

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

Organisation: NSW Government
Date Received: 2 October 2020

NSW Government Submission to the Legislative Council's inquiry into the rationale for, and impacts of, new dams and other water infrastructure in NSW

The NSW Government is committed to ensuring long-term water supply security for communities and businesses right across the State.

The Government is undertaking a range of important dam and water infrastructure projects to deliver on these commitments, while also providing potential environmental benefits by managing river water flows during periods of extreme weather such as drought or flooding.

We welcome the opportunity to highlight the benefits of our new dams and water infrastructure works program, while acknowledging potential environmental impacts and how these can be best mitigated and offset.

Securing water supplies for regional NSW

The NSW Government is investing in major dam projects and other water infrastructure to secure water supplies for regional NSW.

The projects will bring a range of short- to medium-term economic benefits that will support recovery from COVID-19, including more construction jobs and capital investment as well as the benefits for recreation, tourism and industry that come from infrastructure operation, maintenance and a more secure water supply.

We need to invest in long-term water security to build the resilience of our regional communities. This will assist with improving the surety of the environmental flows necessary to maintain the health of NSW's regional water catchments, as well as provide productivity benefits for regional economies.

The NSW and Commonwealth governments are working collaboratively to prioritise and fast-track critical water infrastructure projects. In partnership with the Commonwealth Government, we have committed to jointly fund:

- raising the Wyangala Dam wall in the Lachlan Valley,
- a new Dungowan Dam and pipeline near Tamworth in the Peel Valley, and,
- detailed investigations into a proposed new dam on the Mole River in northern inland NSW.

The NSW Government is also delivering the Western Weirs project to improve the operation of weirs on the Barwon-Darling and Lower Darling River in western NSW and the Macquarie River re-regulating project.

To support fast-tracked delivery, these three dam projects and the Western Weirs program have been declared Critical State Significant Infrastructure under Schedule 3 of the *Water Supply (Critical Needs) Act 2019* passed by the NSW Parliament in November last year.

This will streamline the process for assessments and approvals under the *Environmental Planning and Assessment Act 1979*, while also ensuring that full environmental assessments are undertaken, and social and environmental impacts can be mitigated and managed.

Environmental assessments will be publicly exhibited. Mitigation measures will be implemented to minimise any impacts from the projects which may include undertaking native vegetation clearing outside of key breeding seasons and developing operating rules that minimise impacts to hydrology, particularly in key seasons. Where residual impacts remain after mitigation measures have been implemented, impacts to biodiversity will be offset through a variety of means which could include the retirement of biodiversity credits in accordance with the Biodiversity Conservation Act 2016.

\$245 million has been allocated for the first stage of the dams program, which will fund the development of business cases for the three dam projects, as well as pre-construction activities and early works for the Wyangala and Dungowan projects so that construction can begin as soon as possible.

These are progressing to achieve 'shovels in the ground' for early works in late-2020 and commencement of construction by late-2021 for the Wyangala and Dungowan projects.

All projects are listed in respective Regional Water Strategies and will be considered with other projects in each strategy.

Investing in water security is the highest priority for the \$4.2 billion Snowy Hydro Legacy Fund.

New climate data to inform regional water strategies

As part of the development of the regional water strategies, the NSW Government is developing new, state-of-the-art climate data to give an improved understanding of climate variability and change. This new data gives us a much better understanding of the likelihood and severity of extreme droughts and floods.

In the past, regional water management decisions have been based on 130 years of climatic data. Recent conditions in many parts of the state have been more severe than anything seen in these climate records. This has meant that our towns and high-security needs have been at risk.

We are expanding our understanding by bringing together:

- the recorded historical data (130 years)
- paleoclimate records (data from before historical records began using sources such as tree rings, ice cores and limestone deposits – 500 and 10,000 years)
- an understanding of the drivers of climate in NSW.

Together, we are using this information to understand the potential impacts of climate variability and climate change on our water sources. This will give us the ability to understand the level of risk to our towns and high-security users better than previously possible.

