



Submission to the 2026 Menindee Lakes Review:

By:

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1 Terms of Reference

The objective of the Review is to investigate the key challenges and emerging issues affecting the existing shared water management arrangements for the Menindee Lakes and examine if the current water management objectives and arrangements for the Menindee Lakes remain fit for purpose. The Review will:

- consider the key management arrangements governing Menindee Lakes that have been agreed by the Basin governments over time,
- consider the key water management challenges, risks and issues relating to the operation and management of the Menindee Lakes and if those current management arrangements remain fit for purpose in relation to these, and
- explore opportunities to maximise outcomes for environmental, economic, Cultural, and social values in relation to the operation and management of the Menindee Lakes and identifying associated trade-offs.

2 Summary and Purpose

The Gwydir Valley Irrigators Association (GVIA) is the representative body for water entitlement holders in the Gwydir Valley and welcome the opportunity to provide our feedback on the 2026 Menindee Lakes Review from the perspective of our region.

This document aims to represent the concerns, views and experiences of our members and the community. Each member reserves the right to express their own opinion and is entitled to make their own submission.

The barrage of water reform in recent years has continuously eroded access to water entitlements with no clearly articulated objectives or environmental metrics. Of particular concern for entitlement holders in the northern basin is the impact of Menindee Lake triggers on reliability and access to entitlements. Management of Menindee Lakes must improve to stop the erosion of reliability for northern basin members. We request that due process is applied to respecting the ephemeral nature of the system, so that as a nation we avoid negative environmental impacts and unnecessary consequences for entitlement holders up stream and downstream.

The most important opportunity is the upgrading of infrastructure to minimise harm to native fish. Weir 32 and main weir must urgently be upgraded to enable fish passage and improved efficiency of managing the upper lakes for drought reserves.

There should be no changes at Menindee Lakes that impact the reliability or allocation of water for productive use. Any proposals must aim to maintain or improve the operational flexibility of the system. Any changes considered for environmental improvements must demonstrate clear, measurable environmental benefits and not be specifically linked to additional water volumes. Any changes, including updating infrastructure to be fit for purpose must be fully funded by government, water users cannot continually fund environmental objectives of government.

The GVIA and our members, are members of the NSW Irrigators Council and National Irrigators Council and we generally support the submissions made by those organisations.

Thank you for this opportunity to provide our input and perspective.

3 Recommendations

- 1. The GVIA do not support any proposals that would impact on the reliability of allocation upstream or downstream of Menindee Lakes without comprehensive modelling of the benefits from any such proposal, supporting cost benefit analysis and full compensation.***
- 2. Any proposed changes such as connectivity reforms, operating rule changes, or structural reconfiguration are considered changes in Government policy, as such will be fully compensable.***
- 3. The MDBA prioritise investment in infrastructure at Menindee Lakes including upgrading Pamamaroo inlet regulator, installing a gated structure on weir 32 and implementing fish passage on main weir.***
- 4. These essential infrastructure upgrades are public good and should be funded by government.***
- 5. Climate change must be supported through adaptation rather than imposing prescriptive reductions in water reliability and allocations.***

4 Introduction

We are concerned that there is a misalignment between the papers to support the Menindee review. The technical paper presents a more evidence based assessment and should be seen as the primary report under consideration in the review. The consultation paper presents reform pathways that are shaped more by the policy framing of the issues paper, both seem to lack an appreciation of the highly variable flows of the northern basin. No proposal that shifts risks of reliability cost to northern entitlement holders would be appropriate.

Options must not reduce storage resilience nor restrict upstream or downstream water access. We cannot support any proposals that would impact on the reliability of allocation upstream or downstream of Menindee Lakes. Reliability of entitlement must be considered equally important regardless of the location of the entitlement relative to the lakes.

Webinars on the Menindee review seems to have not seen the strong linkage that exists between lakes management, and Northern Basin reliability. The operating rules governing the Lakes directly determine the conditions under which northern entitlements such as floodplain harvesting and supplementary entitlements can be lawfully exercised.

Any changes to the operating rules of the Lakes themselves, including trigger levels, threshold volumes, and connectivity arrangements will have direct consequences and must be assessed transparently with recognition of the impact to entitlement reliability both upstream and downstream. For example, proposed changes from the 195GL active trigger in the upper lakes restricts floodplain harvesting and supplementary access upstream, to 250GL is seen as a target on entitlements upstream. This proposal is a result of failure of addressing the root cause of the problem, infrastructure, and the inefficient use of the resource as a result of the infrastructure.

