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Professor Jane Doolan

National Water Reform Inquiry
Productivity Commission
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Dear Commissioner,

The Institute for Sustainable Futures, University of Technology Sydney, appreciates the opportunity to respond to the National Water Reform Inquiry Draft Report.

Whilst we welcome the recommendations that IWCM and decentralised approaches are given equal consideration as other supply options, further work needs to be done to meet the NWI commitments for the urban water sector. These include addressing:

- The siloed, fragmented nature of regulatory and institutional arrangements for water, wastewater and stormwater
- Network costs of options
- The bias against demand management (including water conservation) options created by pricing approaches
- The Sustainable Development Goals.

Sincerely,

Professor Stuart White
Director
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Submission to National Water Reform Inquiry

The Institute for Sustainable Futures, University of Technology Sydney, strongly welcomes the Productivity Commission's draft recommendations that **IWCM and decentralised approaches** are given equal consideration as other supply options.

Draft recommendations 6.3 and 6.4 target key shortcomings in current practices and planning and regulatory arrangements. They have the potential to improve urban water security and liveability outcomes, including to build resilience to climate change. However, to achieve these outcomes, the recommendations also need to address:

- The barriers to delivering IWCM and decentralised approaches posed by the siloed, fragmented nature of regulatory and institutional arrangements for water, wastewater and stormwater.
- The need for water and wastewater infrastructure planning approaches to more explicitly include the costs (operation, maintenance, replacement) and potential risks of using existing network infrastructure. Transport infrastructure currently makes up a significant proportion of the cost share of service delivery. Much of this infrastructure is also significantly aging, but the benefits of IWCM, decentralised or demand-side options to defer or avoid the need for large-scale network infrastructure renewal are not usually adequately considered.

Additionally, the following two areas of change for the urban water sector require attention:

- 1) Regulatory and pricing approaches for customer water efficiency and conservation (demand management)
- 2) The United Nations' Sustainable Development Goals

We argue that without recommendations that address these issues, urban water and wastewater service delivery will still fall short of delivering the most cost-effective, economically efficient, equitable or sustainable outcomes.

1) Regulatory and pricing incentives for customer water efficiency (demand management options)

The Draft Report includes the following references to "demand management" (emphasis added)

"Australia's major cities are growing rapidly and it is essential that planning processes accommodate this growth. By 2050, there is expected to be an additional 8.3 to 13.3 million people living in Australia's capital cities (ABS 2013). This growth, coupled with the expected drying impacts and increased rainfall variability of climate change, means that the affordability of future water services will depend on efficiently supplying this growing demand. Supply options include both centralised infrastructure such as dams and

desalination plants and emerging decentralised supply options, such as localised wastewater reuse and stormwater harvesting. **Demand management can complement these supply options and help to balance supply and demand.**”

“Principles for good planning

- planning should be adaptive — an adaptive or ‘real options’ approach uses up-to-date information on uncertain factors, such as rainfall, to adjust and optimise system planning. A ‘set-and-forget’ approach will tend to perform poorly relative to a more adaptive approach under conditions of uncertainty. **Much of the benefit of demand management approaches, such as scarcity pricing and temporary water restrictions, comes from deferring supply augmentation decisions and adjusting these decisions in response to changing climatic conditions.**”

There is an additional need to:

1. Describe “demand management” instruments more broadly than implying they only encompass scarcity pricing or temporary water restrictions. Demand management instruments include customer water efficiency and conservation programmes across residential and non-residential sectors, as well as pressure and leakage management in the supply system. For example, programs of investment in retrofitting water efficient equipment or providing rebates for purchase of water efficient appliances have been demonstrated to provide cumulative long-term reliable demand reductions that are of greater magnitude, and far lower marginal cost, than options which increase supply. This is demonstrated in the 2006 Sydney Metropolitan Water Plan (page iv) where the water savings potential represents 145,000 Ml/a, relative to water recycling at 70,000 Ml/a and additional supply at 77,000 Ml/a. Typical marginal costs for water efficiency options are in the range 50-80c/kl, compared to \$1-3/kl for supply options.
2. Articulate the critical role this broad range of demand management options can play in achieving cost-effective water security for urban areas. Demand management not only “can complement” supply options nor are they relevant only during times of drought. Specifically, demand management, including water efficiency options must be considered on an equal footing, and not deliberately excluded, as supply and reuse options in order to achieve overall cost-effective outcomes, for both long-term and drought-response planning. See the 2006 Sydney Metropolitan Water Plan example above, and also see the National Water Commission and WSAA Guide to Demand Management and Integrated Resources Planning (2010).

