



I N L A N D  
R I V E R S  
N E T W O R K

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Friday 14 December 2018

### **Comments on Draft Murrumbidgee Alluvium Water Resource Plan**

The Inland Rivers Network (“IRN”) is a coalition of environment groups and individuals that has been advocating for healthy rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

IRN welcomes the opportunity to provide comments on the Draft Murrumbidgee Alluvium Water Resource Plan (draft WRP).

#### **Background**

IRN submitted substantial comments to the Status and Issues Paper on the Murrumbidgee Alluvium released in 2017.

One of the key concerns we outlined was the permanent drawdown of the Lower Murrumbidgee Alluvium over the 10 years of extraction under the current water sharing plan rules.

A permanent drop of over 3 metres in the highest extraction area of the Lower Murrumbidgee is a significant issue that has not been addressed in the development of the WRP. This permanent loss of water in the aquifer is a reduction of planned environmental water that has not been addressed.

The decision that ‘*groundwater levels can stabilise at a lower level under a new pumping equilibrium*’<sup>1</sup> has not been explained in the draft WRP.

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<sup>1</sup> DPI Water April 2017 Murrumbidgee Alluvium Water Resource Plan *Status and Issues Paper* p 17

The draft WRP is based primarily on the attempt to match water sharing plan rules with the requirements of the Basin Plan without recognising that groundwater levels in some places have already permanently declined from the pre-development levels.

The draft WRP states that ‘*The long-term average annual extraction limits specified in the Water Sharing Plan for the Murrumbidgee Alluvial Groundwater Sources 2019 represents a fraction of this water in these groundwater sources*’.<sup>2</sup> However, this does not explain why there has been a permanent drawdown of the water levels in the Lower Murrumbidgee Alluvium caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Murrumbidgee Alluvium is equal to the Long-term Annual Average Extraction Limit (LTAAEL) in the water sharing plan requires a strong set of management rules to prevent further permanent drawdown of the groundwater sources and loss of planned environmental water.

### **Groundwater Dependent Ecosystems (GDEs)**

The Murrumbidgee Alluvium underlays a significant area of very high value GDEs including Ramsar wetlands listed on the Directory of Important Wetlands of Australia, endangered ecological communities (EECs), threatened species, vegetation, and base flow ecosystems.

We do not support the direction being taken with proposed rule changes in the water sharing plan. These will not protect the level of groundwater in the aquifer system identified as environmental water or prevent drawdown near high priority GDEs.

### **Connectivity**

Varying degrees of connectivity throughout the Murrumbidgee Alluvium are identified in the WRP at Section 2.2 *Regard to other water sources*.

The Lower Murrumbidgee Shallow Alluvium, the Lower Murrumbidgee Deep Alluvium and the Mid Murrumbidgee Alluvium are hydraulically connected.<sup>3</sup>

The Status and Issues paper identified that recharge to the Lower Murrumbidgee Shallow Alluvium and the Mid Murrumbidgee Alluvium is through leakage from the river and its various tributaries and anabranches. The Lower Murrumbidgee Deep Alluvium is recharged through leakage from the shallow alluvium.<sup>4</sup> This demonstrates a high level of connectivity between surface water and groundwater in the system.

Therefore the management of groundwater extraction is critical for the health of all Murrumbidgee water sources and their associated GDEs.

### **Risk Assessment**

We note that there is a high risk of groundwater use causing local drawdown and impacting on GDEs in the Mid Murrumbidgee Zone 3 Alluvial and the Lower Murrumbidgee Shallow.

There is also a high risk to instream ecological values in the Gundagai Alluvial – Jugiong Management zone, Mid Murrumbidgee Zone 3 Alluvial and the Lower Murrumbidgee Shallow.

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<sup>2</sup> Murrumbidgee Alluvium Water Resource Plan p 33

<sup>3</sup> Ibid p 22

<sup>4</sup> Murrumbidgee Alluvium Status and Issues Paper p 11

Also of note is the high risk of basic landholder rights reducing groundwater availability in the Gundagai Alluvial, Wagga Wagga Alluvial and Mid Murrumbidgee Zone 3 Alluvial.<sup>5</sup>

IRN considers that the proposed rules in the water sharing plan will not reduce these high risks. In fact, some proposed rule changes will increase the risk. Therefore, we do not support the rationale behind the tolerable high risk ranking because the strategies and additional critical mechanisms described in the risk assessment report will not manage the impacts of the rule changes.

IRN does not support the outcome of the assessment of the risk of climate change reducing recharge and groundwater availability impacting on GDEs and instream ecological values. The risk assessment claims there is a low risk at Section 6.5.

However, this is counter intuitive to the findings of Section 5.3 where the risk of climate change reducing recharge and groundwater availability is found to be high in the Lower Murrumbidgee Shallow, Lower Murrumbidgee Deep, Wagga Wagga Alluvial and Mid Murrumbidgee Zone 3 Alluvial.

The argument that this high risk is tolerable because of *'the intention of utilising some of the large storage volume component of the groundwater system during low recharge periods. This strategy addresses seasonal variation in recharge'*.<sup>6</sup>

This approach does not protect the water source from the high risk. It, in fact, increases the risk by increasing extraction levels when recharge is low. The high intensity extractive areas of the Lower Murrumbidgee Alluvium have already been permanently drawn down under existing rules.