Water recovery in the Gwydir has had significant impacts since the initial creation of the Environmental Contingency Allowance in 1996¹. This recovery has continued with the last significant reduction the licencing of Floodplain harvesting in August 2022. This saw a reduction of 52,900 megalitres, an average 30% reduction. The full impacts of this reform are yet to be experienced by members and the benefits to the environment are yet to be seen.

Entitlement holders in the Gwydir and across the northern basin are tired of governments failing to address the real problem and pursuing the easier option of taking water out of production. It is time to address the infrastructure and complementary measure that are preventing better environmental outcomes.

5 Observations

The Technical Report identifies climate variability and structural design as the primary drivers of Menindee's vulnerability. We support this observation given the highly variable ephemeral nature of northern basin. The flows in northern tributaries are highly connected to episodic rainfall events, which means that when dry times are experienced, the northern rivers will and have always ceased to flow, it is a defining characteristic of the northern basin, not an indicator

¹ [Gwydir Valley Irrigators Association Inc - History of Water Reform](#)

of regulatory failure. It is time this basic hydrologic fact was recognised across the board. The ephemeral nature of the Menindee Lakes system must be respected. Failure to accept and work with this, risks significant consequences for the environment and for entitlement holders upstream and downstream.

Water reform in the northern basin has been significant and has seen major impacts on the viability of communities². It is inappropriate that the papers fail to recognise the facts and disproportionately emphasise development and upstream extraction as factors impacting the review. Access to low flows has been reduced through water reform over the last 15 years and should not be seen as significant impact of system health. Analysis of gauge flows at Wilcannia demonstrate that a base flow of 350ML/day or above has been achieved 97% of the time since 1990, in addition small fresh flows of 1,400ML/day have been achieved 91% of the time.

Recognition of the dryer that average climatic conditions from 2000 to 2021 is important. Critically we experienced two major droughts over this timeframe, including the 2018-19 drought which saw the lowest rainfall on record across most of the northern basin. In addition, the licencing of floodplain harvesting in 2022 will return an estimated 100,000ML of inflow into the system, although modelling indicates less than two percent of this is likely to reach Menindee. This and other water reforms have brought diversions of surface water below Cap. The Sustainable Rivers Audit supports the success of achieving SDL and Cap in the northern basin with longitudinal connectivity being good or very good in all but one stream, and freshes and bank full flows being good or very good across the board.

It is unfortunate that the fish deaths at Menindee are being blamed primarily on low flows, when we know that fish deaths have occurred due to too much water as well. Fish deaths are primarily a Menindee lakes management and infrastructure problem, not a volume problem.

The implementation of 195 GL trigger for northern Basin floodplain harvesting access is a concern for the northern basin, this trigger is directly linked to Menindee operations, which northern entitlement holders have no influence over. It would be desirable to see management at Menindee recognise the impacts on upstream entitlement from their decision making. Something which appears not to be considered. Inefficiency in operations impact the reliability of access which is unacceptable. The NSW government have proposed to increase the access trigger to 250GL without any consultation or demonstration of justification. There is a need to implement an evidence based approach, rather than a politicisation of the management of Menindee Lakes. These unjustified rule changes without compensation are not acceptable.

The Menindee Lakes system comprises of 7 lakes that have been altered to allow for connection from the Darling River via a series of weirs, channels and levees. The lakes no longer operated as a natural lake system, they now operate as a storage system, although a rather inefficient one. The technical report recognised that the storage volumes in the lakes are highly variable, reflective of the highly variable ephemeral nature of the northern basin. Nothing can change this characteristic of the system.

² [Northern Basin Review – technical overview of the social and economic analysis | Murray–Darling Basin Authority](#)

The main lakes which have the greatest impact on the reliability for the northern basin are the Lakes of Tandure, Wetherell and Pamamaroo. The Main Weir on the Darling River raises the water to 12 metres above riverbed level to form Lake Wetherell. Water can then flow under gravity through regulators, even during low flow conditions, from Lake Wetherell downstream into Lakes Pamamaroo, Menindee and Cawndilla. The upper two lakes, lake Pamamaroo and lake Tandure have releases limited to conserve water for drought reserves and fish outcomes. It appears that they are currently being used primarily for fish outcomes, with NSW using s324 embargoes to secure drought reserves. This approach is significantly impacting entitlement reliability in the NSW northern basin. A more appropriate solution such as fixing the infrastructure, must be found urgently as the current approach is unjustifiable impacting a selection of entitlement holders.

