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**CATE FAEHRMANN**

**NSW GREENS MP**

**THE  
GREENS**

25 September 2023

The Natural Resources Commission

[nrc@nrc.nsw.gov.au](mailto:nrc@nrc.nsw.gov.au)

Dear NRC

**Submission to the review of the Water Sharing Plan for the Gwydir Regulated River Water Source 2016**

Thank you for the opportunity to make a submission to the review of the Water Sharing Plan for the Gwydir Regulated River Water Source 2016 (the Plan).

With regard to the Commission's questions, the Plan:

- will lead to poorer environmental outcomes;
- makes a limited contribution to social outcomes;
- contributes to economic outcomes for industries and sections of the Gwydir valley community by maintaining, and in some cases improving, access to water for agriculture; and
- will lead to increasingly negative cultural outcomes.

In summary, the Plan does not meet its objectives because it prioritises flow to extractive use of water above other uses and users.

This submission outlines factors that undermine the capacity of the Plan to achieve broad cultural, environmental and social objectives.

It concludes with recommendations that will increase the likelihood that the objectives of the Water Sharing Plan will be met.

Yours sincerely,

Cate Faehrmann MLC  
Greens NSW spokesperson for Water

## **Factors that undermine the capacity of the Plan to achieve its cultural, social and environmental objectives**

Multiple reports, such as the ICAC report, the Ken Matthews report and the Chief Scientist's report, say that NSW Government water agencies do not seem to be enforcing the *Water Management Act* and its objectives.

The summary of the Chief Scientist review into the fish deaths at Menindee found that explicit environmental protections in water management legislation are neither enforced nor reflected in current policy and operations, and that many of the recommendations in previous reports have not been implemented.

This submission raises specific concerns I have about water management, with reference to the Gwydir Water Sharing Plan.

### **No numeric extraction limit**

The Natural Resource Commissioner's review of seven unregulated water sharing plans identified that the plans do not include numeric long-term average extraction limits. He said that this "create(s) a material risk that the water sharing plans are not achieving their intended outcomes".<sup>1</sup>

He explained:

*[T]he absence of a numeric long-term average annual extraction limit undermines the effectiveness of a water sharing plan. It means that there is no concrete value to compare the current water usage level against in order to assess compliance with the extraction limit.*<sup>2</sup>

The identical circumstance applies to this plan, which does not have a numeric long-term average annual extraction limit.

### **Combined Gwydir Regulated River and Gwydir Unregulated River long-term average sustainable diversion limits**

The Water Sharing Plan provides for the combination of the sustainable diversion limits of the Gwydir Unregulated River Water Source and the Gwydir Regulated River Water Source<sup>3</sup> The Gwydir Unregulated River Water Source has no hydrological model and no numeric sustainable diversion limit. In addition, no type of extraction has ever been measured.

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<sup>1</sup> Natural Resource Commissioner. (2023). *Water Sharing Plan Reviews: Issue brief #1: Need to set numeric extraction limits and assess compliance*. <https://www.nrc.nsw.gov.au/water/wsp-reviews/briefs>

<sup>2</sup> Natural Resource Commissioner. (2023). *Water Sharing Plan Reviews: Issue brief #1: Need to set numeric extraction limits and assess compliance*. <https://www.nrc.nsw.gov.au/water/wsp-reviews/briefs>

<sup>3</sup> Clause 82(3).

I am concerned that combining the sustainable diversion limits for the unregulated and regulated systems will allow for further unjustified increases to the sustainable diversion limit.

Recommendation: Remove Clause 82(3) from the Water Sharing Plan

### **Over-stating the volume of water recovered for the environment**

Cap Factors (also known as long-term diversion limit extraction or LTDLE factors) are used to determine the water recovered for the environment against valley targets.<sup>4</sup>

Cap Factors are calculated by multiplying the reliability of a class of water share and its historical use.<sup>5</sup> To determine the volume of environmental water recovered, each class of water share held by the environment is multiplied by its Cap Factor.

In 2018, the NSW water department and the Murray-Darling Basin Authority agreed to increase the notional reliability of General Security and Supplementary water shares in the Gwydir Valley, thereby increasing their Cap Factors.

