7th November 2017

Australian Government Productivity Commission
Canberra

Dear Commissioners

Re: Response to the Productivity Commission's draft report on National Water Reform

Water Research Australia (WaterRA) welcomes this opportunity to provide a submission on the Productivity Commission's National Water Reform draft report dated 17 September 2017.

WaterRA supports the main tenet of the Productivity Commission's draft report that significant progress has been made in some areas, but further water reform is necessary and a national approach required to drive it. In particular, we reinforce the need for ongoing research and capacity building (Finding 8.1), due to its fundamental role in underpinning further urban water reform such as that needed to ensure that all water supply augmentation options are considered (Finding 6.3).

About WaterRA

WaterRA is a member-based organisation that over its 22 year history has enabled collaborative research, knowledge synthesis and capacity building within the water sector. Water RA began life in 1995 as the CRC for Water Quality and Treatment and was funded under the Commonwealth Government's Cooperative Research Centres Program for 14 years before becoming the successful, industry-funded, not-for-profit company it is today. WaterRA has 59 Members based all over Australia, with around half comprising industry organisations such as water utilities, government departments, regulators, and consultants, and half being research organisations, mainly universities. This particular combination of members is an essential part of our value proposition as it facilitates a path to impact for the new knowledge we generate. We work closely with the Water Services Association of Australia (WSAA) to understand the urban water industry's research priorities and wherever possible we endeavour to leverage Australian investment in research through our international collaborations. In addition we contribute to capacity building through sponsorship of research students most of whom (>90%) go on to become highly valued water sector employees.

Need for Investment in Capacity Building

The Productivity Commission has identified that further work is required especially to address gaps and limitations in existing policy settings and respond to new challenges posed by population growth, climate change and evolving customer expectations. It is important to acknowledge that past achievements of the NWI were enabled by significant national investments in knowledge and capacity building in water. Numerous multi-disciplinary, industry/ research collaborative teams (including WaterRA through its pre-cursor the CRC Water Quality & Treatment) contributed to delivery of science to underpin the guideline development, policy changes and other reforms that facilitated the NWI's successes. In the last few years however, several of these organisations have ceased operation eg the Centres of Excellence in Desalination and Recycling, or been de-funded CSIRO's Urban Water Theme, or have experienced significant reductions in scale eg the Water Team at the Institute of Sustainable Futures, University of Technology Sydney.

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This contraction has not just impacted the scope and scale of research able to be undertaken but also led to difficulty in attracting local students into research - the pipeline for Australian water experts of the future. In particular there has been a substantial reduction in scholarships available to offer high calibre students. For example over their lifetimes the recently closed National Centre of Excellence for Desalination awarded 42 honours and PhD research scholarships and the Australian Water Recycling Centre of Excellence hosted 25 higher degree students. Using industry funds, WaterRA continues to support 5 -10 new research students each year however this is around half the number supported by its pre-cursor the CRC for Water Quality & Treatment.

So while WaterRA strongly agrees with the Commission's Finding 8.1 that "ongoing research and capacity building will be central to Australia's ability to deliver the sustainable management of water", we highlight that the sector's research capability and capacity will require re-invigorating to achieve this. Furthermore, early consideration of the types of evidence and new knowledge required will be critical as the specific capability needed for its generation and adoption may need to be (re)built.

Maximising Value of research through sustained effort / enduring institutions

In addition to ensuring a base level of capacity is always available, enduring research and industry/government agency collaborations improve the likelihood of achieving lasting impact, enable long term complex problems to be tackled, and engender trust in the science they produce.

While it is good practice for knowledge transfer from research to be embedded during project delivery, there are integrative aspects of many programs that can only be transferred at the end. This can be problematic when the research entity is time bound such as a CRC, and can lead to diminished value realisation. Theoretically requirements for transition planning can help to alleviate this, however only 14 out of 89 previous CRCs have successfully evolved into an ongoing entity.

Collaborations with longevity have the benefit of being able to deliver to all horizons of research including Horizon 3 where sustained research around a complex subject or more fundamental transformational research is sought. (Many aspects of the challenges highlighted in the Productivity Commission's report fall into this category.) Such research takes longer to conceive and is often delivered as a multi-phase research program over many years. For example, a key benefit that has accrued to the water sector as a result of WaterRA's longevity has been the ability to tackle the complex challenge of managing blue green algae in drinking water sources. Our research is now providing foundation and applied knowledge to underpin solutions to water quality issues resulting from climate change.

National and international research and experience has shown the importance of trust in institutions and information presented when trying to secure community acceptance of new water sources. By having a track record of success and being a well-known part of the research landscape, enduring organisations have greater likelihood of engendering the trust needed to secure community confidence – essential for achieving the social licence to have ‘all supply options on the table’.