The technical report recognises that infrastructure, although enabling significant water security, has changed flow regimes, contributed to reduced water quality and created significant barriers to fish passage and the transportation of nutrients through the system.

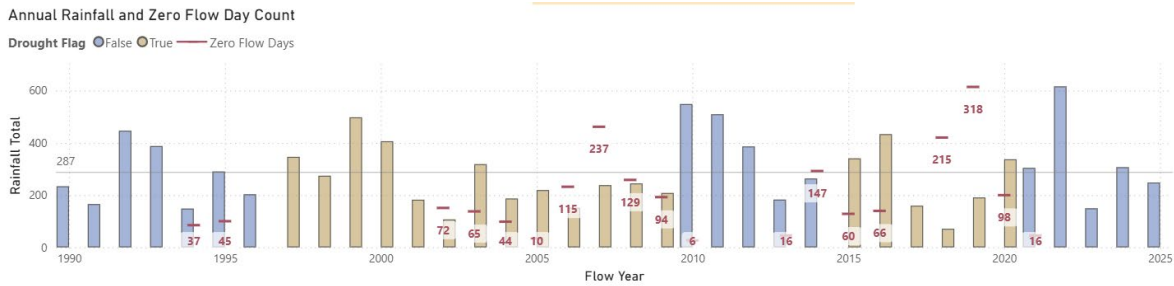
The section where the most significant issues exist are between main weir and Menindee town at Weir 32. The technical report notes that main weir has “extremely limited fish passage between north and south” and that weir 32 fishway is often not operational due to limited functionality and risk of poor fish outcomes in the weir pool. Given the technical reports reference to the lakes being a significant nursery site for fish, the problems with main weir and weir 32 must be addressed urgently.

There are additional challenges with the structural integrity of Pamamaroo inlet regulator (however it does have baffles which can temporarily be installed to encourage fish passage during operation, making conditions more favourable to fish movement) which is scheduled to be addressed in the next 18 months.

The Technical Report is a more accurate and generally a more evidence based document. With reference to inflows, it notes that there were reduced Barwon-Darling streamflow (2001–2019), relative to the wetter 1950–2000 period, and that this can be attributed roughly equally to climate variability and to historical water resource development. It also suggests that development has reduced long-term average flow volumes by 40–50% compared to no-development conditions, this is an over exaggeration of the possible impacts of extraction. However, neither finding supports a simple policy conclusion that upstream extraction is the primary driver and upstream restriction is the primary solution³. Additionally, the issues paper tried to present the need for upstream restrictions to address the drying trend, this ignores significant water recovery and the strong correlation between flows and rainfall.

Our analysis of gauge data and rainfall strongly reaffirm the linkage to stream flow and rainfall. For example, at Wilcannia the average annual rainfall from 1990 to 2025 is 286 mm there can be seen a clear linkage to below average rainfall and zero flow days.

³ CSIRO (2022)



Source: BOM rainfall data Wilcannia and gauge data water insights Barwon River at Wilcannia (425008).

The consultation paper’s states that progressive irrigation expansion, floodplain harvesting, and construction of upstream storages since the 1960s have contributed to reduced inflows and increased cease-to-flow events. Once again, the paper doesn’t recognise the significant water recovery that has occurred and under states the relevance of climate.

The 1974 Water Resources of Darling⁴ indicates that zero flow periods exceeding 250 days have been experienced at Walgett, Wilcannia and Menindee several times since records began and that low or zero flow is linked to rainfall, both at the location and upstream.

The 1966 Water Resources of the Gwydir Valley by the Water Conservation and Irrigation Commission of NSW notes that extremely low rainfalls have frequently been seen since 1879. In 1902 there was 7.97 inches (199.25 mm) similar low falls were experienced across the valley. The report also notes that “*Streamflows in the Gwydir River Valley are subject to a high degree of variability. Actual and estimated streamflow records over a period of 74 years indicate that the annual runoff from the valley can range from less than 1 per cent to more than 500 per cent of the estimated long term average annual runoff of 670,000 acre feet.*” Similar observations were reported in the equivalent documents for other northern rivers.

The consultation paper’s option pathways have failed to recognise the significant impacts of climate and the ephemeral nature of the system. Options have not properly considered or demonstrated potential environmental improvements, and they have not provided measurable environmental benefits. Proposals that look to implement changes that remove or significantly minimise natural dry phases in an ephemeral river system to match unrealistic, politically motivated expectations of the natural status of the Barwon Darling is not appropriate and have the potential to cause ecological harm. Too much water is not what native species are adapted to. There is a need to more accurately address expectations, and priority should be to ensure policy objectives reflect the natural hydrology and climate of the region.