The high risk to these alluvial systems from climate change are also a direct high risk to GDEs and instream ecology because of the level of hydraulic connectivity. GDEs and instream ecology are already at high risk from localised drawdown as outlined above. This can only be exacerbated by reduced recharge through longer and more severe droughts caused by climate change.

## **Water Quality**

The Murrumbidgee Alluvium Water Quality Management Plan (WQMP) notes that Mid Murrumbidgee Alluvium has areas with high salinity readings of over 1,500  $\mu\text{S}/\text{cm}$  while the Lower Murrumbidgee Alluvium has some areas of extremely high salinity in the order of 32,800  $\mu\text{S}/\text{cm}$ .

These high levels of salinity need to be better managed through limiting extraction at times when recharge levels are low, not by increasing extraction.

The risk assessment identifies a high risk of extraction in the Lower Murrumbidgee Deep inducing connection with poor quality aquifers. We would suggest this is also likely in some of the other groundwater sources.

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<sup>5</sup> Murrumbidgee Alluvium Water Resource Plan Table 3-1 Risk outcomes

<sup>6</sup> Murrumbidgee Alluvium Risk Assessment p vi

The proposed objectives in the WQMP will not be met if the proposed changes to water sharing plan rules are adopted.

### **Water Sharing Plan Objectives**

The broad environmental objective of the Murrumbidgee Alluvial Groundwater Sources water sharing plan is to protect the condition of the groundwater sources and their groundwater-dependent ecosystems over the term of the plan.

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

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 should also be included in the economic, social and cultural objectives.

### **Proposed Rule Changes**

#### 1. Variable rule

IRN objects to the proposed variable rule for the Murrumbidgee Alluvium as described in the draft water sharing plan Part 6 Cl 30 (3) and (4). This complex system of climate adjusted annual permitted take makes a mockery of the concept of LTAAEL and SDL.

This proposed rule change allows for a greater level of extraction during dry times that paves the way for further permanent drawdown in the Lower Murrumbidgee Alluvium and possibly the other alluvial systems in the WRP area.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium<sup>7</sup>. However, permanent drawdown of the water source is a direct reduction in planned environmental water.

This risk will not be managed through the implementation of the ‘variable’ rule in the Lower Murrumbidgee Deep Alluvium and the Mid Murrumbidgee Alluvium.

This proposed rule change has major implications on the availability of planned environmental water to support GDEs during dry times.

This proposed rule will not manage the risk of climate change. If there are an increasing number of dry years, the extraction of SDL plus increased take will become more the norm than the exception.

This rule relates entirely to irrigator behaviour between wet and dry years and has no role in managing risk or protecting planned environmental water in the Lower Murrumbidgee Deep and Mid Murrumbidgee Alluvium.

We note that the Water Quality Management Plan has an objective to limit seasonal drawdown in high risk areas.<sup>8</sup> The Lower Murrumbidgee Deep Alluvium is a high risk area and therefore should not be subject to the variable rule. We do not agree with the assessment

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<sup>7</sup> Murrumbidgee Alluvium Water Resource Plan Table 3-2 p 31

<sup>8</sup> Ibid Table 6-1 p 59

that the Mid Murrumbidgee Alluvium has a medium risk of poor water quality and consider that the variable rule will increase the risk of increased salinity levels for that water source.

The application of the variable rule in the Murrumbidgee Alluvium is likely to increase a range of identified high risks, as outlined above.

The accompanying fact sheet on the relationship between water resource plan and water sharing plan explains that for the Lower Deep and Mid Murrumbidgee Alluvium the sustainable diversion limit will be varied each water year, based on the deviation of actual annual rainfall in that water year from the average annual rainfall, measured at Coleambally and Wagga Wagga respectively.<sup>9</sup>

IRN strongly objects to this proposed climate-adjusted annual permitted take because in dry years extraction will generally exceed the sustainable diversion limit, and in wet years it will be less. The water is not needed in wet years but must be shared carefully in dry years.

The variation rule will not meet objectives to protect environmental water or the integrity of the aquifers.

The annual permitted take for the Lower Murrumbidgee shallow groundwater source and the Bungendore alluvial groundwater source will be equivalent to the SDL or LTAAEL.

IRN supports that this rule be maintained for the entire water source. The variable rule is insupportable.

## 2. Removal of protection of recharge

IRN does not support the proposed rule change for the protection of planned environmental water. The protection of recharge inflows to alluvial aquifers was a subject of great importance when the first water sharing plans were being developed.

The fact that the Lower Murrumbidgee Alluvium has been impacted by a permanent drop in water levels heightens the importance of protecting recharge. The actual volume of planned environmental water has already decreased in these groundwater systems.

The timing of the availability of planned environmental water is critical during dry periods and the protection of a percentage of recharge is an important factor in protecting the integrity and water levels in alluvial aquifer systems. It is also critical for supporting high priority GDEs.

## 3. Increase in time period for LTAAEL compliance

IRN does not support the proposal to increase the time period over which compliance to the LTAAEL is assessed, to provide consistency across water sources. It is proposed to increase the compliance period from three years to five years in the Lower Murrumbidgee Shallow and Deep. These water sources have a high level of risk across a number of criteria and need to be monitored for compliance to rules more regularly, not less.

