

12 August 2022

Department of Planning and Environment – Water
Locked Bag 5022,
Parramatta NSW 2124
nsw.groundwaterstrategy@dpie.nsw.gov.au

SUBMISSION ON NSW GROUNDWATER STRATEGY

The National Parks Association of NSW (NPA) appreciates the opportunity to comment on the draft NSW Groundwater Strategy.

NPA's mission is to protect nature through community action. Our strengths include State-wide reach, deep local knowledge, evidence-based input to policy and planning processes, and over 65 years' commitment to advancing the NSW protected area network and its professional management. We also provide outstanding opportunities for experiencing and learning about nature through our unrivalled program of bushwalking, field surveys, bush regeneration and other outdoor activities.

To this regard the NPA believes it is important that the NSW Government's overall policy seek to ensure the integrity of all groundwater dependent ecosystems. This is because there exists a strong and direct interaction between the circulation and storage of groundwater with most surface waters (Boulton and Hancock 2006). This means:

- long-term health of NSW's groundwater dependent ecosystems must be based on a management regime that maintains not only the natural circulation of water but also the cycling organic matter, while at the same time minimising threatening processes arising from surrounding land uses; and
- given there is limited resources, there be a prioritisation framework that include identifying high value ecosystems and managing the increased threats through various risk assessment processes and ongoing adaptive management.

Consistent with the above, the NPA believes the draft strategy would be improved if several modifications were made so that the document:

- Aligns its actions and direction to be more consistent with (or build on) previous policy and frameworks already developed by the NSW Government (or as part of COAG's initiatives) including; National Groundwater Strategic Framework 2016-2026, the previous work on Groundwater Dependent Ecosystems in NSW (DLWC 2002), and those associated with managing groundwater in the Murray Darling Basin.
- Include the specific processes, or components of the environment/ecosystem, that are the focus of the actions that mention changes such as 'improve', 'protect,' 'strengthen' or made 'better' as this will focus future management and enable more precise measurement of results in years to come. It widely appreciated that being underground, groundwater systems are complex to understand and manage and sustainable extraction regimes are challenging to define without this clarity the intent remains vague.

- modifies the actions stated within Priority 2 to include the words 'sustainable' not only to ensure there is a limit to the amount of the development that can occur but also to ensure: i) these actions align to the two of the three outcomes stated on page 12 of the document which refer to 'sustainably'; and ii) that the actions are aligned to NWI Policy Guidelines for Water Planning and Management (COAG 2010) which states that stakeholders should actively and transparently considering and settling the trade-offs between competing outcomes for water systems, using best available science, social and economic analysis and community input, and addressing impacts on affected water entitlement holders and communities.

Specific Comments

Priority 1: Protect groundwater resources and the ecosystems that depend on them

The NPA would like the planning logic underpinning this priority to be revised so that:

1. The outcome "*Our groundwater resources are sustained for current and future uses, and our important ecosystems that depend on groundwater are protected.*" is more clearly aligned to the words in priority 1. The concepts that underpin 'current and future uses' is already encompassed within strategic priority 2 and its associated outcome. If it is retained as an outcome within this strategic priority it:
 - will be inconsistent with the NSW Water Management Act 2000 which states the top priority is to protect the environmental health of all water sources
 - detracts from the priority stated that resource itself and ecosystems must be protected.
 - fails to acknowledge, and also requires management to consider embedding, the key threat to our groundwater and associated ecosystems is human induced environmental change. Changes in population, climate, resource use, land use, and land cover are widely acknowledged as the key threats. Extracting too much groundwater is already lowering water tables and reducing flows to wetlands and rivers. Moreover, climate change predictions of lower rainfall and runoff provide a clear signal that groundwater sources in NSW will only be under greater threat due to lower levels of recharge.
2. 'Protection' is a nebulous word: safe from what? And what component is important? We believe a phrase such as 'the integrity of' should follow in order to give a more concise understanding to management about what needs to be protected

In sum, the draft strategy recognises that there is over 200,000 ha of GDEs and 69 unique plant types are under threat in NSW. Some of the important groundwater-fed ecosystems include the Gwydir Wetlands, the Macquarie Marshes, the Narran Lakes east of Brewarrina and the systems of artesian springs, such as the Paroo, in the Great Artesian Basin which contain internationally important assemblages of wildlife. The integrity of these important assets must be given a clear priority in the plan.

