Modular floating covers are one technology being developed to prevent evaporation at a best cost/efficiency ratio.[6]

In regard to town water supply, the Integrated Water Cycle Management Strategy for urban water use and prioritisation of projects under Regional Water Strategies need to have a clear alignment. These strategies plus changes to water sharing plans should be in place before additional instream water storage is considered.

Both the National Water Initiative and the Productivity Commission have placed a strong emphasis on more efficient urban water cycle management.

The NSW Government is currently undertaking a high risk approach by fast-tracking large instream water storage projects prior to completing other strategic decisions or considering better options for ensuring water security across all inland regions.

Terms of Reference (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

1. **Economic rationale**

There is no economic rationale provided to invest over $1b of public funding in new and enlarged instream water storages in inland NSW.

The source of information regarding the costs of the projects appears in the WaterNSW's *20-year Infrastructure Options Study 2018.* The figures supplied are titled '*Preliminary capital cost*' that WaterNSW states are "strategic (pre-feasibility) level estimates and so carry inherent uncertainty commensurate with the level of detail of this work." [7]

The options for Wyangala Dam were to be assessed in detail under the Lachlan Valley Water Security Study. According to the WaterNSW website Phase 1 and 2 have been completed but no reports appear to be publicly available.

The preliminary costings are now out of date but have been included in the public funding announcements made in 2019 and appear in all recent publicly available documentation:

Raising Wyangala Dam Wall	$650m
Macquarie reregulator	$ 36m
Dungowan Dam	$484m
Mole River Dam	$331m

[6] https://stopevaporation.com/

[7] 20 Year Infrastructure Options Study 2018 page 9

2. Business Cases

The business case for each project is being developed at the same time as the environmental impact assessments are undertaken. These will not be available until mid-2021.

However, both the Wyangala and Dungowan projects are being fast-tracked before the completion of any approvals process at either the state or federal level. There have been announcements about '*shovels in the ground*' auxiliary project preparation commencing in October 2020 without any clear description of what that work might entail or what approvals process has been undertaken for that work.

Feasibility studies conducted in 2017 are available for the Dungowan Dam and Mole River Dam proposals on the WaterNSW website. There is no comparable information available for the other dam projects.

The Mole River Dam feasibility study indicates that the project is not financially viable using the NSW Treasury recommended cost-benefit analysis discount rate of 7%.[8]

The Dungowan Dam feasibility study includes consideration of the construction of a pipeline from Chaffey Dam to Tamworth City water supply.[9] This infrastructure project has been completed and operational from June 2020. The water security improvements made through this pipeline need to be taken into account before the new Dungowan Dam is fast-tracked.

There is considerable concern around the ownership of the new Dungowan Dam. The existing infrastructure is owned and operated by Tamworth Regional Council. The issue of WaterNSW ownership of the new dam and decommissioning of the existing dam is yet to be resolved.

3. Funding

Funding provisions announced by the Federal Government through the National Water Infrastructure Fund are publicly available. [10]

Wyangala Dam construction	$325m of $650m
Dungowan Dam construction	$242m of $484m
Mole River Dam feasibility	$ 12m of $ 24m

However, it appears that the 50% of the federal funding for Wyangala is through the National Water Infrastructure Loan Facility and ultimately repaid by NSW Government. Due to the use of the loan facility, the ultimate funding split between Commonwealth and NSW Government's for the Wyangala project will be 25:75.[11]

There is no clear information available about the matching source of funding from the NSW Government for these new dam projects.

[8] Jacobs, August 2017. Mole River Dam Feasibility Study

[9] GHD, September 2017. Dungowan Dam and Peel Valley Feasibility Study

[10] https://www.nationalwatergrid.gov.au/sites/default/files/images/NatWater_Feasibility_A2_20200625_v2.jpg

[11] https://infrastructurepipeline.org/project/wyangala-dam-upgrade/

The Macquarie River Reregulating storage funding source is publicly announced as the Snowy Hydro Legacy Fund. It is presumed that the other project funding will also be met through this source but there is no transparency in the process.

