Healthy Rivers Dubbo

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Submission to draft NSW Great Artesian Basin Shallow Water Resource Plan

To: NSW Government

Department of Industry

By e-mail: nsw-gab-shallow.gw.wrp@industry.nsw.gov.au

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5. Are you an individual or representing an organisation: Organisation

6. Name of organisation: Healthy Rivers Dubbo (HRD)

7. Who do you represent: Peak representative organisation

8.

9. Who do you represent: Environment

10. I give permission for my submission to be publicly available on the NSW Department of Industry website: Yes

11. I would like my personal details to be kept confidential: Yes

Draft NSW Great Artesian Basin Shallow Water Resource Plan

12. Water resource plan – main body

HRD is concerned that the draft WSP states that 'The concurrence of the Minister for Environment and Energy was obtained prior to the making of this Plan.' This may be an interpretation issue but raises the question about the process of obtaining concurrence as required under the NSW Water Management Act 2000

HRD supports the broad environmental objective of the NSW Gab Shallow Groundwater Sources WSP to protect the condition of the groundwater sources and their groundwater dependent ecosystems over the term of the plan.

This support includes the targeted objective to protect the extent and condition of high priority groundwater-dependent ecosystems that rely on the groundwater sources. Also to protect the structural integrity of the aquifers.

We note that there is no targeted objective to improve salinity levels in the groundwater source. This should be included.

The performance measures need to include the maintenance of the structural integrity.

A targeted objective to contribute to the maintenance of the structural integrity of the aquifer and improved salinity levels should also be included in the economic, social and cultural objectives.

Chapter 1: introduction

13. Consultation.

Of the fifteen First Nations groups who have country with the WRP area, only two groups – The Gomeroi and The Ngemba were consulted. Given this significant lack of consultation, this WRP should not yet be on display.

HRD has very low confidence that the NSW government has represented itself respectfully and appropriately with First Nations in relation to use of water from the GAB Shallow resource.

14.

Chapter 3: risks to water resources

16. Risks:

Under this proposed water resource plan (WRP), high priority groundwater dependent ecosystems (GDEs) relying on this groundwater source are at considerable risk.

If extraction is developed up to the levels of the Sustainable Diversion Limit (SDL) / Long Term Average Annual Extraction Limit (LTAAEL) proposed in this draft water sharing plan (WSP), the risks to the groundwater source and its dependent ecological values will be very high.

Under these proposed new rules, standardised distance rules for water supply access, and a reduction in protection for aquifer recharge will cause a 'net' reduction in planned environmental water and will increase the risk of a reduction to water quality.

SECTION 4.3 RISKS TO STRUCTURAL INTEGRITY OF THE GROUNDWATER SYSTEM there is a Not-Tolerable risk to the NSW Border Rivers Alluvium Border Rivers upstream of Keetah Bridge resource

source to the structural integrity of the system, more direct steps need to be outlined that lead to a considerable and immediate reduction of allowable take in this source.

SECTION 4.5 RISK OF LOCAL DRAWDOWN REDUCING GROUNDWATER ACCESS BY CONSUMPTIVE USERS there is a Not-Tolerable risk to the NSW Border Rivers Alluvium Border Rivers upstream of Keetah Bridge resource, more direct steps need to be outlined that lead to a considerable and immediate reduction of allowable take in this source.

SECTION 5.3 RISK OF CLIMATE CHANGE REDUCING RECHARGE AND GROUNDWATER AVAILABILITY there is a Not-Tolerable risk to the NSW Border Rivers Alluvium upstream of Keetah Bridge resource, HRD is very concerned that the allowable take in this resource area be immediately reduced.

There hasn't been much work done on the risks of climate change to groundwater sources globally. HRD feels a more conservative approach to calculating allowable take volumes is warranted. "Climate processes influence groundwater patterns in a complex way, with a number of direct and indirect effects."[1]

SECTION 5.4 RISK OF GROWTH IN BASIC LANDHOLDER RIGHTS REDUCING GROUNDWATER AVAILABILITY all areas report no-tolerable risks due to the growth in BLR take. HRD considers that this should be of serious concern to the NSW Government, and that strong methods of measuring and controlling BLR take must be implemented.

SECTION 5.5 RISK OF GROWTH IN LOCAL WATER UTILITIES REDUCING GROUNDWATER AVAILABILITY there is a Not-Tolerable risk to the NSW Border Rivers Alluvium upstream of Keetah Bridge resource, HRD is very concerned that the allowable take in this resource area be immediately reduced.