This increased the amount of water deemed to be recovered from these licences. Fewer water access licences need to be recovered to meet the Gwydir water recovery target.<sup>6</sup>

The rationale and process for increased notional reliability, and therefore Cap Factors, has not been explained. This is unacceptable.

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<sup>4</sup> NSW Department of Industry. (2018). *Consultation paper: NSW updated factors for water recovery*. [https://www.industry.nsw.gov.au/\\_data/assets/pdf\\_file/0018/162180/consultation-paper-water-recovery-cap-factors.pdf](https://www.industry.nsw.gov.au/_data/assets/pdf_file/0018/162180/consultation-paper-water-recovery-cap-factors.pdf)

<sup>5</sup> Classes of water shares include High Security, General Security and Supplementary water.

<sup>6</sup> NSW Department of Industry. (2018). *Water reform technical report: Derivation of LTDLE factors in NSW*. [https://water.dpie.nsw.gov.au/\\_data/assets/pdf\\_file/0019/162181/technical-paper-derivation-technical-factors-nsw.pdf](https://water.dpie.nsw.gov.au/_data/assets/pdf_file/0019/162181/technical-paper-derivation-technical-factors-nsw.pdf)

Table 1. Water recovery and Cap Factors.

Class of water share	High Security	General Security	Supplementary Water	Total (ML)
Volume held for the environment (ML)	4,508	106,617	20,891	
Original Cap Factor	1.000	0.360	0.190	
Original water recovery volume (ML)	4,508	40,532	3,969	46,859
New Cap Factor	0.886	0.380	0.485	
New water recovery volume (ML)	3,993	40,532	10,131	54,656
Increased or decreased water recovery volume (ML)	(515)	2,150	6,161	7,796

Progress towards the water recovery target has:

- decreased by 515 megalitres for High Security,
- increased by 2,150 for General Security water, and
- increased by 6,161 megalitres for Supplementary water.

The total increase in the amount of water deemed recovered by changing Cap Factors is 7,796 megalitres.

In 2018, the NSW Government and the Murray-Darling Basin Authority stated that the Cap Factors used for water recovery are different to those used in the Baseline Diversion Limits. This creates several issues, most notably allowing the Sustainable Diversion Limit to grow. This is explained in

detail in The Australia Institute's paper: *Derivation of Long-Term Diversion Limit Extraction Factors in NSW*.<sup>7</sup>

Recommendation: Investigate the accuracy of Cap Factors.

Recommendation: Amend the Water Sharing Plan to include:

- the Cap Factors for each class of shares, and
- that the same Long Term Diversion Limit Extraction factors are used for the Baseline Diversion Limit, water recovery and the Sustainable Diversion Limit.

## **Floodplain harvesting**

Floodplain Harvesting water access licences are a significant form of take in the Gwydir regulated water source, being roughly half the volume of High Security water access licences and one-fifth the volume of General Security water access licences.

Floodplain harvesting water in the regulated Gwydir River under the Murray-Darling Basin Cap is 24 gigalitres. The Water Sharing Plan states the share component of regulated floodplain harvesting water access licences as 89,000 megalitres.<sup>8</sup> However, the volume of floodplain harvesting water access licences issued is 104,663 megalitres.<sup>9</sup>

I was the Chair of a Legislative Council Committee inquiry into Floodplain Harvesting in 2021.<sup>10</sup> The committee found that:

- floodplain harvesting has had a significant impact on downstream flows and river health, particularly on the Darling Baaka River, Menindee Lakes and Ramsar listed wetlands, leading to numerous economic, social, cultural and environmental impacts.
- there has been insufficient assessment of the cumulative impacts of floodplain harvesting,
- floodplain harvesting has contributed to a reduction in downstream flows which has had a profound impact on the culture and traditions of First Nations peoples.
- engagement with First Nations peoples on the development of floodplain harvesting policy has been inadequate and, at times, culturally inappropriate.