The Infrastructure Statement 2019 - 2020, Budget Paper 2, identifies that $32m has been allocated from the Snowy Hydro Legacy Fund over 3 years to investigate the Wyangala Dam project as part of a $650 million commitment with environmental and economic studies to commence.[12] However, Budget Statement 2019-2020 identifies only $32 million over three years to develop a business case. There is no reference to the rest of the funding.

A new key initiative of Budget Statement 2018-2019 is the planned implementation of the Snowy Hydro Legacy Fund with appropriation of $40 million to investigate the feasibility of potential projects. However, Budget Statement 2019-2020 mentions an allocation of $40m provided from 2018-19 for scoping reports but with no clarification of its purpose.

The 2019-2020 Half Yearly Review mentioned the upgraded/new dam joint announcements of the State and Commonwealth Governments stating that funding arrangements would be finalised in Budget 2020-2021.

The Western Weirs project has received $4.2m from Restart NSW Water Security Fund to develop a strategic business case.

The two dam projects being fast-tracked, Wyangala and Dungowan, will ultimately cost the public far more than currently predicted. The lack of transparency and reporting in regard to the funding source is unacceptable.

No indication of projected revenue or return on public investment has been released.

The announcement of funding for these dam proposals without business cases or environmental assessment does not meet the requirements of the National Water Initiative (NWI) Agreement signed by the Commonwealth and States in 2004.

NWI 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"

The 2017 Productivity Commission National Water Reform Inquiry Report reinforced need for government focus on "…environmental sustainability and financial viability of new infrastructure *before* any government resources are committed for construction. Without this focus there are risks that public funds will be wasted, water users left with assets they cannot afford and costly environmental damage imposed on future generations." [13]

4. The allocation and pricing of water from the projects

The key purpose of the main projects, as outlined in the WaterNSW scoping reports, is generally to provide increased water security for general security water licences.

[12] The Treasurer, Infrastructure Statement 2019 – 2020, Budget paper 2, p 2-23
[13] Productivity Commission Inquiry Report No.87 19 December 2017, p 23

Under current water planning rules this will be at the expense of town water supply, high security licences, stock & domestic licences, basic rights and planned environmental water.

While the purpose of the Dungowan Dam is primarily to supply Tamworth town water, there has been a provision to guarantee 5 GL/yr to general security licences. This will impact on the reliability for Tamworth water supply.

There is no disclosure about the ongoing funding for the management and maintenance of the projects. The NSW Government takes a user pays approach through the Independent Pricing and Regulatory Tribunal for WaterNSW budget allocations.

There has been no consultation or discussion around who will pay for the maintenance and management of the structures. There is no information available on the increasing cost of water caused by the projects or the possible ongoing need for public subsidies.

It is assumed that general security licence holders will have increased annual costs to cover improved water security. Tamworth ratepayers have already had a price hike to pay for the augmentation of Chaffey Dam in 2016 that failed to improve security of town water supply.

Terms of Reference (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,

1. **Environmental Impacts**

As outlined in the introduction to this submission, instream storages have significant environmental impacts on river systems that cannot be mitigated or offset.

The combined capture of water through the projects will be 770 GL. This is a third of the water recovered under the Basin Plan at great cost to the Australian taxpayer. The loss of these flows in the river systems will be felt downstream to the Lower Darling and the Murray Mouth. These cumulative downstream impacts will not be adequately assessed under the process established to assess and approve the projects on an individual basis.

The full environmental impact of these dam proposals is unknown because the onground environmental assessments have only recently commenced. Preliminary assessments based on desktop studies were lodged with the EPBC referral documents.

The preliminary assessments of all the proposed projects have indicated an impact on the endangered Murray Cod through loss of breeding habitat, loss of beneficial flow regimes and further loss of fish passage. The construction of fishways on other infrastructure within catchments will not mitigate the ongoing separation of upstream and downstream native fish populations by large dam walls.