There is also a need to recognise the primary contributors, unsuitable infrastructure, to publicly unpalatable events such as fish deaths, the existing infrastructure traps the fish resulting in poor water quality and death. The massive carp biomass it also adding to this problem, meaning that a solution to the carp issue must also be an option in the Lakes review.

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https://publications.water.nsw.gov.au/watergroupjsui/bitstream/100/938/1/Water_Resources_of_the_Darling_Valley.pdf

It is essential that any options recognise that the infrastructure is not fit for purposes (principally Main weir and weir 32) and as such is negatively impacting the efficiency of management of the water resource, the water quality and the health of native fish. These essential upgrades to infrastructure must be fully funded by government, water users cannot continually fund environmental objectives of government.

6 Connectivity

Northern Basin is very different to the southern basin, connectivity as seen in the south cannot be achieved in the highly variable ephemeral northern basin. The flows in northern tributaries are highly connected to episodic rainfall events, which means that when dry times are experienced the northern rivers will and have always ceased to flow. The consultation document sets a false expectation that connectivity is rational, achievable and desirable. It is seen as a possible “fix” to the conditions at Menindee. This demonstrates a lack of understanding of the ephemeral system that is the northern basin. No amount of regulation can change that. There is a need to provide credible options and manage expectations, so they are realistic. This includes options that provide critical human needs not solely reliant on a highly variable ephemeral river.

We caution against utilising the investigations on connectivity associated with the NSW connectivity panel recommendations. Details of our concerns are included in the GVIA Basin Plan discussion paper Submission.

Given that the recommendations by the connectivity panel are not NSW government policy, they should not have been referenced in any of the Menindee review documents.

The connectivity recommendations being assessed by NSW government lacks appropriate consideration of environmental metrics, has utilised modelling with significant limitations and has not appropriately considered the impacts to upstream users and communities. Model limitations have been clearly outlined in the NSW department Analysis of the Connectivity Expert Panel Recommendations: Hydrologic modelling assessments⁵. The report notes the following:

“There are some processes that are currently occurring in the northern Basin that are relevant to understanding the existing level of connectivity between the main tributary river systems and the Barwon-Darling River that are not yet represented in river system models.

This includes:

- *water recovery under the Basin Plan and its use to achieve environmental outcomes*
- *any flows reaching or returning to rivers as a result of the licensing⁶ of floodplain harvesting or any other restrictions applied in model scenarios*

⁵ [Analysis of the Connectivity Expert Panel Recommendations:](#)

⁶ Licensing of floodplain harvesting is yet to occur in the Namoi Valley and is not included in the model used for this assessment. Instead, floodplain harvesting is represented at existing levels, unrestricted by licensing

- *the protection of held environmental water flowing in the Barwon-Darling and lower Macquarie under the active management process*
- *representation and protection of additional flows from Queensland arising from water recovery under the Basin Plan.*

The absence of model enhancements to represent these processes will generally lower the modelled base case flows into and along the Barwon-Darling River, and therefore also lower the flows modelled in each scenario and under-estimate the achievement of the environmental flow requirements set out in long term water plans.”

The report goes on in the ‘statement on connectivity modelling reliability’ to say “*Model results have not been bias-corrected or post-processed to remove known biases. Model results and subsequent analyses should be interpreted with caution, including by considering model limitations and biases.*”

The economic analysis of the recommendations is also of significant concern; at this stage it is a high level scoping study. There is yet to be a cost benefit analysis completed for any of the individual proposals from the panel, or from any combination of proposals. There has also been no socio-economic analysis considered for any of the proposals individually or for any combinations. Without a detailed, transparent assessment of the cost benefit analysis including a quantitative and qualitative assessment of proposed improvements to environmental indicators and a full socio-economic assessment of impacts to the community, (as completed in the Northern Basin review) the work completed by the NSW department to date is not presenting a realistic assessment.

Of additional concern the current NSW Government options under consideration rely solely on rules-based changes, having not considered any alternatives such as acquiring water through the market. Basic business case presentations would typically present a number of well researched, analysed and fully costed options. To date this has not been completed.

Critically it is also important to remember that the original Basin Plan included shared water recovery in the northern basin to meet the needs of the Barwon Darling system. As the majority of this volume has now been recovered, we encourage the MDBA to complete an audit of how environmental water is being utilised especially with regards its contribution to the Barwon Darling.

