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SUBMISSION
Draft Macquarie-Castlereagh Regional Water Strategy

Healthy Rivers Dubbo (HRD) is a grass roots community network dedicated to providing a strong voice for our local rivers, aquifers and wetlands in the Murray-Darling Basin for the benefit of wildlife, plants and people. We pay our respects to Elders past, present and future, and acknowledge that this land was never ceded.

We welcome the opportunity to comment on the draft Macquarie-Castlereagh Regional Water Strategy (draft strategy).

Objective of the draft strategy

HRD would prefer to see a state wide water strategy prepared before the regional water strategies came out. This overarching document would give better direction for the regional strategies.

HRD finds that the draft regional water strategy is weighted towards enabling industries to become more water dependent, when it's inevitable that water will become a lot scarcer. With a strong focus on improving water access reliability for regional industries, the direction of the draft strategy appears to be at odds with the objectives of the NSW Water Management Act 2000, which prioritises the health of the environment.

HRD is very pleased to see the results of improved consultation with First Nation groups in the draft strategy. Our hope is that all of the options to improve First Nations interaction with water management and improved access to cultural water be included in the final draft strategy.

While there are some very strong options in the draft strategy that would protect and enhance the environment, we find the inclusion of the Macquarie re-regulating structure would negate any environmental gains that could be made.

In relation to affordability, HRD believes the re-regulating structure at Gin Gin would cost well in excess of \$30 million dollars. The current budgeted figure is not publically available. Those funds could be much better spent on options that reduce water reliance, improve First Nations engagement and improve environmental outcomes. When considering affordability, HRD hopes the Department considers the many decades of inaction in relation to First Nations access to water rights.

Current condition of water source

It is important that a description of the condition of the water source in the valley be included in the final strategy. There are significant knowledge gaps particularly around the condition of ground water sources. *'Extensive use of groundwater has led to a decline in water levels in some areas, particularly around Dubbo and Narromine.'* (p 66 draft strategy). HRD would like to see more information included in the final strategy that describes the current condition of the valley's water source.

The current condition of the Ramsar listed Macquarie Marshes is not addressed in the draft strategy. The 2010 Article 3.2 'change of ecological character'¹ notice issued by the Commonwealth to the Ramsar Convention details the ways the Macquarie Marshes has declined due to over extraction of water upstream. Since 2010, the condition of the internationally significant wetlands has only deteriorated more.

Over Allocation

The water resources in Burrendong dam are over allocated. This has been allowed to happen over 50 years by successive state governments and agencies. When Burrendong dam was completed in 1966/67 the yield of the dam was assessed as 406 Gigalitres (GL – a billion litres). The total allocation of regulated and supplementary flow water for the system is now around a total of 899 GL.

Over allocation has resulted in low reliability for general security customers, officially around 50%.

Low reliability creates uncertain business conditions for irrigators, as well as an expectation that the river should be able to deliver up to the level of entitlements issued, when this is not physically possible.

¹ <https://www.environment.nsw.gov.au/research-and-publications/publications-search/macquarie-marshes-ramsar-site-response-strategy>

The historic over allocation of water from Burrendong dam is the most serious issue in the valley in terms of water security, and therefore the most important issue to be dealt with through any water reform process.

Suggestion: that the over allocation of water to general security accounts be addressed in the final strategy.

Climate Change Predictions

HRD is supportive of the information that has been used to inform the climate predictions in the draft strategy. The combination of new climate data, a review of existing studies and community engagement has been an effective method of producing climate prediction predictions for the Macquarie-Castlereagh region.

The use of the stochastic modelling method in order to get a dataset covering up to 10,000 years is supported by IRN. HRD would like to see the Chief Scientists' review of the new climate modelling when the final strategy is released.

Climate change is happening faster than scientists expected. Just one of the many publications by climate scientists in the last year that describe the unexpected speed of the encroachment of a warmer climate is a book *Discerning Experts*, that explains scientists tend to underestimate the severity of threats and the rapidity with which they might unfold.² This tendency is of critical significance, as the community's comprehension of the urgency of the climate issue is paramount to creating climate change action.

The impacts of climate change on water resources in the Macquarie and Castlereagh valleys are already being strongly felt. The severity of the 2017-2019 drought is unprecedented the Macquarie Valley in the times of European colonisation.