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<sup>9</sup> Murrumbidgee Alluvium Water Resource Plan Fact Sheet. *Relationship between the water resource plan and water sharing plan* p 2

This proposal is particularly concerning in light of the proposed variable rule.

IRN considers that consistency of compliance to LTAAEL should be a three year rolling average across all water sources.

This will give much greater assurance that planned environmental water is protected.

We do not support the Department of Industry proposal that LTAAEL compliance be standardised to a five-year rolling average period in all Murray–Darling Basin water sharing plans.<sup>10</sup>

This should be standardised to a three-year rolling average period.

#### 4. Rules for supply works located near GDEs

IRN does not support the proposed rule change for basic rights bores to be within 100m of high priority GDEs. The identified high risk of basic rights bores causing a reduction in groundwater availability in some sections of the Mid Murrumbidgee Alluvium is of great concern.

The current rule is 200m or greater distance from GDEs for all bores. This must be retained if the high risk to GDEs is to be managed in the WRP.

### **Conclusion**

IRN does not consider that the draft Murrumbidgee Alluvium WRP will meet the requirements of the Basin Plan.

The proposed changes to water sharing plan rules will not protect planned environmental water, achieve management of risk, or improve water quality.

For more information please contact:

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<sup>10</sup> Frequently Asked Questions Fact Sheet p 2

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<b>[REDACTED] an individual or representing an organisation?</b>	Organisation
<b>Organisation or Business Details</b>	
<b>Name of Organisation</b>	Water Resources Drilling
<b>Who are you representing?</b>	Water related industry
<b>Draft Murrumbidgee Alluvium WRP</b>	
<p>The Murrumbidgee Groundwater Water Resource Plan  Comments on Proposed Site Sewage system Rule  I have a number of comments about the Department of Industry Water Consultation and the proposed implementation of the rule of bores drilled within 250 metres of a on site sewage system  The issues go to  - transparency in how the 250 metre rule will be implemented,  - treating some basic right landholders unfairly and differently to others ie those who source bores vs river water or dams for basic landholder rights.  - Co-ordination between Department of Industry and Water NSW on this rule.</p> <p>The issues in more detail are”  1) There are a number of problems with the documentation firstly and I quote from the fact sheet about what is changed for the Murrumbidgee alluvial water sharing plan.  “Also, we propose an additional rule for all groundwater sources to reduce risks to public health and safety from contaminated groundwater resulting from on-site sewage disposal systems:  • A water supply work approval located within 250 metres of an on-site sewage disposal system may only be granted or amended if the water supply work is:  o constructed with cement grout between the bore casing and the borehole annulus to a minimum depth of 20 metres from the ground surface  o located at sufficient distance from the on-site sewage disposal system to prevent septic contamination of the aquifer.”</p> <p>The Department needs to be more clear and transparent as to what the sufficient distance from an on site sewage system.  The Department has provided no information to advise how they</p>	

will undertake these assessments which is in contrast to its volumetric analysis where it is very transparent in its analysis.

This is an area Department needs to address and be more transparent how it is assessing bore distances from on site disposal systems.

2) WaterNSW need to be involved in the development of the Water Resource Plan as they have the job of implementing the rules being developed by Department of Industry Water who appear to be removed from the coal face and what is happening with the community and bores particularly stock and Domestic Bores.

It is quite obvious that having one Department make the rule Department of Industry Water and the other Department Water NSW implement the rules is not working in this case as they 'do not sing from the same 'songsheet'

3) Looking at the minimum bore construction standards for water bores it says in section 5

5.2 All water supply bores should be positioned away from the influence of possible sources of contamination.

5.3 In bores where the target aquifer is deeper than the source of the contamination, the bore may be constructed providing the contaminated formation is adequately cased and cement sealed.

This makes sense and any professional licenced water driller would do this.

My question is why does the Department spend more of its time educating water drillers and bore owners about the best location to avoid contamination from On site sewage system rather than just have blank and white rules which it does not have the resources to assess in a timely or transparent fashion.

The Department has not provided any data to prove that contamination for stock and domestic bores is occurring in the Murrumbidgee Alluvial aquifer system

4) The approach of the Department on this issue is all wrong and poorly thought out. It is unfairly denying some people a basic landholder right to access groundwater for a range of requirements which will have no impact on human health or pollution of aquifer in many instances if a common sense approach is taken.

IF the Department is so concerned about Human Health issues from water raises the following questions

- Why are bore owners with groundwater licences being discouraged from using groundwater but the Department has not introduced any rules about landholders using water from rivers creeks and even dams were E Coli pollution from stock native animals is potentially higher then from groundwater and a well designed septic systems.

- What does a landholder do who wants to access shallow groundwater less then 20 metres from surface just for stock water or spray water for their weed spraying being denied access.

**After reading the Water Resource Plan Body, please indicate any general suggestions to improve the WRP Body:**



- The 20 metre grout rule should be changed to say bores need to be deeper than 20 metres and the driller is to isolate any shallow water or surface water from the productive aquifer. This still does not address the landholder who wants to access shallow water 20 metres as there is no deeper water he can access.