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<sup>7</sup> Slattery & Campbell. (2018). *Derivation of Long Term Diversion Limit Extraction factors in NSW*. <https://australiainstitute.org.au/wp-content/uploads/2020/12/The-Australia-Institute-Cap-Factors-submission-WEBSITE.pdf>

<sup>8</sup> NSW Water Minister. (2022). Water Sharing Plan for the Gwydir Regulated River Water Source 2016, Clause 25. <https://legislation.nsw.gov.au/file/2015-629.pdf>

<sup>9</sup> WaterNSW. (2023). NSW Water Register: Information about a water source: Total number of water access licences and water usage for a water source: Gwydir Regulated Valley, 2023/24. <https://waterregister.waternsw.com.au/water-register-frame>

<sup>10</sup> Select Committee on Floodplain Harvesting. (2021). *Floodplain harvesting*. <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2818/Report%20no.%201%20-%20Select%20Committee%20-%20Floodplain%20harvesting%20-%20December%202021.pdf>

The findings from that inquiry are shown in Attachment A. That inquiry made many recommendations relevant to the Water Sharing Plan for the Gwydir Regulated River Water Source 2016 that have not been implemented. The recommendations are shown in Attachment B.

Recommendation: Amend the Water Sharing Plan to incorporate all relevant recommendations from the Select Committee inquiry into Floodplain Harvesting.

### **Ambiguous floodplain harvesting licence conditions**

The Water Sharing Plan allows for floodplain harvesting water access licences, to take water from uncontrolled flows (Clause 50).

Uncontrolled flows are defined in the Water Sharing Plan as either:

- a) flows that cannot be captured by an operator, and are in excess of system demands, or
- b) for the purposes of Clause 50, rainfall runoff from an irrigated field.

The conditions on the floodplain harvesting Water Access Licences state that water can be taken during uncontrolled flows. It is unclear whether the licence conditions allow take from uncontrolled flows under the definition at a).

Extractions under this condition:

- can be made without water credited to the water allocation account prior to extraction,<sup>11</sup> and
- must not be debited from the water allocation account.<sup>12</sup>

That is, the floodplain harvesting licence conditions could be interpreted as allowing increased extractions from the river that will not be measured, monitored, or included in any assessment of take, such as the Sustainable Diversion Limit.

Recommendation: Clarify the meaning and effect of floodplain harvesting water access licence conditions relating to take of uncontrolled flows.

### **Taking of water under floodplain harvesting (regulated river) access licences**

Clause 51(3) prohibits floodplain harvesting when the water stored in Menindee Lakes is less than 195 gegalitres, and when flows are below certain levels specified in Clause 51 (4). The intent of these clauses is to ensure that floodplain harvesting does not occur during dry periods until rivers begin to run.

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<sup>11</sup> NSW Water Minister. (2022). Water Sharing Plan for the Gwydir Regulated River Water Source 2016, Clause 50 (2). <https://legislation.nsw.gov.au/file/2015-629.pdf>

<sup>12</sup> NSW Water Minister. (2022). Water Sharing Plan for the Gwydir Regulated River Water Source 2016, Clause 44 (4). <https://legislation.nsw.gov.au/file/2015-629.pdf>

However, neither of these clauses provide reliable protection for end-of-system flows before water is allowed to be extracted for floodplain harvesting.

195 gegalitres in Menindee Lakes is only slightly above the 'dead' storage level, of 176 gegalitres, meaning most of that water cannot be accessed or released into the Lower-Darling Baaka.<sup>13</sup> The Academy of Science inquiry into the 2019 fish kill at Menindee Lakes recommended contingency storage at Menindee Lakes of 400 gegalitres.<sup>14</sup>

The flows specified in clause 51(4) are all within the channel, and at best considered a small fresh.<sup>15</sup> It is unlikely that floodplain harvesting is even possible at these flow rates. That is, these flow rates are unlikely to contribute to protecting end-of-system flow at Menindee Lakes.

I am unaware of any publicly available research supporting these flow rates.

Recommendation: Amend the Water Sharing Plan to increase the target in Clause 51(3) from 195 gegalitres to 400 gegalitres.

Recommendation: Undertake research that is publicly available and subject to a genuine academic peer review on the flow rates needed to achieve longitudinal connectivity to Menindee Lakes.