The slow rate of inflows into Burrendong dam this year following rain events was indicative of the impact of parched soils and changed rainfall patterns. The draft strategy has predicted in 40 years inflows into Burrendong dam will halve. HRD believes this prediction is more likely to be the actual situation we find ourselves in, and that it's likely that scenario occurs well ahead of the 40 year timeline given.

Suggestion: that the climate change scenario presented in the final strategy be considered the most likely result, not the 'worst case scenario'.

² <https://blogs.scientificamerican.com/observations/scientists-have-been-underestimating-the-pace-of-climate-change/>

Missing from the draft strategy:

- Addressing flood irrigation of intensive cotton crops in the Mid-Macquarie area with alternatives like subsurface or drip irrigation.
- Floodplain harvesting is a sizable practice in the Macquarie Valley, with 180 storages on 99 properties being assessed for licences as of March 2020. Control of evaporation from on farm dams is a key opportunity to reduce water demand. There are several innovative floating solutions available that are made in Australia, some are even fitted with solar panels.
- The identification and removal of weirs that are not essential and are blockages to fish passage.
- Addressing the need for food security. Central West NSW is ideally situated to become a secure food producing region. Family owned food production farms have the potential to employ many more people than the current irrigation industry which is highly streamlined, mechanised and corporatised.
- Replacing the existing weir at Gin Gin at its current height with the mandatory fishway from the 2011 dam safety upgrade of Burrendong. The design work has already been done by WaterNSW. WaterNSW have a legal obligation to fund this fishway.
- Innovative solutions for drinking water supplies in remote communities. For example, Zero Mass Water manufacture SOURCE™ Hydropanels:
"The Hydropanels use a combination of solar energy and materials science to extract pure water vapour from the air and convert it into the highest-quality liquid water. The water then flows into a reservoir where it is mineralised before being delivered to a tap or dispenser. A standard household array - two Hydropanels - has a storage capacity of 60 litres or 120 standard water bottles. Arrays can be scaled to community size, with larger installations providing millions of litres each year to a centralised storage tank and dispenser."

Pipelines:

HRD believes innovative town water supply options as described above would be a far better way to secure drinking water in remote towns than pipelines. This technology could form part of the solution along with rainwater tanks.

Government Commitment Gin Gin re-regulating storage:

Strongly object to a business case for a re-regulating storage at Gin Gin on the Macquarie River being included as a government commitment. The wording of the options paper suggest that the project itself is a done deal. This creates a bias in the strategy, meaning all of the alternatives to this project aren't up for consideration.

While the expected cost of this project isn't public, it is expected to be well in excess of \$30 million dollars. That money could go a very long way to funding options that provide results for First Nations communities and the environment that are presented in this draft strategy.

The objective of this project is to increase the volume of water available to general security customers, therefore increasing the volume of water extracted from the river. Extracting more water from the river will only reduce water security for the entire valley and opportunities for connecting the Macquarie and Barwon Rivers as water becomes scarcer.

The project is not approved and is unpopular in the Macquarie Valley. It would be expected to have significant impacts on the habitat of threatened and vulnerable native species, migratory birds and Ramsar wetlands.

The Murray Darling Basin Authority have undertaken a preliminary assessment of the project, and report:

"Possible environmental impacts on the environment included reduced flows to the Macquarie Marshes (a Ramsar listed wetland of international significance), stratification of the weir pool during summer, increased area of non-flowing habitat, habitat fragmentation, declines in nationally threatened fish species' populations, reduction of waterbird breeding habitat and death of riparian vegetation."

Given the long way to go that this project has to gain approval given the expected environmental impact of the project, it isn't appropriate that it be presented in this strategy a commitment.

Suggestion: that the Gin Gin re-regulating storage project not be presented in the final regional water strategy, and that options to rebuild the current weir with a fishway funded by WaterNSW or remove it all together be included.

Government Commitment Access to water from Burrendong dam deep storage:

This project should not be presented as a commitment, or an option. The considerations that are listed for the project on page 10 of the options document give all the reasons why pumping from the dead storage area of Burrendong is a terrible idea.

Late 2019 was a desperate time in the Macquarie Valley when the pumping of the dead storage zone of the dam was being organised, equipment was purchased and works begun. Concerns were raised in the local media at the time about the potential contamination in the bottom of Burrendong, and the risks the environment, especially platypi populations and town water supplies.