- If the issue is a health issue why is the Department allowing existing users (many thousands of them) to use groundwater from licenced bores simply because they were granted a bore licence before September 2017 when this 250 metre rule was implemented.

The Department has provided little or no data to justify the introduction of the 250 metre rule for a bore from an on-site sewage system.

- It is urged the Department does not introduce the 250 metre rule for bore from on site sewage systems for Murrumbidgee Water Sharing plan but rather request bore owners to monitor the water quality of the bore if it is going to be used for domestic purposes.

Greg Brereton  
Managing Director  
Water Resources Drilling

## **Response to chapter 6: Water Quality Management**

**Do you have any comments on the identified risks to water quality?**

Needs to provide more data to prove that on site sewage systems are a real risk to groundwater in the Murrumbidgee alluvials

**Do you have any comments on the strategies to mitigate risks to water quality?**

I think the 250 metre rule is onerous and needs to be dropped back to about 50 metres would be a more workable rule

## **Response to chapter 7: Measuring and monitoring**

**Do you have any comments on the measuring and monitoring of water resources?**

More monitoring of water quality contamination is required

**How did you hear about the Public Exhibition of this plan?**

**Please let us know how you heard about the opportunity to make a submission?**

Department of Industry website

**Additional Information**

**I give permission for my submission to be publicly available on the Department of Industry website**

Yes

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<b>Address</b>	[REDACTED]
<b>Contact phone number</b>	[REDACTED]
<b>[REDACTED] an individual or representing an organisation?</b>	Individual
<b>Draft Murrumbidgee Alluvium WRP</b>	
<b>After reading the Water Resource Plan Body, please indicate any general suggestions to improve the WRP Body:</b>	<p>The stated overarching objective are drawn from the Basin Plan and include:</p> <ul style="list-style-type: none"> <li>a) to give effect to relevant international agreements through the integrated management of Basin water resources; and</li> <li>b) to establish a sustainable and long-term adaptive management framework for the Basin water resources, that takes into account the broader management of natural resources in the Murray-Darling Basin; and</li> <li>c) to optimise social, economic and environmental outcomes arising from the use of Basin water resources in the national interest; and</li> <li>d) to improve water security for all uses of Basin water resources.</li> </ul> <p>The Outcomes are:</p> <ul style="list-style-type: none"> <li>a) communities with sufficient and reliable water supplies that are fit for a range of intended purposes, including domestic, recreational and cultural use; and</li> <li>b) productive and resilient water-dependent industries, and communities with confidence in their long-term future; and</li> <li>c) healthy and resilient ecosystems with rivers and creeks regularly connected to their floodplains and, ultimately, the ocean.</li> </ul> <p>It seems very incongruent that these objectives and outcomes are not the basis of review and monitoring, or management of SDLs, or risk identification</p>
<b>Response per WRP chapter</b>	
	<p>Section 1.8 outlines the circumstances under which the water resource plan is reviewed. It states the reasons for an amendment are set out in Box 1-3. However:</p> <ul style="list-style-type: none"> <li>• the reasons outlined in Box 1-3 do not correspond to the objectives or outcomes listed earlier in the plan. It would seem reasonable and logical that if a plan was not realizing its objectives, it would be subject to review.</li> <li>• the reasons outlined also do not correspond to a risk management approach listed later in the document. It would</li> </ul>

seem both reasonable and logical that any risks realized as becoming apparent during the implementation phase might cause the plan to be reviewed – as an adaptive framework would.

• Later on in the document, the long term average extractive limit, which is the fundamental tool used in implementing the plan, are stated as being developed with two other objectives not previously mentioned in mind: “to ensure the long-term availability of water for productive use generally, and “to protect high priority uses such as for critical human water needs”. It is concluded there needs to be much clearer and apparent connection between the review processes in the plan and guiding outcomes and objectives stated rather than introducing a new set of circumstances. This is despite the promotion that the plan has been changed to: “make a stronger logical connection between objectives, strategies and performance indicators” The above leads on to the issue of permanent drawdown of the Lower Murrumbidgee Alluvium. A permanent drop of over 3 metres in the highest extraction area of the Lower Murrumbidgee is a significant issue that has not been addressed in the development of this WRP. This permanent loss of water in the aquifer is a reduction of planned environmental water that has not been addressed. The demonstration that seasonal drawdown in the Mid Murrumbidgee Alluvium was between 2m and over 6m in some areas during 2015 -2016 water year is of great concern. (Fig 9). Indeed the idea that “groundwater levels can stabilise at a lower level under a new pumping equilibrium” is really only valid if one does focus on “productive use generally’ it critical that the WRP for the Murrumbidgee Alluvium recognises the objectives and outcomes stated in the document and applies them to the significant GDEs in the plan area.

**Do you have any other comments on this chapter?**

### **Response to Chapter 3: Risks to water resources**

The connectivity of the Murrumbidgee Alluvium with the significant wetlands and reserves in the Murrumbidgee system must be clearly identified because of the high reliance on groundwater during prolonged drought. Moreover the connection of key Groundwater dependent ecosystem between the mid and lower Murrumbidgee means the SDLs of two water resource units should not be thought of as totally independent. The approach to risk is very limited:

• The risks stated is to narrow: The specific risk considered in terms of the environment is: “risks to water available for the environment” which is an indirect activity measure rather than an outcome. A much more focused outcome would be; “the risk to groundwater impacting healthy and resilience water-dependent ecosystems” or as stated in your factsheets “maintaining their GWD plant and animal communities and ecological processes.”