WaterNSW has a very poor record of meeting obligations under conditions of approval to construct offset fishways. There are currently 11 outstanding fishways that have not been built in NSW waterways from approvals as old as 10 years.

The Murray Cod has suffered significant population decline in the NSW Murray-Darling Basin due to poor water management during the most recent intensive drought. The cost of

saving depleted populations through relocation and captured breeding programs will be a waste of money and effort if natural habitat continues to be destroyed through additional large instream structures.

Other endangered native fish species identified to be impacted by the dam proposals include critically endangered Silver Perch and endangered Macquarie Perch, also the Purple Spotted Gudgeon, Western Olive Perchlet and Eel-tailed Catfish.

The large inundation areas for the projects will cause a cumulative loss of the critically endangered Grassy Box Gum Woodland by over 1,430 ha based on preliminary assessment. This impact is likely to be a lot higher with more onground research. The approvals process under state and federal legislation fails to take cumulative impact into account by assessing and approving each project individually. There is less than 10% of the pre-European extent of this ecological community with half the remaining area suffering decline.

The mitigation measures available to offset this loss of critical woodland habitat will not assist the achievement of the National Recovery Plan.

Loss of habitat for a large number of threatened plants and animals is predicted across the combined projects.

Downstream environmental impacts are equally important but appear to be ignored in the scoping reports and referrals to the EPBC Act.

Loss of natural flows, impacts on downstream riparian areas and significant wetlands are important environmental impacts that must be assessed. There are numerous water dependent species, besides native fish, including frogs, reptiles, waterbirds, platypus, turtles, mussels, shrimp and a wide range of macroinvertebrates. The latter are an integral part of the food chain and a key indicator of ecosystem function and health.

Wyangala Project:

The raising of Wyangala Dam wall by 10m to capture a further 650 GL on top of the existing 1217 GL will compound the downstream environmental impacts.

The wetland areas supported by the Lachlan River are highly significant, nine being listed on the Directory of Important Wetlands in Australia. These wetlands support a large number of migratory bird species listed under international agreements. These habitats are reliant on natural flood flows to the end of the system. The Great Cumbung Swamp and Booligal Wetlands are at the end of the Lachlan River and will be severely impacted by the capture of an additional 53% of inflows to Wyangala Dam.

The increased inundation area will have a significant impact on critically endangered woodland species in the highly degraded South-Western Slopes Bioregion, one of the most heavily cleared regions in Australia.

The higher water level is likely to have an impact on the Mt Davies Nature Reserve.

The fast tracking of this project so that works will commence in October 2020 is not based on any clear assessment or approvals process with the EIS being available in June 2021.

Macquarie Reregulator:

The proposal to capture flows in the Macquarie River that currently report to the internationally significant Macquarie Marshes will exacerbate the decline of this important wetland area. It contains the largest remaining reedbeds in the Murray-Darling Basin and has supported the largest and most diverse number of colonial-nesting waterbirds in Australia.

The Macquarie Marshes are listed for protection under the Ramsar Treaty because of their size, diverse range of habitats and the number of migratory waterbirds using the ecosystem.

The Marshes have suffered major decline through poor water management and over allocation in the Macquarie Valley. The proposed new infrastructure is a continuation of poor water policy that will result in both the NSW and Federal Governments failing to meet their international obligations.

Dungowan Dam:

The Peel River is an over-allocated river system that provides tributary inflow to the Namoi River. The Namoi River is highly connected to the Barwon-Darling and a source of important inflows to that river system that has reached near ecological collapse.

The Peel River has recently been impacted by the augmentation of Chaffey Dam completed in 2016. Native fish, healthy platypus populations and other water dependent species will be further impacted if more water is impounded, as proposed by the Dungowan project.

The biodiversity offset for the loss of habitat for the critically endangered Booroolong Frog at Chaffey Dam has still not been met by WaterNSW.

