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Sunday 29 January 2023

Submission Namoi Floodplain Harvesting

Introduction

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 has followed the development of policy to regulate floodplain harvesting (FPH) in the NSW northern basin over the past 20 years. The current approach by the NSW Government favours water use for large scale irrigation over any other needs including environmental, cultural and social water dependency. The FPH policy does not meet the requirements and priorities of the *Water Management Act 2000*.

IRN strongly opposes the proposed volumes to be entitled for FPH in the Namoi catchment and the proposed access rules. There is lack of provision for adequate connecting flows to the Barwon-Darling/Baaka with an emphasis on licencing history of use rather than meeting the objects and priorities of state and federal water law.

The Namoi River system is over-allocated with most water extraction used to flood irrigate cotton.

- The current extraction rates are well above the Water Sharing Plan Limit.
- Groundwater sources have been depleted.
- There has been a failure to meet the Namoi Sustainable Diversion Limit (SDL) under the Murray-Darling Basin Plan. The Namoi has an outstanding volume of 9.5 GL still to be returned as held environmental water under the federal *Water Act 2007*.

Under these circumstances, it is untenable for the NSW government to be proposing the very large volumes of FPH diversions in the Namoi regulated and unregulated water sources through granting 166 new FPH entitlements.

The 53 proposed new unregulated FPH licences are double dipping through the volumetric conversion process. Water originally allocated to unregulated water licences took into account the area of development for irrigated cropping at the time.

Water entering the regulated Namoi River from unregulated tributaries is the main source of planned environmental water (PEW) under the current regulated Water Sharing Plan. The proposed large volumes of unregulated FPH entitlement will cause a significant net reduction in PEW.

The Namoi Water Sharing Plan gazetted in 2004 included an estimate of 21 GL of FPH take. It has been recognised that FPH growth in the Namoi has taken extraction over the Plan Limit. This is extraction of PEW and should be repaid to improve ecosystem health.

The Namoi is highly connected to the Barwon-Darling/Baaka River that provides the key link between the northern and southern basins. Flows from the Namoi, especially low and medium flows are critical for maintaining the ecological health of the Barwon-Darling/Baaka, Lower Darling and Lower Murray.

Climate change predictions indicate that more intermittent flood events will become increasingly important to maintain ecological resilience. Yet most of these flows, except in wet years, would be extracted from the Namoi through proposed FPH access rules.

IRN considers that the volumes proposed to be granted in new FPH access licenses in the Namoi regulated and unregulated water sources are unsustainable and need to be reassessed. The focus on locking in history of use over a 40 year period of no regulation is contrary to both state and federal water legislation and has contributed to the ecological decline of the Namoi and Barwon-Darling/Baaka over that time.

The proposed rules to regulate FPH in the Namoi regulated and unregulated Water Sharing Plans will not improve ecological, cultural and social conditions within the Namoi nor in downstream connected water sources.

IRN's Summary Recommendations for rules:

Regulated Rules:

1. Account management rules

One year account management with no carryover

2. Available Water Determinations

Initial allocation <1ML per share unit and no more than 1ML per share for following years.

3. Permanent Trade

No trading should be permitted. The Namoi River system is too complex and compromised to allow FPH access to shift around the floodplain.

4. Access Rules

No access to FPH until Menindee Lakes is at 450 GL and flow in the Namoi upstream of Walgett in the last 485 days has exceeded 2,250 ML/day for 5 consecutive days.

5. Floodplain Works

No new or expanded floodplain works in any floodplain management zone that will divert water for extraction. No FPH entitlements should be issued for existing works that do not have a current works approval.

6. Amendment provisions

Amendment provisions must enable adaptive management to improve ecological, cultural and social conditions downstream. Amendments must not be restricted by consideration of history of use.

Unregulated Rules:

1. Account management rules

One year account management with no carryover

2. Available Water Determinations

Initial allocation <1ML per share unit and no more than 1ML per share for following years.

3. Permanent Trade

No trading should be permitted. The Namoi River system is too complex and compromised to allow FPH access to shift around the floodplain.

4. Access Rules

No access to FPH until Menindee Lakes is at 450 GL and flow in the Namoi upstream of Walgett in the last 485 days has exceeded 2,250 ML/day for 5 consecutive days.