- o The above more direct approach might lead to consideration of the life histories of key species and ecosystems as a first step, which then might lead to consideration as to how these habitats should or should not be connected (by groundwater) which then provides a basis for managing levels of groundwater.
- o The integrity of water flows etc between the mid and lower

**Do you have any comments on the risks identified in this chapter?**

aquifers will be important consideration. There is a risk that their management be conducted in isolation- which may lead to operation inconsistencies which affect GDE and the viability of habitats

- The effect of groundwater on the environment is not fully considered in the risk analysis. Groundwater may affect fundamental ecosystem health by having the frequency of interaction increased, changing the seasonal pattern of inundation, being extracted and having the frequency of access decreased, or by other extractive uses creating or inducing poor quality. Considerations about water quality being reduced are not considered. Nothing about excessive water is considered. Note "The Basin Plan interprets planned environmental water more broadly and includes all rules or strategies applying to the SDL resource units of the WRP that are designed to maintain long term diversions within the SDLs, to protect or achieve environmental outcomes, and to maintain appropriate water quality and salinity levels." Adoption of this view would create a greater consistency and be much more realistic about what is happening in the real world
- There is a management tool to "To reduce risks to public health and safety from contaminated groundwater". Why is there not the same for risks to the environment from contaminated water? The Murrumbidgee Alluvium Water Quality Management Plan (WQMP) notes that Mid Murrumbidgee Alluvium has areas with high salinity readings of over 1,500  $\mu\text{S/cm}$  while the Lower Murrumbidgee Alluvium has some areas of extremely high salinity in the order of 32,800  $\mu\text{S/cm}$ .

## **Response to chapter 7: Measuring and monitoring**

**Do you have any comments on the measuring and monitoring of water resources?**

Section 1.8 outlines the circumstances under which the water resource plan is reviewed. It states the reasons for an amendment are set out in Box 1-3. However:

- the reasons outlined in Box 1-3 do not correspond to the objectives or outcomes listed earlier in the plan. It would seem reasonable and logical that if a plan was not realizing its objectives, it would be subject to review.
- the reasons outlined also do not correspond to a risk management approach listed later in the document. It would seem both reasonable and logical that any risks realized as becoming apparent during the implementation phase might cause the plan to be reviewed – as an adaptive framework would.
- Later on in the document, the long term average extractive limit, which is the fundamental tool used in implementing the plan, are stated as being developed with two other objectives not previously mentioned in mind: "to ensure the long-term availability of water for productive use generally, and "to protect high priority uses such as for critical human water needs". It is concluded there needs to be much clearer and apparent connection between the review processes in the plan and guiding outcomes and objectives stated rather than introducing a new set of circumstances. This is despite the promotion that the plan has been changed to: "make a stronger logical connection between objectives, strategies and performance indicators"

The above leads on to the issue of permanent drawdown of the Lower Murrumbidgee Alluvium. A permanent drop of over 3 metres in the highest extraction area of the Lower Murrumbidgee is a significant issue that has not been addressed in the development of this WRP. This permanent loss of water in the aquifer is a reduction of planned environmental water that has not been addressed. The demonstration that seasonal drawdown in the Mid Murrumbidgee Alluvium was between 2m and over 6m in some areas during 2015 -2016 water year is of great concern. (Fig 9). Indeed the idea that “groundwater levels can stabilise at a lower level under a new pumping equilibrium” is really only valid if one does focus on “productive use generally’  
it critical that the WRP for the Murrumbidgee Alluvium recognises the objectives and outcomes stated in the document and applies them to the significant GDEs in the plan area.

**How did you hear about the Public Exhibition of this plan?**

**Please let us know how you heard about the opportunity to make a submission?**

Communication from peak body

**Additional Information**

**I give permission for my submission to be publicly available on the Department of Industry website**

Yes



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## SUBMISSION

# Draft Murrumbidgee Alluvium Water Resource Plan

January 2019

## Introduction

The NSW Irrigators' Council (NSWIC) is the peak body representing irrigation farmers and the irrigation industry in NSW. Our Members include valley water user associations, food and fibre groups, irrigation corporations and commodity groups from the rice, cotton, dairy and horticultural industries. Through our members, NSWIC represents 12,000 water access licence holders in NSW who access regulated, unregulated and groundwater systems.

NSWIC engages in advocacy and policy development on behalf of the irrigation sector. As an apolitical entity, the Council provides advice to all stakeholders and decision makers.

Irrigation farmers are stewards of tremendous local, operational and practical knowledge in water management. With over 12,000 irrigation farmers in NSW, there is a wealth of knowledge available. To best utilise this knowledge requires participatory decision making and extensive consultation to ensure this knowledge can be incorporated into evidence-based policy. NSWIC and our Members are a valuable way for Governments and agencies to access this knowledge.

