International Association of Hydrogeologists *Australian Geoscience Council*

Mr Richard McLoughlin
Department of the Environment
GPO Box 787
Canberra ACT 2601

Response to Draft National Groundwater Strategic Framework 2015-2025

Dear Mr McLoughlin,

Thank you for the opportunity to submit comments on the Draft National Groundwater Strategic Framework 2015-2025. (the Framework).

This submission has been prepared by the International Association of Hydrogeologists, with input from other members of the Australian Geoscience Council. It is a joint submission, and both organisations should be acknowledged in referring to this submission.

The *Australian Geoscience Council* (AGC) is the Peak Council of geoscientists in Australia. It represents eight major Australian geoscientific societies with a total membership of over 7000 individuals comprising industry, government and academic professionals in the fields of geology, geophysics, geochemistry, mineral and petroleum exploration, environmental geoscience, hydrogeology and geological hazards. The objectives of the AGC are to: provide expert apolitical advice to governments on matters involving the geosciences and their application; promote the development of scientifically sound policies for effective geoscience education and research; and provide the Australian public with a greater appreciation of the economic, environmental and cultural values of the geosciences.

The International Association of Hydrogeologists (IAH) is a scientific and educational organisation for scientists, engineers, water managers and other professionals working in the fields of groundwater resource planning, management and protection. Our mission is to further the understanding, wise use and protection of groundwater resources wherever they occur in the world. As a professional organisation, the IAH has a world-wide membership of more than 4000 individuals, with approximately 600 members in the Australian Chapter. Our members work in a variety of fields including government, natural resource management, consulting, mining and other industry and academia.

The wise use and protection of groundwater depends on science-informed management and water laws that facilitate and support this process. Therefore, the AGC and IAH have a mutual professional interest in the Framework.

General Comments

The AGC and IAH have reviewed the Framework and would like to raise the following points for consideration:

- We fully support the need for a comprehensive national groundwater framework. A strategic vision for groundwater over the next 10 years and beyond is critical to ensuring that the sustainable management of this valuable and often overlooked resource remains in the consideration of Commonwealth and State decision makers.
- We agree with the three priority objectives and statements. Key opportunities to enhance the Framework include how and when the goals will be achieved and who will be responsible for the actions. The Framework should contain recommendations articulating the process to move forward and implement the actions.

Improving the Framework

The following represent comments and additional actions that the AGC and IAH believe will improve the Framework. These improvements are listed under the Frameworks priority objectives:

- Sustainable extraction and optimal use:
    - Adaptation of our groundwater management to our unique climate. Records since the beginning of European colonisation show that we inhabit a continent which, over most of its area, has extended dry periods interrupted by shorter wet periods. This variable climate may become more exaggerated by climate change. Our approach to groundwater management is geared primarily towards long-term average extraction. Our licensing and management approach needs to be geared to this variability. In some areas where aquifers are robust it may be appropriate to promote the artificial enhancement of recharge (see below) during wet periods.
    - A significant “missing link” in the management of groundwater in Australia is large-scale Managed Aquifer Recharge (MAR). Large-scale MAR, particularly using spreading basins rather than injection bores, is especially suited to our variable climate. We are pleased to see MAR is mentioned in the Strategy but there is a need for specific, focussed investigations which assess the technical, economic and environmental feasibility of MAR and lead to its large-scale adoption, where appropriate.
    - Significantly drawing down surface water reservoirs during times of drought is routine in Australia. This also opens up space for water to be captured during wet periods. In contrast, the approach to groundwater management across much of Australia may actually limit the potential for the groundwater equivalent. In some cases, the underground reservoirs have little space to fill with MAR during wet periods because little space is allowed to be generated during dry periods. In some aquifers it may be appropriate to draw down groundwater levels during dry periods and allow them to “refill” in wet periods. This approach would be informed by appropriate science to understand impacts and benefits

to ensure the overall outcome was beneficial. This approach promotes aquifer management over a period of decades.

- The surface water – groundwater interaction issue of double accounting and double allocation continues to be ignored in some jurisdictions. This needs to be more explicitly dealt with in water management plans.