"[Member for Dubbo] Mr Saunders told Dubbo Photo News there shouldn't be need for concern.

"WaterNSW is not aware of the existence of any mining or related activity in the vicinity of Burrendong dam that would have adversely impacted on water quality in the dam storage," he said.

....."Anytime there's gold mining, we know there's arsenic. So the concerns are that there are contaminants like this in the very lowest part of Burrendong dam..... I would really like to know what they've found in the sediment in the bottom of the dam – 6 GL is going to be left in the bottom of the dam for whatever poor surviving fish are in there, so they won't be drawing the last of that water out. I'm concerned about the quality of water for the fish as well," Ms Gray said [Convenor, Healthy Rivers Dubbo]. The earliest report of gold found in the Burrendong area was in 1851 by Edward Hargraves, after which a gold rush occurred in 1855 and the area was being worked and mined for gold until the early 1900s. ""³

By addressing over allocation, updating the drought of record used for the available water determination, and options designed to reduce water demand, such desperate situations can be avoided in the future.

Suggestion: Access to Burrendong dam deep storage be removed from the final water strategy, and the NSW Government seek to recoup some of the expense incurred by the public.

Improving First Nations capacity, engagement and employment in water management

HRD strongly supports all options that improve First Nations capacity, engagement and employment in water management, and that recognise the significance of cultural knowledge and improve cultural outcomes.

- Option 29. River Ranger Program
- Option 30. Secure flows for Beemunnel Aboriginal Place.
- All options from 42 to 49.

HRD is very supportive of the efforts the NSW Government and Departments have made to consult with First Nations representatives and present a well-considered list of options to the public for comment. We would like to see a funding commitment for First Nation water access projects.

A recent example of the effectiveness of First Nation self-determination was the handling by Aboriginal controlled health services of community response to the

³ Dubbo Photo News December 25 2019

covid-19 pandemic, described by Epidemiologist Professor Fiona Stanley as 'extraordinary'.

HRD strongly supports moves to create space for First Nations self-determination with water management.

Suggestion: All of the options mentioned above be refined and presented in the final strategy, preferably with a funding commitment.

Improved environmental outcomes

HRD strongly supports that the final the Regional Water Strategy achieve improved outcomes for river health, native fish, waterbirds and wetlands.

In particular the options we support are:

- Option 31. Connectivity with downstream systems - *'On average, 21% of the flows in the Barwon-Darling come from the Macquarie-Castlereagh catchment over the long term'*. (p 58 draft strategy).
- Options 20, 21,22 and 15. Implement the Native Fish Restoration program. This program would address cold water pollution, blockages to fish passage, screens on pumps, riparian restoration.
- Option 24. Relieve flow restraints on the Cudgegong River at Rocky Waterhole Bridge.
- Option 14. Address channel constraints to delivering environmental flows to the Macquarie Marshes.
- Option 28. Restore water quality
- Options 25, 26 & 27. Research into groundwater health and sustainable access.
- Option 12. Increase the outlet valve capacity in Burrendong dam.
- Options 16 & 17. More variable flows to effluent creeks
- Option 18. Constraints in Southern Marsh
- Option 19. Channel sharing
- Option 23. Manage structures on floodplains.

Reducing water consumption of industries and towns

Strongly support all options that reduce water consumption in towns and industry. More efficient use of water is critical to achieve sustainable communities into a future with less water:

- Option 3. Managed aquifer recharge investigations and policy
- Option 4. Improving town water security in the Upper Macquarie unregulated river system
- Option 7. Reuse, recycle and storm water projects
- Option 34. Market measures to support Dubbo's town water supply
- Option 33. Enterprise water use efficiency
- Option 37. Review of accounting and allocation:
 - Stop the practice of 'debit' water allocations and only allocate water that is in the dam.
 - Update the drought of record used to work out the annual available water determinations to include the millennium drought and 2017-2019 drought.
- Option 41. Impact of land use changes.

Conclusion:

HRD feels it is essential that the final regional water strategy focus on ways to reduce demand for water. Increasing populations and water dependent industries will have access to less water. Climate predictions are clear that supplies of water will be diminishing into the future, therefore the NSW Government must do all it can to curb demand.

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