Productivity Commission Issues Paper: Australia's Urban Water Sector

Submission from the Department of Water (Western Australia)

1 Scope of the issues paper

The issues paper is a comprehensive statement that supports the inquiry's terms of reference. This submission seeks clarification of one aspect of the inquiry's scope immediately below.

1.1 Relationship of stormwater and drainage to the urban water sector

The issues paper notes that water utilities and local governments in Australia manage stormwater and/or provide drainage services, however stormwater is not as explicitly considered by the terms of reference and issues paper as is wastewater. The extent to which the inquiry proposes to address stormwater should be clarified. The issues paper defines wastewater as including stormwater. It is more common to use the term wastewater to refer to sewage and trade waste transported from inside buildings through the sewerage system to treatment plants and the term stormwater to refer to water generated from rainfall events.

In determining its approach to considering stormwater, the inquiry may have regard to the characteristics of stormwater management that differ from those of water and wastewater services. Compared with water and wastewater services, the direct benefits of stormwater management and drainage services are shared among residents and the broader public rather than accruing to specific connected customers. Customers do not "use" drainage services in the way that they use water and wastewater services. Stormwater is increasingly being managed in a way that matches the overall landscape and local environmental characteristics (particularly in new urban developments) and thus the extent to which stormwater management is delivered as a drainage service by a large water utility is decreasing over time.

Stormwater/drainage services in Western Australia are currently provided by a combination of the Water Corporation and a number of local government authorities. In rural areas, stormwater/drainage services are generally provided by local government authorities with costs recovered from ratepayers.

2 Challenges for the urban water sector

This section provides information on some of the challenges faced by government in the urban water sector both in Western Australia and more generally.

2.1 Decline in rainfall and water inflows

In the South West of Western Australia there has been a measurable decline of rainfall and the current trend shows no evidence of it returning to historical levels. Since the mid-1970s, rainfall has declined by approximately 5 per cent per decade and published climate science indicates that this trend is likely to continue. This rainfall decline has resulted in approximately a 50 per cent reduction in stream flow as well as a reduction in aquifer recharge.

Inflows to public water supply dams have decreased dramatically, reducing their reliability as sources of supply. Groundwater resources have also declined, especially in the Perth region's shallow groundwater systems, the Gnangara and Jandakot mounds. Lowering of the watertable has resulted in groundwater-dependent wetlands drying out for longer periods, making them more vulnerable to acidification and fires. There is also less groundwater available at sustainable levels for use by garden bores, which can otherwise reduce demand on the urban water supply system.

The decline of inflows leads to increasing water scarcity and increased environmental impacts of water use.

2.2 Increasing demand

The expansion of development, coupled with population growth is increasing demand for water supply and wastewater services. For example, the Perth-Peel region is projected to increase from an estimated 1.7 million residents in 2009 to around 2.3 million by 2030. This increase includes more than half a million new residents in the Perth subregion and a doubling of the population in the Peel subregion.

Depending on the extent of climate trends and variability, there would be little if any capacity to increase licensed groundwater use in the Perth subregion without significant environmental consequences. Based on current water planning objectives, the amount of groundwater allocated for public and private use on the Gnangara Mound will need to be progressively reduced over time. If current per capita water consumption rates continue to 2030, demand for public water supply will exceed the capacity of Perth's scheme supply before 2030 even with the planned second seawater desalination plant (45 GL/yr) in production in 2011-12.

2.3 Water supply source costs

Water infrastructure is capital intensive, typically requiring large up front capital investment. With fewer opportunities for development of new groundwater and surface water sources, future water sources (such as desalination and recycling) are going to be more expensive than traditional options.

In Western Australia, approximately two-thirds of the total cost of urban supply relates to the upfront capital cost, with the remaining one third being the cost to operate and maintain the assets. Of this upfront capital investment, the majority of the cost (70 per cent) is in the cost of the conveyance infrastructure (pipes, pumps). The cost of water source infrastructure (bores, dams) themselves represents about 25 per cent of the total cost of supply.

Cheapest water sources are typically developed first. These are usually high quality sources in close proximity to users, traditionally being either dam or groundwater supplies. The water supply system for the Perth region currently sources 25-45 per cent of water from surface water dams and 35-50 per cent from groundwater. These sources cost less than $1 per kL to supply.