Mole River Dam:

The Mole River has high environmental diversity and is recognised as a high ecological value aquatic ecosystem under the Murray-Darling Basin Plan. The regulation of the river through construction of an instream dam will degrade the environmental values of the river.

Mole River is part of the Border Rivers system that is highly connected to the Barwon-Darling. The impoundment of a further 100 GL of natural flow in the Border Rivers will have a detrimental impact on inflows to the Barwon-Darling and supply of critical human needs to townships downstream.

Western Weirs Project:

Increased weir height will increase the size and length of broad near-still pools within the river, destroying important habitat features. For example, the Wilcannia replacement weir will destroy an additional 17 kms of flowing habitat. The recently replaced and raised Walgett Weir has caused the loss of 60 km of flowing water habitat.

The project must provide an opportunity to restore river reaches through the removal of weirs and decreasing the number and size of artificial pools. While fishways and weir gates will improve flow management and fish passage, increased height of weirs will have a detrimental environmental impact.

Downstream wetlands such as in the Talywalka Annabranch and Teryaweynya Creek systems will suffer further loss of flows through weir enlargements along the Darling system.

Menindee Lakes Water Savings Project

Menindee Lakes provides a significant native fish nursery in the Murray-Darling Basin, especially for Golden Perch and Murray Cod. The environmental impacts of removing two-thirds of the Lakes surface area will cause permanent, irreparable damage to the ecological function and connectivity of the Darling River system.

2. Cultural Impacts

The cumulative loss of First Nation cultural heritage through increased inundation areas plus downstream impacts will not be adequately assessed or mitigated.

The failure to provide cultural flows through water sharing plans and the Murray-Darling Basin Plan is not identified in the scoping reports for the projects. There is no indication that water will be made available to provide for watering places with high First Nations cultural values.

The ongoing loss of important heritage values and connection to country across the landscape will not be adequately considered through fast-tracked critical State significant infrastructure assessment and approvals process.

The Wyangala Dam has already had a significant impact on First Nations burial sites and there is at least one further site identified. The EPBC Act referral describes that:

'Of note, is the identification of a potential burial (#44-5-0080 and #44-6-0080 – the same site) that sits to the north of Wyangala Dam. It remains unclear at this stage as to why these sites have not been identified as destroyed by existing inundation. The proposed inundation along the Lachlan River may result in a further burial, #51-2-0006, being affected by the proposed action.'[14]
The referral also mentions that consultants, EMM, checked with the NSW Department of Premier and Cabinet about the position of a documented restricted site – commonly a burial.

The dam proposals will also impact on cultural heritage artefacts in the landscape, scar trees, ochre quarries, grinding groves and other evidence of the close cultural relationship to waterways.

3. Social impacts

Numerous social impacts will be caused by the dam projects. These include dislocation of property owners and communities in the inundation areas, loss of rural farming land, loss of social networks and recreational opportunities.

Downstream social impacts include loss of amenity, river health and access to basic rights.

The Wyangala project, being the largest will impact on:

[14] EPBC Act Referral, May 2020. 2020/8653 Raising Wyangala Dam Wall 3.9 Describe any Indigenous heritage values relevant to the project area

- residential areas of Wyangala, including Wyangala Dam Public School and Wyangala Country Club;
- residential areas of Reids Flat, including Reids Flat Landfill Facility and Reids Flat cemetery;
- recreational and tourism related areas, including Wyangla Waters Holiday Park, Grabine Lakeside Holiday Park,and Mount Davies Nature Reserve;
- pastureland currently or previously used for livestock grazing; and
- Aboriginal cultural practices downstream and upstream of the proposed action area.

All the project proposals will have social impacts. Lack of clear consultation with all impacted communities, including those downstream, has been very poor.

4. Economic impacts

Loss of downstream access to natural tributary inflows, basic rights, stock & domestic and supplementary licence access is a key economic issue. The projects will shift economic benefits from one set of water users and concentrate the benefits in different parts of the river system. This has flow on effects to local government areas, townships and regional communities. There will be clear economic winner and losers.