NSWIC welcomes this public exhibition as an opportunity to work with the Department of Industry – Water (DoI) to incorporate local, practical and operational knowledge and expertise in water management. NSWIC offers the expertise from our network of irrigation farmers and organisations on an ongoing basis to ensure water management is practical, community-minded and follows participatory process.

This submission represents the views of the Members of NSWIC with respect to the draft Murrumbidgee Alluvium Water Resource Plan. However, each member reserves the right to independent policy on issues that directly relate to their areas of operation, expertise or any other issues that they deem relevant.

## Overview

NSWIC welcomes the Draft Murrumbidgee Alluvium Water Resource Plan (WRP). WRPs are a key mechanism for implementing the *Basin Plan 2012* (the Basin Plan). NSWIC acknowledges that the development of WRPs is a key commitment of the NSW Government under the Basin Plan.

WRPs must comply with Chapter 10 requirements for it to be accredited under Part 2 Division 2 of the *Water Act 2007 (Cth)*. This includes compliance with the Sustainable Diversion Limit (SDL), water trade rules, planning for environmental watering, water quality objectives, measuring and monitoring, and arrangements for extreme weather events.

Whilst Water Sharing Plans remain as the key regulatory instrument, WRPs are of critical importance to irrigation farmers and the irrigation farming industry. WRPs underlie irrigation farming operations and practices, and potentially have large economic and social impacts. Thus, it is crucial that WRPs are evidence-based, developed without rush, and that consultation is extensive.

NSWIC has a number of general positions and core considerations for the development of alluvium WRPs across the state. At the core of these positions are key principles that WRPs must be tailored to the specific requirements of the area, be developed with the utmost participatory process, draw



on the expertise of local groundwater authorities wherever possible, be clearly accessible and comprehensible in the manner and format of presentation, have no measures that result in negative third party impacts, be based on evidence and extensive research, and allow for reviews.

Summary of NSWIC positions on WRPs:

- Whilst consistency between areas in the template/form, methodologies and definitions of the WRP is neat, consistency does not outweigh the need to be flexible and context specific.
- The Risk Assessment Methodology must give a reflective, accurate and site-specific indication of risk.
- Further studies into Groundwater Dependent Ecosystems are needed.
- The methodology for determining Annual Permitted Take must be developed based on the local knowledge of groundwater source authorities and communities to be context-specific and consider underlying crop type, rainfall, and usage patterns.
- Water users must be consulted if there are any impacts from ongoing consultation with Indigenous nations on the ability of entitlement holders to utilise their entitlements.
- Basic Landholder Rights require clarification.
- Compliance with WSP and Basin Plan use limits should be managed to ensure there are no more than minimal impact, and the method should be guided by local groundwater authorities.
- Greater community participation is required, particularly in relation to Extreme Events Policy.

These general positions have also been outlined in earlier NSWIC submissions, such as the Lachlan Alluvium WRP, Gwydir Alluvium WRP and Macquarie-Castlereagh WRP.

## Submission

### *General Positions of NSWIC for WRPs*

Whilst consistency between areas in the template/form, methodologies and definitions of the WRP is neat, consistency does not outweigh the need to be flexible and context specific

NSWIC has planned to meet with DoI to discuss changes which are needed to the template being adopted to WRPs across the state, and state-wide issues.

NSWIC acknowledges the need for consistency in approach across the state. However, the methods, processes, standards and thresholds of one WRP should not be replicated inflexibly between valleys, as the issues, and requirements of each valley are context-specific. Whilst there is neatness in applying a consistent methodology or format, extreme care must be taken to ensure that the methods are the most effective and beneficial, particularly in relation to water users. NSWIC strongly encourages DoI-Water to undertake an increased level of public participation in decision-making at a local level and consult with local groundwater licence holders across the state to develop the most suitable methodologies and practices for each area, and/or ensure that previously used methodologies and practices are appropriate in that instance. This approach acknowledges that each aquifer and groundwater source (and usage of that resource) is unique, and values the local, practical and operation knowledge held by people within these areas.

WRPs must be developed based on principles of accessibility, readability and clear comprehension

WRPs should be communicated in a manner where it is effectively, easily and clearly understood by water users. In principle, WRPs should be accessible and comprehensible to the broadest range of stakeholders. Complexity and need for extensive cross-referencing will make it difficult for stakeholders to be cognisant of all requirements in the WRP, and may result in issues of clarity and a perceived lack of transparency.

Whilst a primary purpose of the WRPs is for accreditation by the Murray-Darling Basin Authority (and this does require technical detail), the audience for WRPs is broad and includes stakeholders who do not have professional policy or legislative training. Simplification and streamlining are necessary to prevent water users from feeling removed from the process, overwhelmed or misunderstanding the content of the Plans. NSWIC appreciates that the intention of the Fact Sheets and FAQs has been to address this issue of readability but encourages evaluation of the WRP template itself to distinguish between information for accreditation by the MDBA and explanatory material (possibly by separating these into separate documents). NSWIC appreciates the colour coding system adopted with this intention.

**Recommendation:** Where ever possible reduce the complexity of the WRP and provide additional explanatory materials for stakeholders. The format of the WRP requires evaluation and NSWIC seeks to meet with DoI to discuss this. Explanatory materials should be plain English, and prioritise key principles of accessibility, clarity, comprehension and simplicity.