Water source infrastructure such as desalination plants become an increasing share of the cost of total infrastructure. The Kwinana Seawater Desalination Plant now supplies 15-20 per cent of water for the IWSS at a cost of $1.30 per kL. The next committed source is the Southern Seawater Desalination Project, which will initially provide 45 GL annually and will cost $2.10 per kL. This higher cost is mainly due to conveyance costs.

2.4 Supply augmentation planning

Section 5 of the issues paper sought input on questions relating to supply augmentation planning and setting of water security objectives. The focus of the inquiry on these issues is supported by this submission.

2.5 Cost of water security

As noted in the issues paper, a level of investment in water infrastructure that sometimes requires price or quantity rationing of water is more economically efficient than a level of investment that creates capacity that is infrequently used. The findings of the inquiry regarding the trade-off between infrastructure investment costs and water security will be of interest to WA government agencies.

As the cost of providing security in potable water supplies increases, alternative separate fit-for purpose supplies with different service standards (e.g. third pipes, stormwater harvesting and garden bores) become more competitive. On the other hand, investment in a system separate and additional to a centralised potable system may also increase overall cost. Investigation of this issue would be supported.

2.6 Need for increased investment in water services

The combination of increasing water demand, declining water inflows and increasing augmentation costs lead to potentially significant increases in the need for future investment in new water infrastructure.

While microeconomic reforms may offer a more efficient balancing of supply and demand, a key question for the inquiry is whether there is sufficient incentive for investment in water infrastructure to address the broader trends of demand growth and falling inflows and recharge.

2.7 Decision making for infrastructure investment

Large scale infrastructure investment is expensive and has significant budget impacts for governments. Therefore, investigation of options for private sector investment in the provision of water infrastructure would be useful .

The Economic Regulation Authority (ERA) *Inquiry into Competition in the Water and Wastewater Services Sector* made several recommendations that aimed to increase private sector participation in water and wastewater services, including:

- decisions about the procurement of bulk water be made independently of government and of the Water Corporation;
- establishment of a third party access regime;
- reforms to facilitate water trading; and
- contestability of payments for community service obligations.

The final decision on these recommendations is a matter for the Western Australian Government.

The federal government is also currently undertaking significant infrastructure expenditure. Given the priority of infrastructure investment as an issue in the urban water sector, it is important that Commonwealth government investment is made strategically, based on clear criteria that ensure that it efficiently and effectively achieves identified economic and social outcomes. This is a matter where the Productivity Commission is well placed to make a valuable contribution to policy.

2.8 Water services for Indigenous communities

The issues paper sought information on whether equitable access to water and wastewater services is a significant issue in Australia.

There are over 200 discrete Indigenous communities in Western Australia (WA)[1], accommodating approximately 17,000 Indigenous people. The quality of water services provided to Indigenous communities does not meet similar standards to those generally provided to other communities of similar size (for larger communities). Providing access to appropriate water and wastewater services in Western Australia's remote settlements is a significant challenge due to labour constraints and the high cost of service delivery to small, geographically dispersed and very remote communities.

The COAG National Partnership Agreement on Remote Service Delivery includes a set of National Principles for investment in remote locations. This policy seeks to facilitate the implementation of COAG's commitments to equitable service delivery and to closing the gap in Indigenous outcomes.

This includes the principle that:

> "Remote Indigenous communities and remote communities with significant Indigenous populations are entitled to standards of services and infrastructure broadly comparable with that in non-Indigenous communities of similar size, location and need elsewhere in Australia."

Ensuring access to appropriate water and wastewater services in Western Australia's remote settlements is a significant challenge, partly due to the high cost of service delivery to small and remote communities.

3 Regulation and pricing issues

This section provides information related to matters raised by the issues paper on regulatory frameworks and pricing issues.

3.1 Linking water infrastructure planning to land planning

Western Australia has developed a system – *Better urban water management (BUWM) (WAPC, 2008)* – to integrate land and water planning. It is designed to assist government agencies, developers, consultants and planners to understand what information should be provided about total water cycle management to support planning decision making. The information required to be provided to support decisions ranges from whether new major developments can access water services, to water sensitive urban design for stormwater and groundwater drainage management.