### **Prohibition of amendments if they would substantially alter floodplain harvesting and supplementary water take**

The Water Sharing Plan may be amended (Clause 80(1) in response to:

- a) the need to protect overland flow for environmental purposes,
- b) monitoring, evaluation and reporting outcomes,
- c) an improved understanding of the influence of floodplain harvesting on downstream flows,
- d) a review that assesses the potential benefits and impacts of new access provisions for floodplain harvesting (regulated river) access licences,
- e) a review of dealing rules in the Water Sharing Plan for the Gwydir Unregulated River Water Sources 2012, and
- f) other circumstances as determined by the Minister.

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<sup>13</sup> BOM. (2010). Details of the storage volumes in the Murray-Darling Basin.

[http://www.bom.gov.au/water/nwa/2010/documents/Details-of-the-storage-volumes-for-2009\\_10.pdf](http://www.bom.gov.au/water/nwa/2010/documents/Details-of-the-storage-volumes-for-2009_10.pdf)

<sup>14</sup> Academy of Science. (2019). Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019.

<https://www.science.org.au/supporting-science/science-policy-and-sector-analysis/reports-and-publication/s/fish-kills-report>

<sup>15</sup> Department of Planning, Industry and Environment. (2020). Gwydir Long Term Water Plan Part A: Gwydir catchment.

<https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Water/Water-for-the-environment/long-term-water-plans/gwydir-long-term-water-plan-part-a-catchment-200083.pdf>

The Water Sharing Plan may also be amended in relation to the end-of-system flow targets at Menindee Lakes (Clause 80 (6)).

However, Clause 80 (7) states that:

*Actions under subclause (1) or subclause (6) must not substantially alter the long-term average annual total amount of water able to be extracted under floodplain harvesting (regulated river) access licences in the water source.*

This clause seems to prohibit the reduction of floodplain harvesting even if floodplain harvesting is adversely affecting the environment and downstream towns, users and economies.

Clause 80(7) has the potential to override the Principles in the Water Management Act and the objectives of the Water Sharing Plan.

Clause 79(4) has a similar provision that states an amendment to the Water Sharing Plan that must not substantially alter the long-term average annual total amount of water able to be extracted under supplementary water access licences.

Recommendation: Remove Clauses 79 (4) and 80 (7) from the Water Sharing Plan.

## **Conclusion**

The plan makes a strong contribution to economic outcomes for industries and sections of the Gwydir valley community that rely on irrigation, in particular cotton irrigation. The plan has maintained, and in some cases improved, access to water for agriculture. The recently granted floodplain harvesting licences are a good example of this.

The Plan will lead to poorer environmental outcomes and increasingly negative cultural outcomes. It makes a limited contribution to social outcomes and prioritises economic outcomes for industries and sections of the Gwydir valley community by maintaining, and in some cases improving, access to water for agriculture.

In summary, the Plan does not meet its objectives, because its benefits flow to extractive use of water above other uses and users.

The most important strategy to achieve the outcomes of the Water Sharing Plan is a numeric extraction limit. The absence of a numeric extraction undermines every part of the Water Sharing Plan except its economic objectives for extractive use.

Changes needed to the Water Sharing Plan to improve outcomes are included below, in the recommendations from this submission, and those from the Findings and Recommendations of the Select Committee on Floodplain Harvesting.



## Recommendations

1. Amend the Water Sharing Plan to:
  - incorporate all relevant recommendations from the Select Committee inquiry into Floodplain Harvesting.
  - include the Cap Factors for each class of shares,
  - include that the same Long Term Diversion Limit Extraction factors are used for the Baseline Diversion Limit, water recovery and the Sustainable Diversion Limit, and
  - increase the target in Clause 51(3) from 195 gigalitres to 400 gigalitres.
2. Remove from the Water Sharing Plan:
  - Clause 82 (3),
  - Clause 79 (4), and
  - Clause 80 (7)
3. Clarify the meaning and effect of floodplain harvesting water access licence conditions relating to take of uncontrolled flows.
4. Undertake research that is publicly available and subject to a genuine academic peer review on the flow rates needed to achieve longitudinal connectivity to Menindee Lakes.
5. Investigate the accuracy of Cap Factors.

## **Attachment A: Findings of the Select Committee on Floodplain Harvesting**

Finding 1: That under the Water Management Act 2000:

- floodplain harvesting is not an offence under section 60A
- floodplain harvesting works constructed without approvals are not an offence under section 91B.