SECTION 5.6 RISK OF INCREASES IN IRRIGATION EFFICIENCY AND IMPROVED WATER DELIVERY REDUCING RECHARGE there is a HIGH Not-Tolerable risk to the NSW Border Rivers Alluvium upstream of Keetah Bridge resource, HRD is very concerned that the allowable take in this resource area be immediately reduced.

SECTION 6.3 RISK OF GROUNDWATER EXTRACTION CAUSING LOCAL DRAWDOWN (GROUNDWATER-DEPENDENT ECOSYSTEMS) there is a Not-Tolerable risk to the NSW Border Rivers Alluvium upstream of Keetah Bridge resource, HRD is very concerned that the allowable take in this resource area be immediately reduced.

The risk assessment identifies a medium risk to GDEs in the Surat resource unit. This unit has the highest number of water licences in the WRP area. HRD considers the potential for development under the proposed changes in the WRP would constitute a considerably larger threat to GDE's.

The strategies for managing risk will not be enough to reduce existing risk, and mitigate potential risk, in the opinion of HRD. We would prefer to see a reduction in the SDL.

SECTION 6.3 RISK OF GROUNDWATER EXTRACTION CAUSING LOCAL DRAWDOWN (INSTREAM ECOLOGICAL VALUES) there is a Not-Tolerable risk to the NSW Border Rivers Tributary Alluvium Macintyre Alluvium resource, such is risk that already exists will only get higher (higher than not-tolerable), if the proposed changes to the standardisation if minimum distance rules for supply works are implemented.

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[1] Climate change impacts on groundwater and dependent ecosystems
http://www.graphicnetwork.net/wp-content/uploads/2014/09/Klove_etal_2013_JoH.pdf

SECTION 6.5 RISK OF CLIMATE CHANGE REDUCING RECHARGE AND GROUNDWATER AVAILABILITY (INSTREAM ECOLOGICAL VALUES) There is a not-tolerable risk in the NSW Border Rivers Tributary Alluvium Macintyre Alluvium groundwater source. HRD is concerned that the risk management strategy applied "*Protect the environment and water users from changes in water availability attributable to climate change."* is not really a strategy at all.

17. Strategies to manage risks:

Limit total water extraction (basic rights and groundwater take) within each groundwater source/SDL resources unit to predetermined sustainable levels.

HRD considers the SDL and LTAAEL are far too high in this groundwater source, and have no relationship to the historic level of take or current entitlements. While this strategy in itself is acceptable, if the predetermined sustainable level is not actually sustainable, then the strategy will not work.

Manage the location and rate of groundwater extraction at a local scale within water sources and SDL management units to prevent or manage localised drawdown related impacts.

More of an aspiration than a strategy, especially given the proposed extension from 3 years to 5 years of the calculation of compliance to the LTAAEL.

Monitor groundwater resources and dependent ecosystems.

This strategy to manage risk appears in every risk assessment table. Yes it is important to monitor groundwater resource – however in itself it is not an action that reduces risks. Monitoring should be a given, it's the responses to changes in groundwater resources that are important, and are not well documented in this risk assessment given that a lot of risks have only this strategy applied to them.

There is a serious conflict between this strategy to manage risk and the proposed change to the WSP that seeks to increase in time period for calculating LTAAEL compliance. HRD strongly disagrees to the proposed increase to the time period over which compliance with the LTAAEL is assessed from three years to five years. Given the heavy reliance on this particular 'strategy' to manage risk, reducing the frequency of compliance checks to the LTAAEL is counter intuitive, and does not foster public confidence in the Department's commitment to improving water management in the Basin.

Limit interference between bores

This is an aspirational strategy, there's no plan for how to achieve this objective.

Implement the WQMP for the WRP area

As a strategy, HRD supports implementing the Water Quality Management Plan (WQMP) for the WRP area.

We are encouraged that the WQMP aims to provide a framework to protect, enhance and restore water quality that is fit for purpose for a range of outcomes that:

- Fulfil First Nation peoples spiritual, cultural, customary and economic values
- Protect and improve ecological processes and healthy aquatic ecosystems
- Provide essential and recreational amenities for rural communities
- Assist agriculture and industry to be productive and profitable

However we are not convinced that the proposed changes to the WSP would support the objectives of the WQMP.

Protect the environment and water users from changes in water availability attributable to climate change.

This strategy is very vague, and is more of an aspiration without any detail as to how the environment and water users would be protected from the impacts of climate change.

Little is known globally about the impact climate change will have on groundwater supplies.

"Climate change and variability have directly and indirectly affected, and will continue to affect, groundwater quantity and quality in many complex and unprecedented ways.