[1] Source: Department of Indigenous Affairs

BUWM supports efficiency by ensuring that strategic questions around water management are asked and answered as early as practical within planning process rather than deferring until the last minute. This means that if a proposed development can not access water then planning approval to re-zone the land is not given. This is in contrast to earlier processes where the issue of water would not have been raised until subdivision at which time developer pressure would have been applied to the government to provide a solution – often a costly exercise for the government and householders who eventually face all the additional costs. BUWM also supports a more considered approach to forward planning where development pressures can be identified and inter-agency efforts devoted to finding appropriate solutions in a timely manner.

3.2 Cost reflective pricing

Section 6 of the issues paper notes that debate about pricing reform has included proposals for wider implementation of cost reflective pricing. Cost reflective prices help ensure that the decisions of individual water users are based on accurate signals, that there is sufficient revenue to pay for supplies and that there is scope for potential new market entrants to earn a return on investment.

The 2009 final report of the ERA *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water* recommended price increases for urban water use, wastewater and drainage charges. The Government has approved these increases recommended for 2010-11.

In Perth, increases in water use charges were driven by the costs associated with the construction of a second desalination plant. In country areas, the volumes of tariff blocks were adjusted so that fully cost reflective prices began at lower volumes of use (see section 3.8). Charges of country towns that had lower costs than Perth previously paid the same prices as Perth but will now move to prices that reflect their own scheme costs.

Part of the recommendations of the ERA *Inquiry into Developer Contributions to the Water Corporation* and the *Inquiry into Recycled Water Pricing in Western Australia* that promote cost-reflective pricing are also being implemented.

3.3 Environmental regulation and externalities

By definition, a complete assessment of economic efficiency necessarily includes all costs, including social and environmental costs and consequences for third parties (for example, other users of rivers and groundwater). Any reform proposals should be consistent with this principle.

The issues paper sought input on whether these externalities should be accounted for in water and wastewater pricing.

In Western Australia, the licensing of taking water from rivers and groundwater to ensure use is within sustainable limits is the predominant method of minimising negative environmental externalities associated with using water from rivers and groundwater. Likewise, pollution licensing and environmental approval for treatment facilities is the predominant means of minimising negative environmental externalities of discharging wastewater to the environment. Without sound regulatory arrangements, the environmental impacts associated with water use and wastewater discharge could have been much higher. Whether pricing should be used to manage externalities depends on whether it this can be shown to be more efficient and effective than current methods.

Inclusion of environmental externalities into pricing has also been examined by the ERA in two inquiries. The *Inquiry into Recycled Water Pricing in Western Australia* recommended that externalities be considered in the pricing of recycled water projects on a case-by-case basis. This recommendation was supported by the Government. The *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water* investigated whether an externality premium was warranted in relation to abstraction of groundwater for Perth's water supply, however its final report did not make any recommendation on this matter.

3.4 Regulatory frameworks for managing health risks

Many aspects of the regulation of urban water aim to protect the public from risks that would have serious or catastrophic consequences particularly with regard to health outcomes. It is essential that any analysis of the urban water supply sector explicitly recognises the ongoing importance of public health aspects of the urban water sector.

The objectives of drinking water, wastewater and recycled water regulation include ensuring that drinking water is safe to drink and that wastewater does not damage public health. As well as potentially causing illness or death, water contamination incidents can cause significant social disruption leading to economic losses, for example through lost time at work, the need to modify behaviour such as by boiling water, judicial inquiries and loss of confidence in water utilities and regulatory frameworks and the reliability of essential services. Any microeconomic reform proposals should ensure adequate management of health risks is secured as a priority.

This is best achieved by ensuring that the regulatory framework in any jurisdiction is risk based, focussed on public health at a legislative level and is sufficiently flexible to effectively regulate the activities of a wide variety of actors.

3.5 Full assessment of benefits and costs of regulation

Regulation that is based on sound public policy favours systems that are proven at minimising risk and delivering services. Innovations exhibiting the increased complexity and diversity that may be associated with more decentralised approaches also need to meet public policy outcomes to an equivalent degree of safety. Implementation of the framework of the "Australian Drinking Water Guidelines" and the "Australian Guidelines for Water Recycling" requires a significant commitment and resources, from providers and regulators alike, to ensure that water is treated to fit for purpose in a reliable manner.