Minor amendments to recommendations 6.3 and 6.4 would address this point, specifically the following additions (in bold):

DRAFT RECOMMENDATION 6.3

State and Territory Governments should:

- ensure that roles and responsibilities for supply augmentation planning are clearly allocated between governments and utilities
- require that decision-making processes are consistent with good planning principles, in particular that they consider all options fully and transparently, including **demand management approaches** and both centralised and decentralised approaches (including indirect and direct potable reuse, and reuse of stormwater), and are adaptive in response to new information

DRAFT RECOMMENDATION 6.4

State and Territory Governments should ensure that decentralised integrated water cycle management (IWCM) approaches are considered on an equal footing alongside other water supply and **demand** management approaches, particularly in the planning of new developments to support growth.

3. Make recommendations that address the bias against water efficiency (demand management) options inherent in the pricing approaches applied in most jurisdictions.

Regarding pricing (point 3 above):

- Despite significant advances in improving water efficiency, in many major urban areas the most cost-effective portfolio of supply and demand options still needs to continue to include considerable investment in water efficiency and conservation.
- However, since the end of the Millennium Drought there has been a significant erosion of resources dedicated by many water utilities to water efficiency programmes, and associated underinvestment in these options relative to what would be considered an overall cost-effective level.
- Standard pricing approaches (applied in many but not all states) preference capital supply options and bias against conservation options. Utilities are generally required to forecast demand and the prudent portfolio of supply options to meet that demand – but this excludes water efficiency options. The obligation to earn a rate of return on capital and hence the incentive to invest in capital further extends this bias – unlike infrastructure, water efficiency options do not generally require significant investment in capex, but require proportionally more opex. The energy sector has also faced these issues, the consequences being significant over-investment in “poles and wires”. Recent calls for reform in that sector demonstrate ways to address these issues. Reform ideas include revenue capping rather than price capping; and totex rather than capex/opex.
- The NSW Economic Level of Water Conservation (ELWC) approach is a different approach which is intended to identify economically efficient levels of investment in water efficiency and conservation initiatives. However, it has yet to demonstrate successful implementation nor to signal an appropriate level of investment in water conservation in any jurisdiction. The first iteration of the ELWC methodology as developed for Sydney, for example, appears to under value water conservation by not include significant probabilistic economic values that might be expected to result from investment in water

conservation. Similarly, the potential of water conservation to reduce the probability of triggering an expensive new drought supply during deep drought is not accounted for in current ELWC estimates.

2) Sustainable Development Goals

A number of other organisations from across the urban water sector have made submissions emphasising the need for this Inquiry to acknowledge that the United Nations' Sustainable Development Goals are important to achieving national water reform objectives.

The Sustainable Development Goals have been agreed to by all United Nations member states including Australia. Many Australian urban water utilities, businesses and higher education and research institutions have signed their commitments to achieving these goals.

The Sustainable Development Goals are the globally agreed framework to end poverty, protect the planet and ensure prosperity. The SDGs essentially aim to improve the welfare of all people, including by addressing inherent and systemic inequalities.

The global challenges faced by all societies and people – including Australia, and the water sector – are of an unprecedented magnitude and urgency. The uncertainty of impacts such as climate change are likely to expand in the future. New approaches to governance, regulations and decision-making will be required to address such challenges.

The SDGs will provide an agreed platform for stakeholders with differing views to consider flexible and new policy approaches, to ensure sustainable outcomes for all.

The management of water resources in Australia will face increasingly uncertain threats including climate change and impacts on water quality (including emerging pollutants). Water is characterised by a high degree of non-substitutability as a resource in the economy, as essential to the environment and ecosystems, and by society and people. These significant and ongoing issues collectively illustrate why the cross-sectoral, long-term SDGs are critical to inclusion in the national water reform principles.

The Institute for Sustainable Futures urges the Productivity Commission to take a leadership role in setting the direction for current and future public policy development, by acknowledging the Sustainable Development Goals in the reform principles in this inquiry. With regards to the urban water sector, whilst much progress has been made to pursuing water reuse, end use efficiency and water sensitive urban design and innovation (finding p 170), the NWI commitment has not been largely achieved. The SDGs provide a framework for the step-changes required.