Actions within Priority 1

1. Action 1.1 is endorsed as a response to adaptively manage the resource
2. 'Action 1.2. Better integrate groundwater management with other land and water management processes'. We make the following comments:
 - a. 1.2.1 needs to include a commitment to integrate groundwater and surface water plans
 - b. 1.2.2. In many coastal areas a lack of surface water and the over-development of anthropogenic activities critically threaten the sustainability of coastal GDEs and associated ecosystem services. Investigations aimed at improved outcomes must not only be about salinity - this needs to be supplemented by stronger assessment of other potential contaminations caused by local land-uses and human activities.

- c. 1.2.4 needs to include the National Groundwater Strategic Framework 2016-2026 actions of “*Support the continuation of coordinated groundwater research and training in Australia.*” and “*Reach cross-jurisdictional agreement on minimum data sets in formats consistent with a national framework to provide comparative information.*”
 - d. Additional: include the National Groundwater Strategic Framework 2016-2026 action of: “*Build on the National Atlas of Groundwater Dependent Ecosystems (BOM 2016) as a primary current source to identify potential Groundwater Dependent Ecosystems when preparing management plans and assessing development proposals.*” Indeed, management of groundwater-dependent ecosystems (GDEs) first requires unequivocal identification of ecosystems that are dependent on groundwater for the maintenance of their natural structure and function (Murray et al 2006).
3. ‘Action 1.3. Improve management and protection of groundwater dependent ecosystems and baseflows to streams’. This needs to be a key priority for the NSW Government as the draft strategy already acknowledges that groundwater resources and the ecosystems that depend on them are under pressure and that better information is needed to manage groundwater resources sustainably (i.e., this action should be moved to into horizon 1).

The NPA of NSW realizes this action requires a substantial work and thus we also recommend including the action of: ‘*maintain or implement assessment programmes of high priority groundwater resources, based on a risk-based categorisation, or resources at high likelihood of major development*’ as stated in the National Groundwater Strategic Framework 2016-2026. It this could be realized through the adoption of processes such as the ‘High Ecological Value Aquatic Ecosystems’ framework (Dabovic et al. 2019).

4. There are some key points missing within the commitments stated. Specifically:
- a. 1.3.1. mentions a commitment to connect GDES and sustainable limits, but:
 - i. it needs to include not just the resource (i.e., the GDE) but its health; and
 - ii. that such an assessment of health must occur before any additional access to groundwater sources is considered.
 - b. 1.3.2 Although water quality is mentioned, GDEs and base flow connectivity is also a critical consideration.
5. ‘Action 1.4. Review and update approaches to sustainable groundwater extraction’. There is no requirement to manage groundwater levels, however, the NSW NPA believes the management of aquifer drawdown must be a top priority of the Strategy as shown in Figures 14 and 15. Indeed it would make Action 1.4 the ‘quantity’ twin to Action 1.5 which has a ‘quality’ intent.
6. ‘Action 1.5. Protect groundwater quality within natural limits’ is supported

Priority 2: Build community and industry resilience through sustainable groundwater use

The section of the strategy identifies a series of actions that have a strong emphasis on encouraging economic growth over the protection of the environment which is not consistent with the priorities in the NSW Water Management Act 2000. It is hard to understand why the inclusion of ‘sustainable’ is listed as a key word in the priority statement and outcome and this is not repeated as a key word within the actions list.