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No new or expanded floodplain works that will divert water for extraction. No FPH entitlements should be issued for existing works that do not have a current works approval.

6. Amendment provisions

Amendment provisions must enable adaptive management to improve ecological, cultural and social conditions downstream. Amendments must not be restricted by consideration of history of use.

Key Issues:

1. Proposed new FPH entitlements with proposed generous carryover rules are too large and unsustainable.
2. Poor assessment process in the unregulated Namoi water source areas
3. Namoi system is already stressed with decline in groundwater sources
4. Climate change predictions not taken into account.
5. Exempt rainfall runoff interception could increase with climate change
6. Proposed flow targets in Access Rules too low
7. Amendment provisions don't allow reduction in long-term extraction
8. Namoi contribution to the Barwon-Darling/Baaka is not sufficient
9. Net reduction of PEW

1. Proposed volume of new FPH entitlements

IRN considers the proposed volumes of access to overland flows, including rainfall runoff, combined with generous carryover rules in the Namoi catchment to be too large and unsustainable. The access proposed includes the granting of:

- 113 new floodplain harvesting licenses in the regulated Namoi River with a total value of 54,750 unit shares.
- 53 new floodplain harvesting licenses in the unregulated Namoi River with a total value of 85,070 unit shares.

The unit shares are most likely to have a 1 ML value. This volume is proposed for the initial allocation and equates to 139,820 ML of new access licenses being available. The model scenarios indicate that extraction in the Namoi regulated water source is over the Plan Limit.

There are discrepancies between various reports on the size of the reduction of FPH proposed:

- The report to assist community consultation refers to a 10 % reduction.¹
- The model scenarios report refers to a 14% reduction.²

The **role of the rainfall runoff exemption** is not clear in any of the reporting on modelling results.

The discussion about a 14% reduction from current FPH take proposed to bring extraction back under the Plan Limit includes an assumption that Supplementary take will be reduced by 45%. This is conditional on community consultation that has not yet occurred.³ There is no indication of a reduction in FPH take in the Namoi unregulated water source.

It is stated that scenario modelling was used to update the plan limit estimate for the Namoi unregulated river water source and to determine floodplain harvesting entitlements.⁴ However, there is no clear evidence of how this was undertaken. All reporting on the modelling process appears to concentrate on the Namoi regulated water source.

It is not clear how 85,070 ML of FPH unregulated water source extraction fits into the proposed reduction in FPH or meeting the Namoi Water Resource Plan SDL.

The proposed rules to allow 500% carry over of regulated FPH entitlement and 300% carry over of unregulated FPH entitlement will allow a possible extraction of up to 528,960 ML of important overland flows from the Namoi floodplain in any one year. This volume is greater than and additional to the total storage volume of Keepit Dam at 425,510 ML. **IRN does not support carry over rules, as proposed, because of the very large scale of the extraction that the proposed rules would allow.**

The emphasis on achieving the same level of historic diversions⁵ by introducing a 5 year accounting period or 500% carry over in the regulated Namoi is counter to the NSW FPH Policy that is based on not using history of use to determine share components.⁶

¹ DPE. November 2022. *Report to assist community consultation* p 34, App 1 p 37

² DPE. November 2022. *Model Scenarios* p 5, p 24

³ Ibid p 22

⁴ Ibid p 6

⁵ DPE. November 2022. *Report to assist community consultation* p 17/18

⁶ DPE. November 2022. *Model Build Report* P 114

2. Unregulated assessment process

The process used to determine the size of unregulated FPH licences has resulted in the proposal to grant very large volumes for extraction from overland flows in the Upper Namoi in addition to existing unregulated licences.

The volumetric conversion process for unregulated licences had already taken into account the area of development and crop size on each property. The volumes extracted from floodplain flows were included in the conversion process. **The use of satellite imagery to determine past water use for the granting of additional new entitlements is imprecise and unsatisfactory.**

Additional FPH licences above the current level of licenced unregulated extraction should not be proposed for the unregulated Namoi. **IRN does not support the proposed 85, 070 additional unit shares being allocated to this water source.**

3. Namoi River system under stress

Current water use in the Namoi region, mostly for growing cotton through inefficient flood irrigation, is unsustainable and causing significant ecosystem decline.