We will be using this new climate data to assess relevant infrastructure projects, including the three dams.

Publishing the new climate data

We are publishing this new climate data in regional water strategies. This will give community, industry and councils more information about catchment health to assist in making decisions about investment in water and its availability.

Background

Wyangala Dam Wall Raising

A preliminary business case undertaken in 2018 which investigated water security options in the Lachlan Valley identified that the raising of the dam wall would provide significant improvement in drought security, flood management and water reliability. The preliminary business case recommended raising the dam wall by around 10 metres, which would increase storage by 53% by creating capacity for an additional 650 gigalitres.

The Secretary's Environmental Assessment Requirements (SEARs) were issued for the project on 27 July 2020, and environmental assessment to inform the Environmental Impact Statement (EIS) has commenced.

The project is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 due to likely impacts to Matters of National Environmental Significance. It will be assessed under the bilateral agreement between the NSW and Commonwealth Governments.

The EIS and assessment process will describe and outline management and mitigation of environmental impacts, such as to threatened species and ecological communities listed under the Biodiversity Conservation Act 2016 and their habitat which will be impacted by inundation, and the Booligal wetlands and the Great Cumbung Swamp which occur downstream of the dam and are environmentally important assets in the Murray-Darling Basin. The early works for the project includes works at the Reflections Holiday Park to ensure that recreational use of the dam can continue throughout construction.

New Dungowan Dam with augmentation of Dungowan pipeline

The project will involve constructing a new dam, downstream of the existing Dungowan dam, and construction of a new pipeline to improve water availability and security in the Peel Valley.

A feasibility study for the project was completed in 2017 with funding provided from the National Water Infrastructure Development Fund.

The study found the optimal solution was a 22.5 gigalitre dam. This would provide an increase in capacity from the existing 6 gigalitre dam. This will provide an estimated increase in town water supply of around 7 gigalitres per annum.

SEARs were issued on 27 July 2020, and environmental assessment to inform the Environmental Impact Statement (EIS) has commenced.

The project is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 due to likely impacts to Matters of National Environmental Significance. It will be assessed under the bilateral agreement between the NSW and Commonwealth Governments.

The EIS and assessment process will describe and outline management and mitigation of environmental impacts, such as to threatened species and ecological communities listed under the Biodiversity Conservation Act 2016 and their habitat which will be impacted by inundation. Cumulative impacts from all other water supply measures along the Peel River, either underway or in planning, will similarly be assessed.

The early works for the project includes the first stage of the Dungowan to Calala Water Treatment Plant pipeline which targets replacement of the existing section of pipeline. The pipeline is in poor condition and is due for replacement regardless of the new dam construction.

Mole River Dam

The Border Rivers is a large catchment, and its water supply is serviced by three relatively small catchment dams and large on-farm storages. A new dam would have the potential to secure more water in flood sequences so that in drier times more water would be available to communities, agriculture, and the environment.

A feasibility study for the project was completed in 2017 with funding provided from the National Water Infrastructure Development Fund.

Preliminary water resources modelling indicated that a 100 GL dam on the Upper Mole River could increase supply reliability by 17% and improve security.

SEARs were issued on 27 July 2020, and environmental assessment to inform the Environmental Impact Statement (EIS) has commenced.

The project is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 due to likely impacts to Matters of National Environmental Significance. It will be assessed under the bilateral agreement between the NSW and Commonwealth Governments.

The EIS and assessment process will describe and outline management and mitigation of environmental impacts, such as to threatened species and ecological communities listed under the Biodiversity Conservation Act 2016 and their habitat which will be impacted by inundation. Impacts to flows in the Border Rivers system, as well as connectivity to and along the Barwon-Darling River system, will be assessed and mitigation measures identified.

Macquarie River re-regulating storage project

The NSW Government has engaged WaterNSW to develop a Final Business Case for a proposed re-regulating storage including fishway structure on the Macquarie River. This structure will contribute towards improving water access reliability and resilience for the region and follows recommendations by Infrastructure NSW in the 2014 State Infrastructure Strategy (PDF) and WaterNSW's 20 Year Infrastructure Options Study.