There must also be time to enable the benefits of licencing floodplain harvesting to be seen and the benefits of the completion of the ‘bridging the gap’ to be seen. In addition, prior to any investigation of connectivity proposals we encourage the MDBA to address the infrastructure challenges at Menindee, with specific reference to weir 32 and main weir.

If the MDBA believes that there is still a need to improve river connectivity in the ephemeral northern basin we recommend they complete an independent assessment which should start with an analysis of the 2016 Northern Basin Review, a comprehensive assessment that found less water was needed to meet the environmental objectives rather than more. Any progress beyond this point must entail independent hydrological assessments that do not have the limitations seen in the NSW assessments.

The ecological communities of northern basin rivers have evolved to depend on the cycle of wet and dry periods, episodic flows, and intermittent connectivity. Extended cease-to-flow

periods in the Barwon-Darling⁷ were consistently seen prior to regulation of northern tributaries and are part of the natural system, not indicators of regulatory failure. Given that extended dry periods are a natural and recurring characteristic, not an indicator of over-extraction then: upstream restrictions will have minimal or no impact, climate will continue to be the primary driver of severe low flows even following significant water reforms to date; tighter triggers or any form of connectivity proposal.

A more appropriate policy response is building resilience to natural cycles; not regulatory measures premised on the false assumption that management can eliminate episodic drought.

The Water Resources of the Gwydir Valley 1966 included observations that the rainfall from December 1901 to November 1902 was 6.42 inches (160.5 mm) which resulted in the lowest stream flows recorded in the valley. The Barwon Darling ceased to flow for 362 days at both Wilcannia and Menindee from January 1902 to 1903. One hundred years later, the message is the same if it doesn't rain the rivers will not flow.

Acknowledging the differences between the northern and southern basins and recognising the direct linkage between climatic conditions and river flow is essential if we are to consider this topic on a scientific basis rather than a political basis.

Any additional access restrictions would further erode reliability in the northern basin, impacting community survival with questionable potential for impacts on flows. Once again, we state that we cannot accept any proposals that could impact the reliability or allocation of water for productive use upstream or downstream. Any changes considered for environmental improvements must demonstrate clear, measurable environmental benefits and not be specifically linked to additional water volumes.

Request

- 1. The GVIA do not support any proposals that would impact on the reliability of allocation upstream or downstream of Menindee Lakes without comprehensive modelling of the benefits from any such proposal, supporting cost benefit analysis and full compensation.***
- 2. Any proposed changes such as connectivity reforms, operating rule changes, or structural reconfiguration are considered changes in Government policy, as such will be fully compensable.***

7 Impact of Menindee on Northern Basin

The GVIA believes there is an urgent need to address the significant infrastructure issue at the lakes. As stated in our Basin Plan submission to enable maximum benefits from environmental water holdings infrastructure upgrades at Menindee Lakes are essential. Of specific concern are Main Weir, Weir 32 and Pamamaroo Inlet regulator. All these structures are negatively impacting on fish health, water quality and efficient utilisation of environmental

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https://publications.water.nsw.gov.au/watergroupjspsui/bitstream/100/938/1/Water_Resources_of_the_Darling_Valley.pdf

water. This infrastructure is negatively impacting reliability of access in the northern basin, there is a lack of transparency and balance in how the impacts of infrastructure and management changes currently being implemented are impacting entitlement holders. No one group should be negatively affected. We believe governments should measure and report on the reliability of water access entitlements, accounting for the impacts caused by these infrastructure and management issues.

The inefficiency is impacting the volumes in the upper lakes, volumes that are directly linked to access to floodplain harvesting and supplementary water entitlements in upstream NSW catchments. This trigger is the formal legal and policy interface between Menindee operations and the lawful exercise of northern Basin water entitlements. It is therefore squarely within scope of the Menindee review. In early 2026, the NSW Government raised or is proposing to raise this trigger from 195 GL (active) to 250 GL without published modelling, without meaningful consultation and without any compensation mechanism for entitlement holders whose access will be restricted. This is at odds with the basic principle that any changes implemented for environmental improvements must demonstrate clear, measurable environmental benefits with impacts on reliability appropriately assessed and compensated.

The trigger level is a central question for Stage 2 options development, and we request there is an assessment of alternative options including consideration of volume that has flowed into Menindee (the Northern Basin has no say on how the Lakes are managed, but under the current trigger arrangements, management of the Lakes has a critical impact on access) or flow-volumes based triggers at Wilcannia.