The inquiry has sought input on the benefits and cost of regulation and on whether existing regulations are efficient. Any proposal to adjust regulatory arrangements would need to be subject to an evidence based assessment to take account of the full range of potential consequences for complex water and wastewater systems. Some possible consequences, for example are:

- increased risk to public health, especially in the event of heatwaves or major meteorological events;
- reduction in water consumption by end customers may lead to water remaining in the network for longer, adversely affecting water quality; and

- critical public facilities such as hospitals, emergency management response centres and some businesses have been designed to be dependent upon the current high levels of reliability and quality.

3.6 Regulatory approval processes for alternative water supplies

In addition to the pricing, regulation and other signals to potential investors that are being examined by the inquiry, there are a number of other potential barriers that may influence the adoption of new technologies and market entry. These potential barriers include the gaps in understanding of new technologies, their risks, community resistance, how they relate to existing systems and uncertainty about the capability of new service providers. These factors can result in increased attention by government regulators. This has been highlighted in the difficulties experienced by the proponents of recycled water projects.

In Western Australia the regulatory agencies are working together to prepare an across-agency approval framework for non-drinking water schemes in order to streamline regulatory processes. Agencies and non-government entities involved in its development include the Departments of Water, Health, Environment and Conservation, Planning, and Commerce (Building Commission/Plumbers Licensing Board), the WA Local Government Association and the Urban Development Institute of Australia (WA). In the past, proponents have had to approach each of the regulatory agencies individually for advice on the approval requirements, sometimes resulting in conflicting advice. This new approval framework identifies a single agency, the Department of Water, as responsible for coordinating advice from the approving agencies on non-drinking water proposals, so that proponents will receive a single, consolidated response bringing together planning, public health, environmental and water resource management requirements. It is expected that this approval framework will lead to an increasing uptake of non-drinking water schemes in WA by providing clear and timely advice (the approval framework includes a commitment to meet assessing timeframes) to proponents on the requirements for their scheme.

The document was formally released in October 2010 as a draft for consultation, to allow it to be tested and refined as needed, with a formal review scheduled for end of 2011. Further effort is improving planning and regulatory consideration proposals to integrate potable, non-potable and sewerage services.

3.7 Non-price demand management

"Permanent Water Efficiency Measures" in Western Australia include sprinkler rosters. The advantages of Western Australia's Permanent Water Efficiency Measures include that they:

- are significantly less financially expensive than new water sources and have helped avoid significant public sector expenditure;
- encourage water efficient gardens and public open spaces;
- conserve water and energy; and
- enjoy wide support from the community, who accept the need to use water carefully.

However water restrictions can also impose cost and inconvenience on users. The Economic Regulation Authority of Western Australia *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water* recommended that demand restrictions be reconsidered once the second

desalination plant is operational. Any decision to reconsider restrictions will be a matter for Government.

Other non-price demand management measures implemented by the Western Australian Government include a water efficiency rebate program which ran from February 2003 to June 2009. An assessment of costs per kilolitre of water saved during the program indicated that most rebate products were more expensive than the alternative of producing more potable water. Given the above, non-price demand management measures that are implemented to influence demand outside of cost-reflective pricing must be judged individually on a proposal's costs and benefits.

3.8 Postage stamp pricing

The inquiry noted that one reform option that has been raised is the removal of postage stamp pricing, allowing prices to vary by location.

Since 2006, the Economic Regulation Authority of Western Australia has conducted two inquiries into country water and wastewater prices. The outcome of these inquiries was that commercial and high use residential customers (consuming more than 550 kL per year in the South and 750 kL per year in the North) are now being transitioned towards cost reflective prices, up to a cap of $5.94 per kL (2010/11 prices). A state-wide tariff cap policy applies to country residential customers with lower consumption, whereby charges are capped at metropolitan residential rates.

The government pays a Community Service Obligation payment to the Water Corporation for low volume residential consumption and for customers where the cost of the services is above the tariff cap.