Given climate change predictions are for a 15% reduction in recharge by 2060 and demand for groundwater for urban supply is expected to increase by 300% over the next 20 years, emphasis for the actions must also include concepts associated with risk such as ‘a precautionary approach’ and ‘adaptive management’ . The NPA recommends:

- ‘Action 2.1 Support towns and cities using groundwater to improve their urban water planning’ and ‘Action 2.2 Support economic growth using groundwater.’ The wording of these two

actions is not supported because there is no mention of sustainability in either the actions or the commitments. Groundwater and surface water often have strong interactions: these interactions result in groundwater discharge to the river or, conversely, in aquifer recharge through river and lake water infiltration (Boulton and Hancock 2006). Groundwater is particularly important to river flow in arid and semi-arid regions and in case of extended dry periods, during which evaporation markedly exceeds precipitation and surface water is scarce or even disappeared. Of additional concern in relation to this, is the recent gazettal of new floodplain harvesting entitlements. It is widely accepted that floodplain levees and harvesting activities acknowledged that can *reduce groundwater recharge volumes*. The combined result of action 2.1, 2.2, and floodplain harvesting entitlements sets up an unsustainable management regime for much of Western NSW.

- Action 2.2. The action 2.2.3 needs to include fostering the range of other innovative approaches identified in the National Groundwater Strategic Framework 2016-2026.

'Action 2.3 Support Aboriginal rights, values and uses of groundwater'. Water and water places are crucial to Indigenous peoples' spirituality, well-being, livelihoods and identities, and their aspirations for self-determination span cultural, political, and socioeconomic dimensions. The NPA therefore supports the acknowledge of Indigenous peoples in the plan. However indigenous water injustice can still occur in that context despite acknowledgement through 'water colonialism' (Moggridge et al 2020, Hartwig et al 2022). The abstract and detached notions of possessing 'resource entitlements' or having 'statutory protection' need to have a broader strategic intent. That being to implement a management regime which encompasses the wider recognition of relationality and mutual dependence by indigenous people: so that stories of the groundwater dependent areas and custodial relationships become central, and the conversations centred on the array of social, economic, and cultural relationships that underpin First Nations peoples' identities is considered (Hartwig et al 2022).

Priority 3: Improve groundwater management decisions with better information

Overall, the NPA of NSW strongly supports the intent of improving of groundwater management decisions with better information. The NPA considers the key actions include additional specifications such as:

- The knowledge plan also include the mapping of GDEs, particularly unique and important landforms such as karsts and mound springs, as well as culturally significant groundwater, and also include aquifer condition.
- Better sharing and integration of groundwater information include the development of a 'one-stop-shop' that is publicly available.
- Improving our understanding of groundwater resources include other social science aspects such as: i) indigenous water values and the values associated with unique landforms such as karsts; and ii) non-extractive values such as those associated with recreation, sport, and tourism (Murray et al 2006).

References

Boulton A. J., Hancock P. J. (2006) Rivers as groundwater-dependent ecosystems: a review of degrees of dependency, riverine processes, and management implications. *Australian Journal of Botany* 54, 133-144.

Dabovic Jodie, Dobbs Lucy, Byrne Glenn, Raine Allan (2019) A new approach to prioritising groundwater dependent vegetation communities to inform groundwater management in New South Wales, Australia. *Australian Journal of Botany* 67, 397-413.

DLWC (2002), *NSW State Groundwater Dependent Ecosystems Policy*, Department of Land and Water Conservation, Sydney

Lana D. Hartwig, Sue Jackson, Francis Markham & Natalie Osborne (2022) Water colonialism and Indigenous water justice in south-eastern Australia, *International Journal of Water Resources Development*, 38:1, 30-63, DOI: 10.1080/07900627.2020.1868980

Lana D Hartwig, Francis Markham & Sue Jackson (2021) Benchmarking Indigenous water holdings in the Murray-Darling Basin: a crucial step towards developing water rights targets for Australia, *Australasian Journal of Water Resources*, 25:2, 98-110, DOI: 10.1080/13241583.2021.1970094

Moggridge BJ, Betteridge L, Thompson RM (2019) Integrating Aboriginal cultural values into water planning: a case study from New South Wales, Australia, *Australasian Journal of Environmental Management*.

Moggridge BJ, Aboriginal people and groundwater, University of Canberra, 2020

Murray Brad R., Hose Grant C., Eamus Derek, Licari Damian (2006) Valuation of groundwater-dependent ecosystems: a functional methodology incorporating ecosystem services. *Australian Journal of Botany* 54, 221-229.

Conclusions

NPA can be contacted through [REDACTED]

Yours sincerely

[REDACTED]

[REDACTED]

protecting nature through community action