8 Issues requiring attention

8.1 Entitlement reliability:

A critical risk not fully addressed in the consultation paper are operational rule changes that reduce the reliability or usability of existing entitlements without formally acknowledging that a reallocation has occurred. Such changes can include lower storage targets that reduce carryover security; higher trigger levels that restrict access during conditions that previously permitted it; earlier releases that reduce seasonal flexibility; and tighter connectivity rules that constrain when and how entitlements can be exercised.

There must not be reduced storage resilience, nor any restriction to upstream water access, as a result of any changes to the lakes management. Management must optimise the water resource for all entitlement holders; it would be unacceptable to shift risk onto Northern Basin irrigators. The review was too focused on downstream implications, seeming to not realise upstream implications are equally as important. Changes to operational and management arrangements of the Lakes will have reliability impacts on northern basin water users, such as where access arrangements are linked to the volume of water in the Lakes. Reliability of entitlement must be considered equally important regardless of the location of the entitlement relative to the lakes.

Water access entitlements are a property right - any decision or change that reduces the reliability of water access on an entitlement is an erosion of that property right.

Maintaining the integrity and confidence of the water property right framework is essential to all entitlement holders (agricultural, environmental, urban and others), and the water management framework, as envisioned by the National Water Initiative (NWI).

Reductions to reliability of water access entitlements must never be used as a water recovery mechanism to permanently reduce the consumptive pool. If the MDBA believe there is a strong public interest purpose for change, they must respect the existing water management framework, including:

- Any variation of the water access entitlement (the property right) requires mutual agreement between the entitlement holder and government (as per Clause 32 of the National Water Initiative)
- Any reduction to the reliability of water access on an entitlement, as a result of changes to government policy, is fully compensable (as per Clause 50 of the National Water Initiative). We cannot accept that small impacts are immaterial, or non-compensable. In addition, the cumulative impacts of smaller reductions are significant.
- We see any proposed changes such as connectivity reforms, operating rule changes, or structural reconfiguration as changes in Government policy.
- Government must implement the principles for water recovery, which includes consideration of all available options and assessment of socio-economic costs (as per Clause 79ii the National Water Initiative). Consideration of all available options must include non-water options such as infrastructure and complementary measures.

To respect water property rights, governments must measure and report the reliability of water access entitlements, with all variations accounted for. Full and transparent assessment of impacts must be included as essential information for any public consultation where a potential water reliability impact is involved. We do not believe that the full reliability impacts to water users have been appropriately factored in, nor does there seem to have been a detailed assessment of how impacts will be avoided, managed or funded by Government.

As per the above principles, the full extent and nature of these impacts must be understood, communicated to impacted stakeholders, and a pathway forward to avoid or manage these impacts worked through.

If additional water is required for environmental or other public interest outcomes, that water must be purchased on the market, from willing sellers. The northern basin does not support any proposals without comprehensive modelling of the benefits from any such proposal. Any impact on reliability or allocations must be supported by a comprehensive cost benefit analysis and be fully compensated.

In principle, we support the protection of environmental water from the north, passing through Menindee and into the Southern Basin, as access to this water has already been restricted in the northern basin. Any impacts on Southern Basin allocations or entitlement reliability must be appropriately assessed and compensated.

Request

- 1. The GVIA do not support any proposals that would impact on the reliability of allocation upstream or downstream of Menindee Lakes without comprehensive modelling of the benefits from any such proposal, supporting cost benefit analysis and full compensation.***

- 2. Any proposed changes such as connectivity reforms, operating rule changes, or structural reconfiguration are considered changes in Government policy, as such will be fully compensable.***

8.2 Fish Passage

The Technical Report notes that barriers to fish passage were primary contributors to both the 2018–19 and 2023 mass fish death events. In 2023, an estimated 20–30 million fish died in the Weir 32 weir pool. The absence of fish passage at a site reported to be such a critical nursery for native fish is unacceptable. If the MDBA and state governments want to improve native fish in the Barwon Darling, they need to commit to replacing the infrastructure on Main Weir and Weir 32 at Menindee urgently to ensure it is fit for purpose. Entitlement holders cannot continue to be blamed for or have reliability impacted by infrastructure problems.

Weir 32 is a fixed-crest weir with no operational flexibility, it should be replaced with a gated structure, so fish are not trapped with no means of migration upstream. While main weir should have fish passage implemented urgently. These well know and accepted solutions would not impact reliability for upstream or downstream entitlement holders, would improve native fish populations and enhance water quality. These should be treated as the highest-priority deliverable of this Review.