The Namoi region is one of the most groundwater reliant regions in the Murray-Darling Basin.⁷ The 2021 Groundwater Level Review for the Upper and Lower Namoi groundwater sources found that most zones have a declining long-term water level trend. This decline is exacerbated by reduced recharge from surface water and rainfall in the Upper Namoi tributaries.⁸ The decline in groundwater levels will reduce access by groundwater dependent ecosystems. Floodplain flows are an important source of groundwater recharge and must be protected from over extraction.

The overall ecosystem health of the Namoi region is poor. The region's fish community is in very poor health and the riverine vegetation condition is considered poor.⁹ The scale of proposed entitled capture of overland flows in the Namoi will cause further decline in river ecosystem health and deteriorating resilience.

Floodplain structures that impede overland natural flood flows have a major impact on important ecological and cultural assets. Eleven floodplain hotspots have been identified in the Upper Namoi and 28 in the Lower Namoi Valley.¹⁰ **It is imperative that these structures are removed before FPH licences are granted.**

The proposed granting of very large FPH entitlements in the Namoi has not considered ecological condition of the water sources.

⁷ DPIE. March 2021. *Draft Namoi Regional Water Strategy* p 13

⁸ Ibid

⁹ Ibid p 86

¹⁰ Ibid p 73

4. Climate Change

The proposed large volumes of FPH entitlement and rainfall runoff exemptions would continue to capture overland flow before it reaches streams and rivers and has not taken into account the climate change impacts for the Namoi region predicted by new modelling.

The new climate data and updated hydrological modelling developed for regional water strategy suggest that the Namoi region could experience:

- changing rainfall patterns with less winter and spring rainfall and more summer and autumn rainfall on average
- increased evaporation
- a much higher probability of prolonged 10-year dry periods, as well as the potential for more frequent short, sharp droughts, similar to the most recent drought to affect the Namoi region
- potentially higher water security risks for major towns that rely primarily on surface water
- a higher probability of cease-to-flow events
- less frequent, but higher magnitude large flow events.¹¹

Droughts that occur in closer succession and hotter, drier conditions would mean drier soil moisture, a loss of vegetation cover and catchments that will require higher rainfall to generate runoff into rivers and creeks.¹² The fact that FPH entitlement allows for the capture of rainfall runoff is a critical issue that needs more consideration under climate change scenarios.

The implication of proposed Namoi FPH extraction to a maximum level of 528,960 ML plus an estimated 23.4 GL exempt rainfall runoff is significant in the context of climate change impacts. This issue has not been addressed in any of the reports associated with FPH decision-making.

5. Rainfall runoff exemption

The FPH policy decision to exempt the licensing of rainfall runoff on irrigated fields has major implications in the Namoi. This is free, unaccounted water extraction above harvestable rights that reduces the volume of PEW under the WSPs for the purpose of improving river health.

Modelling processes have seen an increased in exempt runoff from 16.2 GL under WSP scenario¹³ to 21 GL under current condition scenario¹⁴ to 23.4 GL under Plan Limit Compliance Scenario.¹⁵

The modelling process to bring Namoi water take under the Plan Limit is based on an assumed increase in unlicensed take to 23.4 GL. This is a significant volume when added to the proposed carry over rules and when considering the importance of rainfall runoff in future climate change predictions.

¹¹ Ibid p16

¹² Ibid

¹³ DPE, November 2022. *Model Scenarios* Table 6 p 21

¹⁴ Ibid Table 7 p 22

¹⁵ Ibid Table 8 p23

The extraction of 23.4 GL of PEW does not meet the Basin Plan requirement for no net reduction of PEW and is counter to the objects of the NSW *Water Management Act 2000*.

6. Proposed FPH access rules

IRN does not support the proposed rules for access to FPH in the Namoi in dry conditions. The trigger of the critical low level of 195 GL in Menindee Lakes will significantly contribute to the ongoing ecological collapse of the Darling/Baaka and is unsustainable.