Finding 2: That, notwithstanding Finding 1, issues of lawfulness arise in the practice of floodplain harvesting when a work is used, and this must be examined on a case by case basis.

Finding 3: That, should a New South Wales floodplain harvesting licensing framework cause the state to exceed the legal limits of surface water extraction set under the Commonwealth framework, this would constitute a breach of the Water Act 2007 (Cth).

Finding 4: That floodplain harvesting has had a significant impact on downstream flows and river health, particularly to the Darling Baaka River, Menindee Lakes and Ramsar listed wetlands, leading to numerous economic, social, cultural and environmental impacts, and that to properly understand any and all impacts improvement in real time monitoring through increased river gauges is required.

Finding 5: That there has been insufficient assessment of the cumulative impacts of floodplain harvesting to date, and that the only way to further improve assessments of the cumulative impacts of floodplain harvesting is through accurate metering of take during floodplain harvesting events.

Finding 6: Floodplain harvesting has contributed to a reduction in downstream flows which has had a profound impact on the culture and traditions of First Nations peoples.

Finding 7: That engagement with First Nations peoples on the development of floodplain harvesting policy has been inadequate and, at times, culturally inappropriate.

Finding 8: That the modelling used by the NSW Government to determine floodplain harvesting volumes lacks transparency and accountability, does not provide for validation against actual flows and does not have the public's confidence.

Finding 9: That it is unclear there was a legal right to floodplain harvest at the dates upon which the Murray-Darling Basin Cap and the Baseline Diversion Limits are based and it is therefore unclear on what legal basis the Government intends to amend the Basin Plan to incorporate historic floodplain harvesting volumes.

Finding 10: That the process the NSW Government is undertaking to amend the Sustainable Diversion Limit as described by the NSW Department of Planning, Industry and Environment has the potential to be unlawful.

Finding 11: That the NSW Government has failed to meet its obligations under the Murray-Darling Basin Agreement by allowing the unchecked growth of unregulated floodplain harvesting extraction to volumes well in excess of the 1994 Murray-Darling Basin Cap.

Finding 12: The NSW Government's Floodplain Harvesting Policy could result in entitlements being granted to landholders for unapproved or illegal works which will need to be modified or decommissioned.

Finding 13: The 500 per cent carry-over rule would allow significantly more floodplain harvesting to occur in a single year than was possible in 1994.

Finding 14: That the non-transparent manner in which the NSW Healthy Floodplains Review Committee undertakes its work, including assessing appeals and deciding whether to grant retrospective approval to floodplain structures, is concerning and inappropriate.

## **Attachment B: Recommendations of the Select Committee on Floodplain harvesting**

Recommendation 1: That the NSW Government conduct a thorough review of low and cease-to-flow data, as well as an assessment of downstream economic, social, cultural and environmental impacts and needs prior to finalising the volume of floodplain harvesting entitlements in each valley identified in the NSW Floodplain Harvesting Policy, and this includes detailed locations of any proposed new river gauges and real time monitoring infrastructure.

Recommendation 2: That the NSW Government urgently prioritise regular and genuine involvement of First Nations peoples in the management of floodplain harvesting, including cultural flows.

Recommendation 3: That the NSW Government's modelling of floodplain harvesting volumes use the best available projections to evaluate the impact of climate change on entitlement reliability, downstream outcomes and environmental impacts.

Recommendation 4: That the NSW Government establish an independent expert panel coordinated by the Natural Resources Commission to:

- assess and accredit the models used in Water Sharing Plans and produce a public report on the accreditation that includes the standard and mean error of models
- assess the floodplain harvesting 'Cap Scenario' reports for compliance with the Murray-Darling Basin Cap and publish assessment reports
- annually audit the Sustainable Diversion Limit and Murray-Darling Basin Plan Limit, publishing audit reports that separately identifies the annual Cap or Sustainable Diversion Limit target, and diversions for licence and extraction type.

Recommendation 5: That the Department of Planning, Industry and Environment ensure that model run number and long-term average extraction limits for the Baseline Diversion Limit, the Murray-Darling Basin Cap, and the Plan Limits must be included in water sharing plans for each valley.