The lack of operational flexibility at Weir 32 is impacting management of water quality issues in the weir pool. The intensive monitoring and intervention approach currently in place should be viewed as a back-up plan, not the status quo going forward. As stated, we see the replacement or modification of Weir 32 as a non-negotiable to provide the operational flexibility required for proactive water quality management and native fish passage. These are complementary infrastructure investments that address the most serious environmental risks at Menindee without requiring any reallocation of water from upstream or downstream. This will deliver even better outcomes if delivered in partnership with a carp management program.

These recommendations are directly consistent with the MDB Native Fish Strategy.

Any proposals associated with flow and connectivity will achieve nothing if the fish remain stuck at sites such as Menindee. Addressing the root cause of the problem should be the priority for the MDBA and governments must be held accountable for their responsibilities to ensure infrastructure is enabling fish movement within the system. Addressing the root cause of the problem is for the benefit of the whole system, there is a true public good, as such these infrastructure changes must be fully funded by government it is not appropriate to shift the cost to water users who have already contributed their fair share to enhancing the health of the basin.

Request

- 3. The MDBA prioritise investment in infrastructure at Menindee Lakes including upgrading Pamamaroo inlet regulator, installing a gated structure on weir 32 and implementing fish passage on main weir.***
- 4. These essential infrastructure upgrades are public good and should be funded by government.***

8.3 Climate variability

The review seems to not accurately recognise natural ephemeral nature of the Barwon Darling River, instead trying to shift the blame to irrigation. The primary factor in cease to flow is climate, extraction for industry is a minor contributing factor. We refer back to the water resource assessments for the Gwydir 1966⁸ and the Barwon Darling in 1974⁷ which both state the impact of climate is significant. The river has stopped flowing for extended times since the 1870's with all events prior to regulation 100% attributable to rainfall, or lack thereof.

The nationally consistent water management framework established through the NWI, already includes climate mitigation strategies embedded in water management, this effectively accounts for Australia's climatic variability. Climate variability is a fact of life in the northern basin. It has never been and will never be possible to ensure a set of benchmark environmental outcomes in the Basin are continuously achieved. Managing for climate and any changes that may or may not occur into the future will be most effectively managed by making realistic assessments with the most accurate information available.

Additionally, references to 'plausible climate futures', must include both wetter and drier periods, as well as acknowledge the significant uncertainty in modelled projections. Models are only as good as the assumptions and information used in any analysis.

Request

- 5. Climate change must be supported through adaptation rather than imposing prescriptive reductions in water reliability and allocations.***

9 About the GVIA

9.1 Our region

The Gwydir Valley Irrigators Association (GVIA) represents more than 450 water entitlement holders in the Gwydir Valley, centred around the town of Moree in North-West New South Wales. Our mission is to build a secure future for members, the environment and the Gwydir Valley community through irrigated agriculture.

The Moree Plains Shire region alone is highly dependent on agriculture and irrigated agriculture for economic activity contributing over 72% of the value of gross domestic product (cotton is around 60%), employing 20-30% of the population and accounting for almost 90% of exports from the Shire⁹.

The 2011 agricultural census estimates that the total value of agricultural commodities for the Moree Plains Shire region was \$911,951,079 up from \$527,744,851 in the 2005-06 census. This is an estimated 7.83% of NSW's total agricultural production from a 1,040,021Ha principally used for agricultural crops¹⁰.

⁸ 1966 Water Resources of the Gwydir Valley by the Water Conservation and Irrigation Commission

⁹ Cotton Catchment Communities CRC Communities and People Series 2009

¹⁰ 2010 2011 Agricultural Census Report – agdata cubes, 71210D0005-201011 Agricultural Commodities, Australia

The Gwydir is characterised as having low water reliability with most water held as general security water with a reliability of 36% (i.e. in the long-term just over a third of entitlement can be accessed). Supplementary water entitlement is somewhat more reliable with 55% but accounts for less than a quarter of the total volume. Groundwater reliability is considered 100% but there is less than 30,000ML available. Floodplain harvesting licences were issued in 2022, significantly reducing access for the region, and contribute almost a quarter of the water use in the region over the long term. However, access is episodic, in line with moderate to major floods.

The Gwydir has had more environmental water recovered than required by the Murray Darling Basin Authority modelling and legislation. There is an additional 5,000 megalitres of water owned by Government's above the legislated amount for our region¹¹.