The Risk Assessment Methodology must give a reflective, accurate and site-specific indication of risk

A cautionary approach is needed when calculating risk to ensure that the methodology captures a fair, reflective and accurate indication of risk.

Risk assessment methodologies which categorise consequence based on percentiles will automatically result in some groundwater sources being categorised in each of the low, medium and high categories, irrespective of the absolute risk level. This will likely lead to an overestimated calculation of risk. If a percentile-based methodology is adopted, this must be adjusted to the absolute risk (not just relative) when applied.

The consequence rating should be specific to a groundwater area, rather than being calculated state-wide. Each groundwater system has unique characteristics, functions, processes and uses. It is not appropriate to amplify or reduce the scale of risk assessment as results will be skewed since risks in some groundwater systems are not reflective across all groundwater systems, and the nuances of each groundwater system will not be captured.

Using metrics such as numbers of water users and the volume of extraction to calculate risk may lead to an overestimation of risk. A large groundwater source with a large number of users would automatically receive a high consequence rating category. This may create an inaccurate indication of risk, which would have unnecessary impacts on water users. We acknowledge that in some WSPs, the risk treatment pathway outlined in the Consolidated Risk does take into account the management rules applied in the Water Sharing Plan to ameliorate the risk and that in the cases where the risk outcome is classified as High, the residual risk is identified as High – tolerable. Additional metrics, adjustments or measures are necessary to ensure that risk assessment methodologies capture accurate, appropriate, context-specific representations of risk.

**Recommendation:** Ensure the risk assessment methodology reflects risk in the aquifer itself, using absolute rather than relative measures which are context-specific. Develop the most appropriate risk assessment methodology based on local recommendations.

#### Further studies into Groundwater Dependent Ecosystems are needed

NSWIC requests that all policy decisions regarding Groundwater Dependent Ecosystems (GDE) must be made through an evidence-based process, with evidence being appropriately reviewed, ground-truthed, and knowledge gaps filled.

**High priority GDEs need defining and consistency** - NSWIC requests clarification with regard to ‘high priority’ GDEs compared to GDEs and requests consistency of this terminology between WSPs and WRPs. GDEs are defined and mapped, but there is no definition of ‘high priority’ GDEs. The inclusion of this terminology implies that there are some GDEs that are more important than others and get treated with a higher priority than others. If this is not the case, the term ‘high priority’ needs to be removed from all documents and only reference GDEs as defined in the dictionary and as identified in the attached map schedule.

**Methodology to identify GDEs requires increased certainty** - Greater certainty in the methodology underpinning identification of GDEs is required before this method can be used to predict whether groundwater extraction poses any risk to a GDE which is not managed by the existing WSP rules.

**Need for further research** - Historically, provisions for further studies and reviews of recharge have been included in WSPs but have not been completed. This has resulted in policy creep where the status quo has been maintained without justification. Consequently, any water greater than the extraction limit has become Planned Environmental Water by default. The risk for water users is that if the Department does not undertake reviews (as have been committed to in the past) insufficient information is known about GDEs to be able to determine how GDE management should interact with water users. Specifically, the degree of reliance of GDEs and which specific aquifer system that GDE depend upon, are crucial pieces of information in order to best manage both the GDE and water usage. **The result of delaying reviews is that a precautionary approach is taken which does not pay equal caution to the potential social or economic impacts of the rules of groundwater extraction.** NSWIC recommends that the WRP should facilitate further reviews to:

- Improve knowledge gaps
- Validate existing data
- Quantify the degree of reliance

**Unless the evidence-base is ground-truthed, water users should not be impacted, and GDE identification should be removed.** NSWIC is respectful that if water extraction is proven to have a significant impact on groundwater, then water extraction rules will need to be amended. However, the onus to prove whether groundwater extraction poses any risk to a GDE should be on government agencies. Precautionary action should only be an interim measure whilst sufficient information can be captured. The longevity of this issue creates concern that precautionary principles may lead to policy creep where policies lack a robust methodology, and consequently have unreasoned social and economic impacts. Decisions made primarily based on vegetation mapping which are not ground-truthed are insufficient. Further reviews are urgently needed to better understand the nature and magnitude of the linkages between groundwater extraction and GDEs.

**Recommendation:** DoI-Water undertake an investigation into GDEs to improve the certainty of the evidence-base (improve knowledge gaps, validate existing data and quantify the degree of reliance GDEs have on groundwater) within the timeframe of the WSP to be implemented in 2019, and amend GDE provisions in the WRP accordingly.

*The methodology for determining Annual Permitted Take must be developed based on the local knowledge of communities to be context-specific and consider underlying crop type, rainfall, and usage patterns.*

The method for determining APT must be valley-specific and determined based on consultation with local stakeholders. Since usage pattern is unique to each valley, the method to determine SDL compliance must be based on the specific needs of each valley. Consistency of methodology is not as important as ensuring accuracy and appropriateness of the method in each individual circumstance.

Where new and relatively untested methodologies are used, there are numerous considerations which are necessary. For example, the rainfall relation model may be suitable in some valleys (e.g. where people use surface and groundwater conjunctively) but not in others (e.g. where there is a rapidly changing irrigation sector and fluctuating water demand).