Recommendation 6: That, if the NSW Government intends to amend the Sustainable Diversion Limits, the NSW Government must specify the legal pathway through which they intend to do so.

Recommendation 7: That the NSW Government ensure that any allocation of floodplain harvesting volumes and entitlements must be within existing Sustainable Diversion Limits.

Recommendation 8: That, if Sustainable Diversion Limits are to be amended, the Minister for Water, Property and Housing make representations to the Murray-Darling Basin Authority to ensure that the Sustainable Diversion Limits are reflective of an environmentally sustainable level of take under the Water Act 2007 (Cth), regardless of any adjustments to the Baseline Diversion Limits.

Recommendation 9: That the NSW Government urgently ensure all floodplain harvesting is metered and measured, including flows that enter and bypass storages, before issuing floodplain harvesting licences to ensure the accuracy of volumes and long-term extraction limits.

Recommendation 10: That the NSW Water Reform Action Plan include a 'no meter, no pump' rule, as recommended by the Independent Investigation into NSW Water Management and Compliance.

Recommendation 11: That the NSW Government ensure that the NSW Water Register includes information regarding structures on floodplains, including their location, volume, ownership, approvals and licence conditions.

Recommendation 12: Excluding structures that have been assessed as protecting infrastructure, that the NSW government ensure floodplain structures do not alter the natural flood flows at times when extraction is not permitted.

Recommendation 13: That the NSW Government decommission or remove unlawful structures and publish a time frame for this initiative within 6 months.

Recommendation 14: 90 That the NSW Government ensure that no floodplain harvesting licences are granted on the basis of illegal works.

Recommendation 15: That the NSW Government ensures that any carry-over rule included in floodplain harvesting licences to provide flexibility in accessing floodplain harvesting entitlements does not allocate more than 100 per cent of entitlements in the first year of the accounting period.

Recommendation 16: That the NSW Government ensure that rainfall run-off is measured, metered and reported as part of extraction limits, and if exemptions are to be granted, they should be limited to landholders with less than 500 megalitres of storage capacity.

Recommendation 17: That the NSW Government develop clearly defined and enforceable access rules based on within-valley and downstream flow triggers based on minimum flow targets needed to maintain or improve outcomes for environmental, cultural and basic landholder requirements, with floodplain harvesting take only permitted under the access rules when these targets are met, and that these access rules must be implemented before any floodplain harvesting licences or entitlements are allocated.

Recommendation 18: That the NSW Government work urgently to engage First Nations communities to ensure that cultural flow targets are established and met as part of the regulatory framework on floodplain harvesting.

Recommendation 19: That the Department of Planning, Industry and Environment only issue floodplain harvesting licences at such a time as it is satisfied that the recommendations of this report will be met so that floodplain harvesting is fully monitored and measured, there is clear evidence that water extractions are within legal limits, the independent oversight of the Natural Resources Commission has been established and that mandated environmental and other downstream outcomes are being achieved.

Recommendation 20: That, if the NSW Government grants floodplain harvesting licences or entitlements, these should be strictly non-compensable and subject to Parliamentary oversight.

Recommendation 21: That the NSW Government, through the National Federation Reform Council, make representations to remove the surface water trading requirement from the Murray-Darling Basin Plan.

Recommendation 22: That, in the absence of the surface water trading requirement being removed from the Murray-Darling Basin Plan, the Minister for Water, Property and Housing ensure that water trading be restricted and subject to a robust environmental and social impact assessment process prior to each trade, and that trading is restricted to within catchment trading only.

Recommendation 23: That the NSW Government:

- institute a clearly defined enforcement and compliance regime for floodplain harvesting take and floodplain harvesting works
- ensure that the Natural Resources Access Regulator is sufficiently funded to undertake its enforcement and compliance functions.

Recommendation 24: That the NSW Government abolish the NSW Healthy Floodplains Review Committee and future appeals be dealt with by the proposed independent expert panel, referred to in Recommendation 4, and the outcomes be reported publicly.

Recommendation 25: That the Department of Planning, Industry and Environment ensure that all decisions made by the NSW Healthy Floodplains Review Committee be audited by the proposed independent expert panel, referred to in Recommendation 4.