As a result of water reform, only approximately 19% of the total river flows are available for diversion for productive use¹². This equates irrigators holding 575,000ML from regulated entitlement (high security, general security and supplementary water) and 28,000ML available from groundwater aquifers.

The reform was difficult as regional communities such as those of Collarenebri and Moree were forced to adjust to a region with less water, and less capacity to recover from droughts. The impacts of the reforms are still evident in these communities.

Changes in water availability either through climate or government policy has a direct impact on the productivity of the region and the local economy. Analysis by the Murray Darling Basin Authority highlighted this relationship during the northern review and revealed that for both Moree and Collarenebri social and economic indicators declined through 2001 to 2011 including education, economic resources and disadvantage, resulting in an estimated 200 jobs lost due to the implementation of the Basin Plan in the region¹³. We are currently seeing this impact play out with ongoing social issues in our region.

9.2 *Our region's hydrology and geomorphology*

The Gwydir River is an inland terminal river network classified as "distributary" network by the Murray Darling Basin Commission during water sharing plan development. The rivers

¹¹ The Gwydir Valley has met the legislative requirements of the Murray Darling Basin Plan of 42,000 megalitres of LTDLE entitlement for local/instream environmental outcomes and a further 7,600 megalitres for shared contribution to the northern basin. The NSW and Australian Government's hold 54,600 megalitres LTDLE entitlements. Based on IQQM long-term modelling and the volume of water purchased for the environment

¹² Based on IQQM long-term modelling and the volume of water purchased for the environment

¹³ Refer to the Murray Darling Basin Authorities Socio Economic condition reports, Social and Economic Analysis of the Moree Community, 2009. Cotton Catchment Communities CRC

[630-nbr-community-profile-moree-hr.pdf \(mdba.gov.au\)](https://www.mdba.gov.au/sites/default/files/publications/630-nbr-community-profile-moree-hr.pdf)

<https://www.mdba.gov.au/sites/default/files/publications/630-nbr-community-profile-collarenebri.pdf>

become a series of branching channels that distribute flows across large areas especially during floods (MDBC, 2007a). This distribution of water represents the watercourse areas of Gwydir Wetlands. There are four parcels of land within the Gwydir Wetlands listed under the Ramsar Convention on Wetlands (MDBA, 2010c).

This natural geomorphology means the Gwydir River under natural conditions would have a very low ability to contribute to surrounding catchment inflows. The State of The Darling Interim Hydrology report puts the average percentage flow of the Darling River from the Gwydir River to be 12%, although updated estimates have this percentage between 8- 7% as reported in the Independent Assessment of the 2018-19 Fish Deaths in the Lower Darling. The low contribution, which is consistent with other terminal wetland systems, is a result of most of the water within the system flowing naturally towards the terminal wetlands and watercourse.

The natural hydrology has been altered via modification of the river and operations with an increase in end-of-system connectivity. This channelisation and re-regulation occurred throughout the last century to initially deliver regular stock and domestic water supplies to users and then to deliver irrigation water more efficiently. Flows are now regulated down the Mehi, Moomin and Carole, which can now join the Barwon River. However, even with these modifications there remains limited capacity to move water through these systems with channel constraints limiting the daily flows.

9.3 What we do

The GVIA's mission is to build a secure future for our members, the environment and the broader Gwydir Valley community through irrigated agriculture, we do this together by making every drop count in the river or the aquifer, on-farm, for the environment, or for our community¹⁴.

GVIA members hold entitlements within the Gwydir regulated and unregulated surface water areas, in addition to groundwater resources. All of which are managed through water sharing plans, which have been progressively developed since early 2000.

The GVIA organisation is voluntary, funded by a nominal levy, cents/megalitre on regulated, unregulated and groundwater water entitlement. The levy is paid and supported on average by 85% of the eligible entitlement (excludes NSW and Commonwealth entitlement).

The Association's primary activities revolve around negotiating with government at a Federal, State and Local level to ensure equality and the rights of entitlement holders are maintained and respected. The core activities of the Association are funded entirely through the voluntary levy, the Association does however undertake programs and projects to maintain and improve the sustainability of members on-farm activities, which can be funded by government or research corporations.

The Association is managed by a committee of a minimum 11 entitlement holders and employs a full-time executive officer and a part-time administrative assistant, as well as hosting a Project Officer funded through the Cotton Research and Development Corporation, the Gwydir Valley Cotton Growers Association and the GVIA.

¹⁴ For more information, see our corporate video on <https://vimeo.com/177148006>

9.4 Contacts

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