Future climate change will affect recharge rates and, in turn, the depth of groundwater levels and the amount of available groundwater.

Reduced river flow in dry periods will influence the groundwater exchange directly and can also lead to more groundwater abstraction as river water is less available

…small, shallow unconfined aquifers respond more rapidly to climate change"[2]

Climate change is currently having a negative impact on the amount of recharge to shallow aquifers. There is a significant lack of modelling and study in this area, and more needs to be done by governments globally to understand the level of risk future climate change will pose to groundwater reserves.

Given the many complex ways climate change could negatively impact on groundwater reserves, HRD considers this 'strategy' must be significantly developed if it has any chance of protecting us all from the impacts of climate change to water availability.

Minister may limit access to or use of basic landholder rights

Basic landholder rights (BLR) bores are un-licenced and unmetered and there are no restrictions on the number of BLR bores, and the risks to all areas in the plan of BLRs reducing groundwater availability is in the 'not-tolerable' range – a stronger strategy is required.

The word 'may' is no guarantee that a Minister will take strong enough steps to manage this risk.

Limit the location and rate of extraction in the vicinity of high priority GDEs.

There are serious and direct contradictions between this strategy to minimise risk and the proposed rule change in the WSP:

- Cl 38(1): Reducing the minimum set back from 500m to 200m of any other high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map
- Cl 38 (2): exemptions from the 200m set back are broad, and include if the supply work is used solely for basic landholder rights.
- Cl 38 (3): is a complete contradiction within itself, and in effect puts doubt on the content of the High Priority Groundwater-Dependent Ecosystem Map.

[2] Climate change impacts on groundwater and dependent ecosystems
http://www.graphicnetwork.net/wp-content/uploads/2014/09/Klove_etal_2013_JoH.pdf

- Cl 40: decreases the basic landholder rights bore setback from 200m to 100m from drawdown to GDEs.
- Cl 40 (2) (b): allows 'minimal' impact on GDEs which is not acceptable. No impact should be allowed.
- Cl 41: replacement bores should be at least 200m from high priority GDE's.

HRD is strongly opposed to the proposed changes to the WSP as above, and is very concerned that these proposed changes are in direct contradiction to the intent of the quoted strategy to manage risk.

Limit impacts of groundwater extraction on surface water flows and surface / groundwater hydraulic relationships.

This strategy is very general, more of an aspiration than a strategy in and of itself.

HRD is concerned at the lack of science and understanding of connectivity within the NSW GAB Shallow groundwater source to surface water and other deeper groundwater sources. There are references within the WRP that indicate connectivity to surface water and other groundwater sources – however the draft WRP maintains that this groundwater source does not have significant hydrological connectivity to surface waters or adjacent groundwater sources.

Chapter 4: environmental water, cultural flows and sustainable management

19. Protection of environmental water:

HRD considers the proposed change to the way planned environmental water is specified in the water sharing plan – mainly removing the reference to recharge – constitutes a reduction in 'net' planned environmental water. The Murray Darling Basin Plan (the Basin Plan) 10.28 states: "No net reduction in the protection of planned environmental water."

Recharge water ensures the integrity and helps maintain water quality of an aquifer, and must continue to be protected.

HRD strongly opposes the removal of protection of recharge by changing the definition of planned environmental water. We consider this proposed change would regress the health and resilience of the aquifer, not enhance it, thereby falling short of the requirements of the Basin Plan.

20. Cultural connections to groundwater and the protection of Indigenous values and uses:

Given the serious concerns outlined above in **13. Consultation**, it's difficult for HRD to have confidence that there was appropriate consultations with First Nations groups in the preparation of this draft WRP.

Without proper consultation having occurred, HRD has concerns that Cultural connections to groundwater and the protection of Indigenous values and uses have not been given enough consideration.

21. Other comments

Connectivity:

HRD is very concerned about the serious knowledge gaps to do with hydrological connectivity to surface water and adjacent groundwater sources in the water source area.

This draft WRP asserts that this groundwater source does not have significant hydrological connectivity to surface waters or adjacent groundwater sources, however there are contradictory elements to the WRP that would indicate that it does.

- To quote the draft WRP "Groundwater sources generally store large volumes of water that may have accumulated over thousands of years. This stored water is also replenished from time to time by rainfall, river and flood flows, and through flow from other groundwater sources."
- It also states that limits to extraction have been determined with consideration of historic extraction and groundwater levels, rainfall and groundwater connectivity to streams.
- Description of the Surat resource unit says there is expected to be more continuity in the distribution of local aquifers connected with the major rivers.
- Occasional low salinity water in isolated pockets near the Macquarie, Baron and Gwydir Rivers indicates a level of connectivity with surface water.

