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Comments on Draft Gwydir 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 Gwydir Alluvium Water Resource Plan (draft WRP).

Background

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

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

A permanent drop of up to 6 metres in the Lower Gwydir 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*’¹ has not been explained in the draft WRP.

¹ DPI Water February 2017 Gwydir Alluvium Water Resource Plan *Status and Issues Paper* p 16

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 have declined already from the pre-development levels.

The draft WRP states that ‘*The long-term average annual extraction limits specified in the WSP represents a fraction of this water in these groundwater sources*’.² However, this does not explain why there has been a permanent drawdown of the water levels in the aquifers caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Gwydir 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 Gwydir 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, extensive connected riparian corridors 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 Gwydir Alluvium are identified in the draft WRP at Section 2.2 *Regard to other water sources*

The Upper Gwydir Alluvium is considered to be highly connected to the regulated Gwydir River. Lower Gwydir Alluvium varies from losing/gaining system east of Moree to a disconnected system in the west. The Gwydir and Mehi Rivers are considered to be hydraulically connected with the Lower Gwydir Alluvium east of Moree.

The draft WRP identifies that a ‘*basement high*’³ exists between the Upper and Lower Alluvium that restricts groundwater flow from one groundwater source to the next.

The Status and issues paper describes that the Lower Gwydir Alluvium is made up of a shallow aquifer system up to about 30m deep and deep aquifer system up to about 90 m deep. There is no distinct boundary between the two.⁴

There is no clear description of the recharge source for the disconnected Lower Gwydir Alluvium in the west.

The permanent drawdown of groundwater levels in the Lower Gwydir Alluvium is a critical issue in regard to protection of environmental water and health of GDEs. Improved management of groundwater extraction is needed to prevent further decline.

We do not consider that the draft WRP and proposed changes to water sharing rules will provide the necessary improvements. There is likely to be further permanent drawdown.

² Gwydir Alluvium Water Resource Plan p30

³ Ibid p 15

⁴ Gwydir Groundwater Status and Issues paper p 12

Risk Assessment

We note a number of high risks identified in the Lower Gwydir Alluvium including high risk of localised drawdown in bores, high risk of basic landholder rights reducing groundwater availability and a high risk of local water utilities reducing groundwater availability.

The risk of groundwater use causing local drawdown for GDEs and ecological values is considered to be medium to high in both the Upper and Lower Gwydir Alluvium.

This ranking should be high in all instances because of the proposed rule changes in the water sharing plan. The introduction of a variable rule will increase the risk to GDEs, especially during prolonged dry periods.

The risk to the structural integrity of the Lower Alluvium is ranked as medium. This risk will also increase if the proposed variable rule is adopted in the Gwydir WRP.

IRN does not support the outcome of the risk assessment that the risk of climate change reducing recharge for GDEs and instream values in the Lower Alluvium is low and in the Upper Alluvium is low/medium.

IRN does not support the tolerable ratings given to the medium and high risks in the Gwydir Alluvium risk assessment because the strategies and additional critical mechanisms described in the risk assessment report will not manage the impacts of the proposed rule changes.

Water Quality

The Lower Alluvium is ranked as having a medium risk of groundwater extraction inducing connection with poor quality aquifers.

We note that the Lower Alluvium has salinity levels of 1,500 $\mu\text{S}/\text{cm}$ in the western shallow part of the aquifer. Any further drawdown of groundwater levels is likely to increase the risk of poor water quality.

This issue is not adequately addressed in the WRP.

Water Sharing Plan Objectives

The broad environmental objective of the Gwydir 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.

The draft water sharing plan will not meet its objectives because of the proposed changes to rules that will increase the risk to environmental assets, water quality and aquifer integrity.

The current rules have already resulted in permanent drawdown in the Gwydir Alluvium. The proposed new rules will increase this risk.

Proposed Rule Changes

1. Variable rule

IRN objects to the proposed variable rule for the Lower Lachlan. This locks in the 20% limit of change to the SDL as a right.

It also paves the way for further permanent drawdown of the aquifer.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium⁵. 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 Lachlan Alluvium.

This 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 20% take will become more the norm than the exception.

It has been stated that there is low connectivity between the Lower Lachlan and surface water.

‘The greater depth to the regional water table in the Lower Lachlan Alluvium results in the Lachlan River and its tributaries being largely hydraulically disconnected from the groundwater for much of their reaches.’⁶

Therefore, the variation of pumping levels between wet years and dry years has no direct relationship to the impact of regular over-extraction of the Alluvium. The Alluvium is not likely to be well recharged during wet years because of its depth and hydraulic disconnect from surface flows.

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 Lachlan Alluvium.

We note that the Water Quality Management Plan has an objective to limit seasonal drawdown in high risk areas.⁷ We do not support the risk assessment result that the Upper and Lower Lachlan Alluvium have a medium risk of poor water quality.

The application of the variable rule in the Lower Lachlan is likely to increase that risk.

The accompanying fact sheet on the relationship between water resource plan and water sharing plan states that for the Lower Lachlan *‘The annual permitted take volume will not be more than 120% or less than 80% of the sustainable diversion limit.’⁸*

⁵ Ibid p 28 Table 3-2

⁶ Ibid p 22

⁷ Ibid Table 6-1 p 53

⁸ Lachlan Alluvium Water Resource Plan Fact Sheet. *Relationship between the water resource plan and water sharing plan* p 2

The fact sheet also states that: *‘Non-compliance with the long-term average annual extraction limit occurs when this calculated average annual extraction exceeds the long-term average annual extraction limit by (either) 5% in the Lower Lachlan groundwater source.’*⁹

There is no apparent discussion in the draft WRP about the relationship between the SDL non-compliance and the LTAAEL non-compliance or how this may relate to the variable rule.

This proposed rule means that the volume of planned environmental water will also be variable. This does not meet the requirements of the Basin Plan.

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 and Upper Lachlan Alluvium have both 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.

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 from three years to five years in the Lower Lachlan to provide consistency across water sources.

This 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.¹⁰

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.

⁹ Ibid

¹⁰ Frequently Asked Questions Fact Sheet p 2

The identified high risk of basic rights bores causing a reduction in groundwater availability in the Upper Gwydir Alluvium is of great concern.

The current rule is 200m 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 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.

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