WaterRA thus draws the Commission's attention to the important benefits that could accrue through stimulating a national approach to water research that fosters long-lived, or ‘enduring’ collaborative ventures between research providers and water sector adopters, be they government departments, utilities, or regulators.

Sustained funding levels for research and capacity building

To achieve enduring collaborative partnerships will require sustained investment. Benchmarking by WSAA (Adam Lovell 'Urban Water R&D' presentation, Ozwater 2017) reveals that investment in R&D by the Australian water sector at 0.2% of revenue in 2015 has declined from 0.5% in 2010 and is low by

comparison to other sectors such as manufacturing (1-2.5%) or telecommunications (6%). A goal of 1.5 - 2% has been set by the UK water sector (UKWIR, 2011) and a similar target may be appropriate in Australia. To stimulate greater investment in water research by industry, real or perceived barriers may need to be addressed. For example justifying investment in research to price regulators can be challenging especially where there is uncertainty as to whether customer or business benefits will result. This is particularly the case for long term, Horizon 3 or more fundamental research when specific outcomes cannot be assured.

It is suggested that new or renewed incentives are also likely to be required. For example, mechanisms that stimulate research in other sectors, such as R&D Tax Credits, have reduced efficacy in the Australian water sector where utilities are publicly owned. We note that in the past the ability for the water industry to leverage its research investment through co-investment by government has proven to be an effective incentive.

However, in regard to government funding of water research, we urge that a new water agreement include mechanisms to avoid a solely 'boom / bust' or 'crisis-driven' approach as this can cause inefficiencies (eg anecdotally mounting a CRC bid today costs around $1million); lead to loss of skilled staff when funding is low (eg the redundancies among urban water researchers at CSIRO); and present a barrier to attracting high calibre staff/students.

Addressing Significant Challenges Ahead

For several of the reform priorities relating specifically to national policy settings and governance frameworks, WaterRA considers success will require greater understanding and consideration of challenges beyond the water security (quantity) aspects described in the draft report. In particular a greater focus on water quality is needed encompassing emerging contaminants, climate change impacts on source water, public health aspects of water management and their integration with frameworks designed primarily for water allocation, and customer's water quality expectations that especially in regional and remote areas can outstrip a service provider's ability to deliver.

Enabling all options for water supply augmentation to be considered (Finding 6.3) requires both adequate knowledge (scientific, technical, social, environmental and economic) and the corresponding social licence. While significant progress was made through the Centres of Excellence in Desalination and Water Recycling, this investment was drought driven and curtailed once infrastructure solutions to the immediate crisis had been implemented. Today WaterRA is working with its Members to identify knowledge gaps relating to Alternative Water Sources that were either not able to be addressed during the life of these time-limited organisations or have arisen subsequently as a result of changed drivers for supply diversification.

Support for a National approach

Without national and state based policy and regulatory frameworks supportive of integrated urban water management, water planners will remain challenged to transparently and publicly include centralised /decentralised, potable reuse and stormwater in the mix of supply augmentation options. Furthermore, it may not be sufficient to get all options on the table if there is inconsistency within and/or between the regulatory frameworks that will govern each options' successful implementation. For example, water quality must be considered when incorporating alternative water sources into allocation frameworks or regulation of managed aquifer recharge.

For Australian, State and Territory governments to efficiently identify the key knowledge and capacity building priorities to support ongoing implementation of the NWI (Draft Rec. 8.1) and ensure research investment is targeted, relevant, synergistic and timely, will require national co-ordination. The National Urban Water Research Strategy developed collaboratively in 2015 under the leadership of WSAA only

partially addresses this need. WaterRA points out that a complementary national research strategy for regional, rural and remote parts of Australia may be needed to support improved performance of regional water service providers, and assist Australia to meet its international obligations relating to the Sustainable Development Goals.

Concluding Remarks

In conclusion, WaterRA concurs with the Productivity Commission's overall finding that further water reform and national leadership is needed to fully address the goals of the NWI and that ongoing research and capacity building will be central to Australia's ability to deliver the sustainable management of water resources. However, in addition to the reports draft recommendations, we recommend that the new reform initiative also include:

- mechanisms/incentives for ensuring efficient and reliably-sufficient funding of research that addresses emerging challenges and opportunities, fills knowledge gaps, generates the evidence base that ensures rigour of new policies and regulatory frameworks, and supports the sustained focus and effort necessary to solve complex issues facing the water sector
- mechanisms/incentives for development and retention of capability and capacity within the sector to ensure necessary research can be delivered in a timely manner, and impact can be realised from research investment.
- the prioritisation of knowledge and capacity building related to water quality aspects of water resource management (and their interrelationship with water quantity) in recognition that these lie at the heart of many current barriers to progress of integrated urban water management, regional water supply challenges, and increasing customer expectations.

We thank you for this opportunity to provide our views on this important review

Yours faithfully

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