The importance of this connectivity during periods of intense and prolonged drought is significant in regard to maintaining the ecological values of base flows, instream health and riparian vegetation. This importance will only become greater as the impacts of climate change continue to occur.

HRD does not support the basis of the draft WRP that this groundwater source does not have significant hydrological connectivity to surface waters or adjacent groundwater sources.

Recharge:

More needs to be done to recognise and protect:

- Areas of recharge from rainfall and downward leakage from rivers.
- Areas of discharge – wetlands, mound springs.

Putting aside the contradictory information about the hydrological connectivity in the water source in this WRP, and assuming there isn't significant connectivity and that the source contains water accumulated over thousands of years, then that places extra importance on the protection of recharge.

Recharge from floodwater plays an important role in topping up this aquifer system. The environmental impact of floodplain harvesting on recharge to the GAB Shallow groundwater source in the overlying NSW Border Rivers, Gwydir, Namoi, Macquarie and Barwon-Darling catchments must be assessed.

HRD considers the knowledge gaps around floodplain harvesting volumes and impacts, and recharge mean this draft WRP will not satisfy the requirements of the Basin Plan.

HRD strongly opposes the proposed removal of the protection of recharge by changing the definition of planned environmental water as specified in the WSP.

Groundwater Dependent Ecosystems (GDEs):

A significant number of very high value GDEs occur in the WRP area. These include wetlands listed under Ramsar and the Directory of Important Wetlands in Australia, karsts, springs, endangered ecological communities, threatened species, Basin target vegetation, extensive riparian vegetation corridors and base flows.

Proposed rule changes as listed below increase the risk to GDEs, not reduce the risk:

- Cl 38(1): Reducing the minimum set back from 500m to 200m of any other high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map
- Cl 38 (2): exemptions from the 200m set back are broad, and include if the supply work is used solely for basic landholder rights.
- Cl 38 (3): is a complete contradiction within itself, and in effect puts doubt on the content of the High Priority Groundwater-Dependent Ecosystem Map.
- Cl 40: decreases the basic landholder rights bore setback from 200m to 100m from drawdown to GDEs.
- Cl 40 (2) (b): allows 'minimal' impact on GDEs which is not acceptable. No impact should be allowed.
- Cl 41: replacement bores should be at least 200m from high priority GDE's.

HRD does not support that the proposed rules in the WSP will protect high value GDEs in this groundwater source.

Operation of water allocation accounts:

HRD strongly disagrees with Cl 33 (3)(a) allowing 1.25ML per unit share access licence share component in the GAB Surat Shallow groundwater source. The unit per share should not exceed 1ML.

Chapter 5: take for consumptive use

22. Annual actual take: 23. Annual permitted take: 24. Sustainable diversion limit compliance:

The proposed LTAAELs in this draft WSP are substantially higher than the volume of water currently permitted to be extracted under access licence entitlements and basic landholder rights in each of the groundwater sources.

HRD considers the SDL/LTAAEL for the GAB Shallow water source needs to be reviewed and lowered. We believe this high allowable take will be damaging to high priority GDEs, including the Ramsar listed Macquarie Marshes, Gwydir Wetlands, Narran Lakes and Paroo Wetlands.

HRD does not support the LTAAEL in Cl 23, we assert the volumes are too large to be sustainable, even without the impacts of climate change on groundwater and GDEs, of which very little is studied and understood. "Given that inland waters are already among the most heavily human-impacted environments, climate change represents an additional and severe threat to freshwater ecosystems, altering their fundamental ecological processes and species distributions"[3]

HRD does not support the 1.25 ML per unit share for access licences in the Surat resource unit, the water account debit must not exceed 1 ML per unit share. We do not support carry over on any licence in this groundwater source.

HRD is happy to support that triggers for requiring action to ensure compliance with the LTAAEL remain at 5%.

[3] Climate change impacts on groundwater and dependent ecosystems http://www.graphicnetwork.net/wp-content/uploads/2014/09/Klove_etal_2013_JoH.pdf

HRD supports Cl 59 of the draft WSP that allows amendments relating to limits to the availability of water. We recommend that this adjustment occur at the commencement of the WSP so that the SDL/LTAAEL is lowered.

Conclusion:

Healthy Rivers Dubbo does not support this draft WRP and does not consider it will meet the requirements of the Basin Plan.

We are concerned that changes to the WSP rules will not protect planned environmental water, nor satisfactorily manage risk.

For more information please contact:

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23/8/2019