The increased cost of the infrastructure to WaterNSW customer's water pricing has not been clearly discussed or included in consultation processes.

The loss of flows downstream to interconnecting river systems will put more pressure on different water sources to meet cross-jurisdictional water sharing arrangements.

Wyangala Dam project: the capture of an additional 650 GL increasing the storage by 53% means that these flows will no longer reach downstream to the end of system water users. This will have a significant impact on farming enterprises established to have access to those flows. Impact on the filling of Lake Cargelligo and Lake Brewster and other downstream water access has not been clearly identified.

The loss of flows connecting to the Murrumbidgee and Murray will increase the need for water releases in the Murray to meet water sharing commitments with South Australia.

Mole River Dam: the capture of 100 GL on the Mole River will convert the system from an unregulated river managed under one set of water sharing plan rules to a regulated river managed under a different set of water sharing rules.

Unregulated licenses downstream to the Dumaresq River will need to be converted to regulated licenses. There has been no consultation with water users about this process. There has been no discussion of increased water pricing throughout the Border Rivers system including the Queensland Border Rivers water users.

The Border Rivers are currently managed under an intergovernmental agreement made between NSW and Qld in 2008 that shares water through a split of 57% to NSW and 43% to Qld. Loss of supplementary access inflows to the regulated Border Rivers from the Mole River is likely to change the shares.

The loss of flows from the Border Rivers into the Barwon-Darling has economic impacts for downstream water users and flows into Menindee Lakes. This further impacts the flows from the Lower Darling into the Murray.

Dungowan Dam: There is lack of clarity whether the new infrastructure will be owned and managed by WaterNSW with Tamworth Regional Council as a paying customer.

Ratepayers in Tamworth have already been charged for the augmentation of Chaffey Dam in 2016 without receiving improved town water security because of NSW water allocation policy.

The loss of inflows to the Peel River captured by the proposed increased downstream storage on Dungowan Creek will impact on downstream water access. The loss of supplementary flows from the Peel River to the Namoi River will impact Namoi water licence holders and change the shares.

The loss of inflows to the Namoi will also require more water to be released from Keepit Dam to meet required end of system flows under the Namoi Regulated water sharing plan.

The 95% of long-term annual average use of Tamworth town water supply (annual license is 5,600 ML) is attributed to the Namoi Regulated water sharing plan and 5% to the Peel Regulated water sharing plan. The increase in water availability to Tamworth will have economic impacts on Namoi water users.

Macquarie Reregulator: Loss of access to supplementary water, basic rights and stock & domestic water, plus loss of flows for Warren town water supply will have a significant economic impact on downstream water users.

5. **National or state water agreements, or international environmental obligations**

State water agreements:

NSW has a responsibility under the WMA to share water between users with the environment having highest priority. Water sharing plans were developed so that planned environmental water is available to provide the basic requirements of ecosystem function and river health.

The flows to be captured by the proposed dams will impact on the share for the environment, impact on current rules within water sharing plans for the delivery of licenced environmental water and cause increased degradation of river health.

The focus on providing increased water security for general security licence holders ignores the legal hierarchy within water sharing plans.

Updated modelling that includes the additional capture of flows across four river valleys in inland NSW is critical information needed to assess the impact of the dam projects on water shares for the environment, basic rights, town water supply, high security licences, stock & domestic licences and supplementary access.

NSW has various Intergovernmental agreements with neighbouring states that are likely to be impacted by the changes in water capture and availability.

National water agreements:

NWI

NSW has responsibilities under the NWI to '*ensure the health of river and groundwater systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction.'*

The construction of large new instream storages to provide more water for extraction is counter to this agreement.

Basin Plan

The Murray Darling Basin Plan is a bipartisan agreement between the Commonwealth and Basin states made in 2012. The setting of sustainable diversion limits in each river valley under the plan included the flows that currently perform the role of planned environmental water.

The proposed capture of 770 GL of this environmental water will impact on the outcome of the Basin Plan downstream to the Lower Darling and the Murray Mouth.