Earlier studies and consultation focused on location options for the re-regulating storage between Warren and Narromine, with specific sites being investigated near Gin Gin Weir and Rocky Point. Following the options investigation and consultation, the preferred site has been identified and is proposed to be located 200 metres downstream of the existing Gin Gin Weir. The site was selected following environmental, social and economic impact investigations and consultation.

The future of the existing Gin Gin Weir will also form part of the project with studies to consider fully or partially decommissioning the weir.

WaterNSW is expected to submit the final business case to the NSW Government in late-2020. This will include the outcomes of community and stakeholder consultation and environmental and engineering studies. The final business case will be assessed by Infrastructure NSW under the Infrastructure Investor Assurance Framework gateway 2 process.

SEARs were issued on 21 July 2020. The project is a controlled action under the Environment Protection and Biodiversity Conservation Act 1999 due to likely impacts to Matters of National Environmental Significance. It will be assessed under the bilateral agreement between the NSW and Commonwealth Governments.

The Macquarie Marshes Ramsar site, consisting of private and publicly owned land, is located downstream of the proposed storage.

Before the weir can be constructed, the project will be required to secure all the necessary planning approvals and deliver an environmental impact statement for community comment. The

EIS will include further assessments such as technical, hydrological, environmental, biodiversity, cultural and economic feasibility studies, along with further community and stakeholder consultation.

Under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 Australia is obliged to protect the ecological character of Ramsar wetlands. The Macquarie Marshes are also subject to international bilateral migratory bird agreements and local, regional, state and national policies and legislation including the NSW Wetlands Policy.

This project is being developed to align with the Macquarie-Castlereagh Regional Water Strategy. The Regional Water Strategy is being developed by the Department of Planning, Industry and Environment and will identify policy, planning and infrastructure options that deliver resilient water resources for all water users in the Macquarie Valley.

This project and the Macquarie-Castlereagh Regional Water Strategy are both supported through funding from the Snowy Hydro Legacy Fund.

Western Weirs Project

There are over 29 weirs along the Barwon-Darling and Lower Darling Rivers that are within the scope of the Western Weirs project. The NSW Government recognises that the adequacy of these weirs has been a concern to Local Government and the community for a number of years.

The current infrastructure is known to have a range of deficiencies including town water supply concerns, the poor condition of weirs and flow regulation limitations.

To date, a total of \$4.2 million has been allocated to investigate options for the weirs in the Barwon-Darling and Lower Darling Rivers. WaterNSW is developing a Strategic Business Case for the holistic management and operation of the weirs in these systems to support remote community water supplies.

The Western Weirs Program is investigating options that could improve long-term water availability and access for far west regional towns as well as enhanced water delivery efficiency.

The program is assessing the capacity of town weirs to provide water for far west towns and options to raise these weirs to improve security for communities where required.

If fully implemented, the Program may include the construction of a new integrated system of gated weirs to replace current fixed crest weirs along the river, allowing WaterNSW to more effectively manage flow along the whole system.

It will also include provision of fish passage on all new or augmented weirs along the river, removal of weirs and structures that provide no benefit to the system, and implementation of new ownership, maintenance, operations and cost recovery arrangements for infrastructure and operations along the river.

Amendments to water sharing plans may also be required to account for any new operational regimes along the rivers.

WaterNSW anticipates being able to better manage the movement of environmental flows through a new operational arrangement with gated weirs, while the entire program is aiming to provide positive flow-on benefits to revitalise the regional communities and economies in the far west of NSW.

Environmental and Cultural Heritage Considerations

The EIS and approvals process will assess and describe impacts on Aboriginal cultural heritage values including stone artefacts and burial sites. Detailed impact assessments and consultation

with Registered Aboriginal Parties will identify the significance of Aboriginal cultural values and determine appropriate mitigation measures.