The proposal to allow FPH access when Menindee Lakes is at a critical low level of 195 GL if a flow of 4,500 ML is measured at the Bugilbone gauge is strongly opposed. This flow is not protected from extraction downstream in the Namoi and will attenuate through transmission losses before contributing flow to the Barwon-Darling/Baaka. This proposed access rule has the potential to minimise downstream contributions from the Namoi during dry periods. This could also impact on Walgett town water supply and is counter to priorities for water sharing under the NSW *Water Management Act 2000* and to provisions under the federal *Water Act 2007* with regard to critical human needs.

The trigger for access to FPH in the Namoi must be:

- **450 GL in Menindee Lakes and;**
- **flow in the Namoi upstream of Walgett in the last 485 days must have exceeded 2,250 ML/day for 5 consecutive days.**

7. Amendment provisions

The Model Build Report identifies a number of areas of serious uncertainty that require more work. Amendment provisions in the WSPs must allow for sufficient improvement when new information from future work is available. This new information includes:

- Review of floodplain harvesting measurement data following implementation of the NSW policy to determine whether any further improvements in the model are required
- Water use data from the current upgrading of water use meters across the Namoi Valley
- Ongoing updates of the Current Conditions Scenario, including consideration of irrigation behaviour changes and management of held environmental water
- Better data that identifies return flows from floodplains to river channels. This will require further research to develop a methodology for addressing this fundamental limitation in the models.

IRN does not support the proposed amendment provision to not ‘significantly alter the long-term volume of floodplain harvesting that can be taken under legal limits.’

This is an inherent bias favouring extractive shares above the needs of ecosystem health, cultural values and social outcomes.

8. Namoi downstream contribution

There is conflicting data on the percentage of downstream flow volumes contributed from the Namoi.

The FPH reports identify that predicted downstream return through implementation of FPH regulation will be 5.4 GL. This is entirely insufficient in the context that FPH extraction will include 23.4 GL of exempt rainfall runoff capture. (See #5 above).

Model reports identify that the biggest impact on FPH access will be during extended wet periods.¹⁶ These are not the critical times for improved connectivity flows.

The high connectivity of the Namoi to the Barwon-Darling/Baaka requires a better outcome to improve flows in the dry to medium periods of rainfall in the region.

9. Extraction of PEW

The main source of PEW in the regulated Namoi WSP is 50% of tributary inflows. The large volume of proposed FPH extraction from the unregulated tributaries would capture potential PEW before it enters the regulated river.

The regulated Namoi WSP gazetted in 2004 estimated a level of 21 GL of FPH take. New information gained through FPH assessment has identified a much larger volume. This reduces the share of PEW estimated in the WSP.

The proposed level of exempt rainfall runoff capture at 23.4 GL is larger than the original estimate of all FPH take and is direct access to PEW under the definitions in the WSP.

Current FPH extraction levels combined with supplementary extraction has put water extraction in the regulated Namoi above the Plan Limit through an estimated 12.7 GL/yr growth in use. There is no discussion of the Plan Limit in the unregulated Namoi. All water extracted above the Plan Limit is accessing PEW. There is no discussion of a payback process to improve ecosystem health and resilience.

The proposed volumes of FPH entitlement plus licence exemptions in the Namoi regulated and unregulated water sources will cause a net reduction in PEW and will not meet the requirements of the Basin Plan.

Conclusion

The proposed allocation of entitlements and access rules for FPH regulation in the Namoi are in breach of the objects and priorities of the *Water Management Act 2000*.

The overall ecosystem health of the Namoi water sources is poor. The region's fish community is in very poor health and the riverine vegetation condition is considered poor. The scale of proposed entitled capture of overland flows in the Namoi will cause further decline in river ecosystem health and deteriorating resilience.

¹⁶ Ibid p 23

Namoi groundwater sources have a declining long-term water level trend. Floodplain flows are an important source of groundwater recharge.

The NSW Government must take a precautionary approach to the regulation of FPH in the Namoi. The system needs to be managed to achieve resilience and improved ability to survive future climate change predictions of more intense and prolonged drought.

The high level of connectivity between the Namoi and Barwon-Darling/Baaka requires a much greater reduction in the long-term annual average FPH extraction.

Much less overland flow should be intercepted for private commercial gain at the expense of all other users of the river system, including native plant and animal species.

For more information on this submission contact:
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Yours sincerely
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Secretary