This volume is over one-third of the water currently recovered under the Basin Plan at great public expense. The recovered water is held in licences managed by the Commonwealth Environmental Water Holder.

The security of the Commonwealth held environmental water is potentially under threat from the impact on water sharing rules and planned environmental water caused by the increased capture of water through the dam proposals.

International Agreements:

The Commonwealth Water Act 2007 recognises the following international treaties signed by the Australian Government as having relevance to water management:

(a) the Ramsar Convention; Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar 1971
(b) the Biodiversity Convention; Convention on Biological Diversity, Rio de Janeiro 1992
(c) the Desertification Convention; United Nations Convention to Combat Desertification, Paris 1994
(d) the Bonn Convention; Convention on the Conservation of Migratory Species of Wild Animals, Bonn 1979
(e) CAMBA; Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment, Canberra 1986
(f) JAMBA; Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment, Tokyo 1981
(g) ROKAMBA; Agreement with the Government of the Republic of Korea on the Protection of Migratory Birds, Canberra 2006
(h) the Climate Change Convention; UN Framework Convention on Climate Change, New York 1992

IRN considers that obligations under these agreements will be impacted by the new dams. The environmental damage to key wetlands, water bird habitat, threatened species and native fish habitat will cause a failure to meet Australia's international obligations.

Terms of Reference (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

Climate change has caused a severe decrease in water flows in the Murray-Darling Basin over the past 20 years. A report by Interim Inspector General, Mick Keelty found that inflows into the Murray had halved over that period.[15]

The loss of flows into the Darling River system caused the NSW Natural Resources Commission to describe the river as '*an ecosystem in crisis'*[16]

The loss of rainfall runoff through climate change impacts will prevent the increased storages to meet full capacity over the predicted timeframe. The public investment will be a wasted opportunity with no returns other than ongoing degradation of river systems.

For example: Inflows into Wyangala Dam [17]

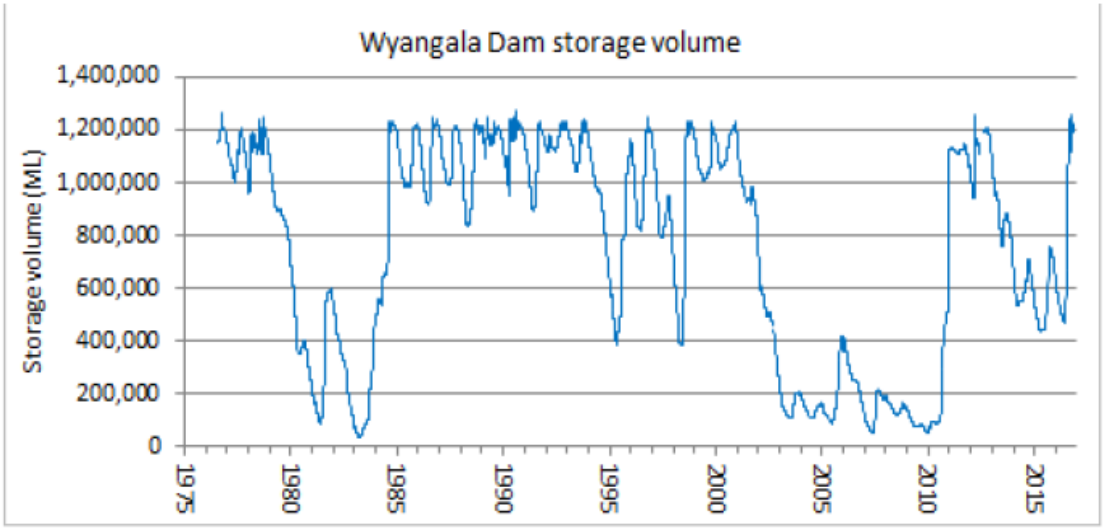

Figure 6-1. Wyangala Dam daily storage volumes 1975 – 2016.