The new dams and storage projects will benefit the environment through the increase in security of licences held for the environment, while the change in hydrological regime of the river systems and downstream environments may impact terrestrial, riparian and aquatic biodiversity.

The NSW Government manages the delivery of environmental water in NSW. This includes water held under licence by the NSW Government and water allocated to the environment in water sharing plans. The NSW Government also collaborates for the delivery of Commonwealth-held environmental water within NSW and works with irrigation companies and landholders to support the health of privately held wetlands and creeks.

Water sharing plans set the rules for how water is allocated and are developed by the Minister for Water, with concurrence from the Minister for Energy and Environment. Water sharing plans provide water for the environment by protecting a proportion of the water available for fundamental ecosystem health. Depending on the operation of the structures, amendments to water sharing plans may be required.

The NSW and Commonwealth Governments have responsibilities under State and Commonwealth legislation, inter-governmental and international agreements to maintain environmental outcomes for water-dependent species and ecosystems. It is anticipated these commitments will be assessed in the respective EISs.

River flow during drought

While it is not possible to identify exactly when rivers would have run dry during the last drought without dams, most major rivers in the Northern Basin and the Lachlan would have lost connectivity and flowed intermittently. River flow was only sustained and prolonged by the presence of major dams. The table below describes information about river flows during the last drought.

Basin	Last Major Inflow into system	Event Volume - tributaries and dams	Storage Volume (%) at end of inflow event	Inflows during drought	This year's system inflows – to end of June 2020	Comments
Border River	March-April 2017	382 GL	89%	April 2017 – Jan 2020 Approx. 200GL	134	One event in October 2017 that would have provide a flow along the Border River
Gwydir River	June-October 2016	668 GL	57 %	Oct 2016 - Jan 2020 Approx. 258 GL	141	Small inflows during 2017 up until October 2017. River system would have flowed intermittently from October

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Basin	Last Major Inflow into system	Event Volume - tributaries and dams	Storage Volume (%) at end of inflow event	Inflows during drought	This year's system inflows – to end of June 2020	Comments
						2016 to until October 2017.
Namoi River	June -Nov 2016	864 GL	67%	Nov 16 - Jan 2020 Approx. 123 GL	146	There were two small events during the drought that would have provided a flow in the Namoi in Oct 2017 and Dec 2018
Peel River	June -Nov 2016	190	100	Nov 2016 – Dec 2019 Approx. 41 GL 18GL from Nov16 to Jun 17 + 7.3 GL in 17-18 +3.3 in 18-19 + 16 in 19-20	16	From end of 2016 flows in the Peel would have only provided local flow in sections of the river and not provided connectivity along the whole river
Macquarie River	June -Nov 2016	3217	114%	Dec 2016 - Jan 2020 Approx. 229GL	505	Small inflows up until 2017 may have provided connectivity but inflows after this point would have only provide localised flow in the Macquarie. Macquarie requires 140GL of inflows per year in dry

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						years to provide connectivity from Burrendong to the Marshes
Lachlan River	June -Nov 2016	2910	100%	Dec 2016- Jan 2020 – Approx. 449 GL	207	Small inflows during the first few months of 2017 may have kept river flowing, the only other event likely to provide connectivity during the drought occurred in Dec 2017 which may have provided connectivity along the river. Lachlan requires 180GL of inflows per year in dry years to provide connectivity from Wyangala to the Great Cumbung and to the lower Lachlan effluents for BLR.
Barwon Darling	June -Nov 2016	5742	80	Approx. 940 GL - 2017 Approx. 229 GL - 2018 Approx. 112 GL - 2019	1,835 GL	In flows in the NSW tributaries in April-May 2017 (428GL) would have provided connectivity

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Basin	Last Major Inflow into system	Event Volume - tributaries and dams	Storage Volume (%) at end of inflow event	Inflows during drought	This year's system inflows – to end of June 2020	Comments
						along the Barwon Darling but this would have been the only event between November 2016 to February 2020. Some smaller events may have provided inflows to the system but unlikely to provide connectivity.

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