Key considerations when selecting the methodology to determine APT include:

### *Underlying crop type*

The irrigation sector is constantly evolving. Some areas are experiencing changes to the underlying crop type, which directly influences the demand (volume and seasonality/timing) for water. For example, a shift away from seasonal cropping towards permanent plantings (such as almonds), results in less significant fluctuations in the demand for water, and requirements for greater continuity in water extraction. Thus, in these circumstances, it is expected that water demand will become increasingly decoupled from rainfall. The relationship between rainfall and water demand must be a key consideration, particularly if rainfall-relation models are being considered.

### *Distribution of rainfall*

The areas covered under WRPs are large, and rainfall may vary considerably within one WRP. Consideration must be given to: rainfall variability and distribution within the WRP area; where rainfall is measured; how many measuring points are required; the timing and seasonality of rainfall; the ability (physical and regulatory) to capture rainfall; and long-term rainfall trends.

### *Caution is needed in the use of historical data for future projections*

Care must be taken when using historical data as an indicator of future trends to ensure that changes to the underlying crop type, changes to rainfall patterns and changes to water usage have been considered.

### *A process to explain compliance triggers is needed*

Water license holders need the certainty of knowing from the beginning what happens if there is a compliance breach. For example, under a rainfall relation model, the use of groundwater when rainfall conditions are low may push a user over a compliance trigger unknowingly. NSWIC requests that compliance triggers and processes be outlined.

### *A provision for a review period is needed*

A provision is required for a review of all relatively new and untested methodologies at a predetermined point in time. DoI-Water should reserve the right to amend a method if it is found to be ineffective when implemented. Flexibility must be retained to discontinue a methodology beyond 2029 if circumstances require.

NSWIC and Members strongly requests that stakeholders are provided with all available information at the earliest possible opportunity to best be involved in decision making, and to be able to share the local and operational knowledge of how polices will function on ground.

**Recommendation:** DoI-Water should consult with local stakeholders in each groundwater source on the appropriateness of the APT methodology in that area to ensure it captures local circumstances (e.g. underlying crop type and rainfall variability). This method should be subject to review at the conclusion of the WSP. NSWIC suggests that when a new untested

methodology is implemented, that a complimentary tested methodology is simultaneously implemented to provide a control measure to evaluate the accuracy of a new methodology.

*Water users must be consulted if there are any impacts from ongoing consultation with Indigenous nations on the ability of entitlement holders to utilise their entitlements.*

NSWIC welcomes and respects the consultation with Indigenous people and organisations as part of the development of WRPs. NSWIC understands that consultation with Indigenous stakeholders is ongoing. If this consultation results in the development of any new proposals which may impact the rights or ability of water access entitlement holders to utilise their entitlements, then there must be further consultation with license holders before any new provisions are developed.

**Recommendation:** License holders should be consulted with if there is to be any further changes to the rights or ability of water access entitlement holders to utilise their entitlements.

*Basic Landholder Rights require clarification*

NSWIC members seek clarification on whether the definition of basic landholder rights has been changed. Clarification is needed as to whether stock and domestic rights are recognised under basic landholder rights. Clarification is also needed for the definition of “reasonable use”. DoI-Water has advised that as long as a property overlays the groundwater source, the property owner is entitled to utilise groundwater as a basic landholder right even if the bore isn’t located on the property. NSWIC requests clarification of this.

**Recommendation:** Clarification is needed on basic landholder rights.

*Compliance with WSP and Basin Plan use limits should be managed to ensure there are no more than minimal impacts, and the method should be guided by local groundwater authorities.*

There are two main options for addressing non-compliance with either the WSP long term average annual extraction limit, or the Basin Plan SDL:

1. Allocate water to all licenses and then reduce the allowable water account debit to limit usage
  - This would benefit the more active users, but also allows all licence holders the capacity to use or trade a known volume of their entitlement.
2. Reduce the available water determination (allocation) to all licences
  - This would disadvantage more active users, particularly in groundwater areas where there is significant over-allocation, such as the Upper Lachlan where entitlement is approximately 2x the use limit, because it would need to allow for carryover, and would assume that all allocation would be tradeable. In these circumstances the AWD would need to be significantly reduced to ensure compliance with the use limit.

The position of NSWIC is that there should be no more than minimal impact, and the method should be guided by the recommendation of each groundwater source authority. The method to address overallocation must be valley specific and formed on the basis of local expertise. NSWIC offers to assist in seeking local expertise.

*Greater community participation is required, particularly in relation to Extreme Events Policy*

NSWIC firmly believes that the continual reduction in stakeholder involvement is becoming a critical issue, which risks the loss of valuable practical and operational knowledge that is integral to sustainable management of water resources.

**Recommendation:** Greater stakeholder participation in decision making, such as by requirements for representation on advisory panels to ensure practical and local knowledge resources are utilised. The WRP should include a clear process for how Critical Water Panels should be established, how they should operate, what transparency requirements are needed, and what communications and reporting are required.

## **Conclusion**

NSWIC welcomes the Draft Murrumbidgee Alluvium Water Resource Plan. NSWIC requests that DoI-Water respond to the aforementioned issues. It is crucial that flexibility is maintained between valleys, and that local expertise is utilised in decision-making. NSWIC is happy to work with DoI-Water on any of the above issues.