This graph demonstrates the loss of regular inflows to the storage during the Millenium Drought and following. 2016 was the last significant inflow to fill the existing dam capacity.

An additional 650 GL capacity or increase of 53% will be very unlikely to fill under climate change predictions for the Lachlan Valley.

The enlarged Dungowan Dam is a similar circumstance. While the Peel River water sharing plan is based on the mid 1960s drought, inflows during that time were 13 GL. Inflows to Chaffey Dam over the two year period between March 2018 and March 2020 were less than half that volume at 6 GL.[18]

[15] Interim Inspector General, March 2020. Impact of lower inflows under the Murray-Darling Basin Agreement

[16] NSW Natural Resources Commission, 2019. Final Report on the Review of the Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Source 2012

[17] DPIE – Water, Nov 2018. Lachlan Surface Water Resource Plan Area Description p 35

[18] NSW Natural Resources Commission, 2020. Final Report on the Review of the Water Sharing Plan for the Peel Regulated, Unregulated, Alluvium and Fractured Rock Water Source 201o

It is highly unlikely that an enlarged Dungowan Dam will fill regularly enough to secure Tamworth town water supply over and above the water efficiencies achieved through the construction of the Chaffey Dam pipeline last year.

The investment of public funds with little or no broad community consultation, business case or environmental assessment while planning to fast track the project, commencing works in October 2020, is fiscally irresponsible and procedurally unacceptable.

Climate change predictions are for continuing higher temperatures, higher evaporation rates, and less rainfall runoff. This means that mass water storage projects will not ensure security of water supply for social and economic outcomes and will intensify the environmental degradation of river systems. These structures are likely to become stranded assets.

Investment in new dams is the wrong response to an increasingly difficult problem of sharing less water across greater demands. The supply side solution will not achieve the desired outcomes. Investment must occur to manage demand efficiencies.

Terms of Reference (e) water infrastructure technologies that may promote enhanced environmental outcomes

To improve security for Town Water Supply in inland NSW the ongoing development and implementation of Integrated Water Cycle Management programs is essential and should have top priority.

Water reuse, increased onsite capture through water tanks, water-wise parks and gardens among other options will promote enhanced environmental outcomes.

The Western Weirs project needs to examine the efficacy of off-stream storage options to secure town water supply rather than to increase environmental impacts through higher weirs and longer weir pools on the Darling River.

Improved management of evaporation from off-stream storages will take the pressure off the riverine environment to meet inefficient demand.

Improved irrigation technology away from flood irrigation will provide a major increase in water security for the irrigation industry, particularly cotton.

Terms of Reference (f) any other related matter

1. **Water trading**

The Coalition Government policy to increase agricultural productivity in Australia by providing increased water storage is unrealistic under climate change predictions.

The promise of increased water availability and security is likely to attract more investment from large international companies seeking to achieve increased returns and higher profits that will then move off-shore.

The Australian Competition and Consumer Commission is currently reviewing the water trading market in the Murray-Darling Basin.

The growth of the almond industry in the Murray, through large scale international investment corporations, has caused significant social and economic structural adjustment through increased competition for water and ability to pay higher prices.

This has also had significant environmental impacts through adverse delivery requirements causing erosion and increasing pressure on river systems.

The Lachlan and Border Rivers do not need to see a repeat of this problem through the construction of increased water storage capacity. The ability to capture and supply the water is a high risk that has not yet been transparently assessed.

2. Regional investment

The investment of public money into improved services in regional inland NSW will create more economic stimulus and jobs than the proposed construction of new dams.

The Independent Assessment of Social and Economic Conditions in the Basin found that investment in regional services creates four times as many jobs than investment in water infrastructure.

Improved internet and phone access, health and educational services will provide much better post Covid economic stimulus than new dams that are likely to become stranded assets under climate change predictions.

Public investment in improved water security must be made through water-use efficiency measures while current water management policy settings in NSW are changed to meet the coming challenges.

For more information in regard to this submission please contact:

Bev Smiles
President
Inland Rivers Network