- Providing investment confidence:
  - Addressing the issue of over use, over allocation and not completing previous commitments to improve water management and the development of water management plans under the National Water Initiative (NWI) commitments signed by the Commonwealth and each state;
  - Addressing the issue of under use in some areas. There is an opportunity to address policy settings so there are not unreasonable restrictions on taking groundwater during dry periods. We also challenge regulators to find ways to ensure that groundwater is not "locked up" by relatively large unused allocations in some areas. Opportunities include investing in methods to free-up trade in groundwater. This may require the active investment of regulators or governments to open up trading, such as improved trading and brokerage tools and incentives to kick-start trade.
  - Fee structures: With a number of notable exceptions (NSW and Victoria) the introduction of NWI compliant transparent fee and charge structures on groundwater extractions for full cost recovery have not been implemented. Cost recovery structures based on the NWI principles should be equally applied regardless of the industry or purpose of the extraction. These principles have been agreed for more than two decades but are still not adopted across Australia.
  - Ongoing maintenance and improvement of groundwater monitoring and information networks should continue as a priority action to ensure the objectives of water management are able to be measured and evaluated. This will require significant investment to both manage the maintenance of existing networks (including decommissioning of no-longer used infrastructure) and target additional monitoring where it has the greatest cost benefit.
  - The issue of a lack of (or weak) compliance of licensing policies in some jurisdictions and illegal groundwater use needs to be given higher priority. Illegal use is a major disincentive to encouraging groundwater trading. It is recommended that regulators increase their investment in compliance activities, and that these costs are incorporated into a transparent fee structure. Governments are encouraged to set clear expectations on compliance to ensure investment is efficient.

- Planning and managing now and for the future:
    - Metering of groundwater use. Effective resource management requires metering. It is not acceptable for any state to continue to allow significant unmetered extraction of groundwater.
    - The development of management plans in all areas of high groundwater usage.
    - The adoption of conjunctive management as a core principle for water planning. Conjunctive use of surface water and groundwater resources involves coordinated management of both, such that excess surface water is stored in aquifers in wet years and withdrawn in dry years. In this way, the combined yield of both is optimised in an economic and environmentally responsible manner. There are many opportunities for conjunctive use across Australia and this approach to water planning is currently rarely used. (It is noted that frequently this is confused with surface water groundwater interaction. The two topics are not related.)
    - An approach to uncertainty that does not misuse the Precautionary Principle because there is scientific uncertainty. We consider that decision making should include consideration of whether there is clear evidence of threats of serious or irreversible damage and should include an assessment of risk weighted consequences of options. However, conversely, if there is no evidence of threats of serious or irreversible environmental damage, we contend that a lack of scientific certainty should not be used as a reason for postponing a decision on groundwater utilisation.
    - Planning and management should continue to be informed by science. Over the last decade, there has been substantial investment in our knowledge of groundwater resources. There is a clear requirement to ensure this knowledge is utilised. National information or data sharing platforms such as the Bureau of Meteorology “Australian Groundwater Explorer” are supported. Data platforms should be supported by knowledge platforms, where studies, investigations and learnings can be freely shared.
    - There is an ongoing need for focussed groundwater investigations in key geographical areas and hydrogeological domains to support resource planning and management. The IAH and AGC support a coordinated national program of focussed assessments and investigations to build from previous investment and equip resource management decision makers.
    - Across Australia there remains a significant paucity of knowledge of deep basin resources (>1,000 – 1,500m depth), their connectivity to shallower aquifers, and the economics of their utilisation. This has the potential to impede holistic decision making, due to uncertainty regarding the potential impact of resource extraction (e.g. unconventional hydrocarbons) on groundwater, groundwater users, surface water and ecosystems.

- There is increasing competition for groundwater resources between agriculture, town water supplies, conventional and unconventional petroleum, mining and geothermal energy. This is causing community concern (*e.g.* Lock the Gate movement). If governments struggle to manage the water demands of contending sectors, investors could lose confidence. Proactive development and adoption of interdisciplinary tools to model and manage complex groundwater systems at increasing depth are needed. Opportunities to support community involvement through increased groundwater education should be incorporated into planning. This will assist the community in making informed contributions to planning.

Finally, we would like to comment on the implementation of the Framework. While the current aim is to seek endorsement of the Framework we believe a much stronger approach should be adopted and that the relevant Commonwealth and State Ministers should:

- adopt the strategy as the blueprint for groundwater management;
- commit to its implementation;
- agree that implementation be publicly reviewed as part of the triennial review of the implementation of the National Water Initiative; and
- propose a timetable for the implementation of the Framework.

We are concerned that, without a commitment by the States and the Commonwealth to implement the Framework, the good intentions in the Framework will continue to be ignored.

The roles of the Commonwealth, states and territories are crucial, but are scarcely addressed in the document. The Commonwealth should play a major role, particularly where aquifers cross state and territory boundaries. Furthermore, existing national institutions are vital for information compilation and sharing. We look forward to seeing how this process develops and understand that these issues will be addressed more fully in the Framework process.

We would be pleased to discuss or clarify any of these above points, when convenient.

The IAH and AGC appreciate the opportunity to submit comments on this document. If you have any further queries on the content of our submission, please contact Kyle Horner, Secretary of IAH Australia (secretariat@iah.org.au), who will direct your queries to the relevant people within our organisations.

Yours faithfully,

Chris McAuley

President, IAH Australia

Dr Bill Shaw

President, AGC