Unit 3, Gateway Business Park
63-79 Parramatta Road
Silverwater NSW 2128

T +61 2 9647 2633
F +61 2 9647 2977

www.nubian.com.au

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Australia's Urban Water Sector
Productivity Commission Issues Paper
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Submission by Nubian Water Systems

Background

The Productivity Commission ("PC") is examining Australia's Urban Water Sector. It will report on the case for microeconomic reform, and identify pathways to achieving improved resource allocation and efficiency in the urban water sector.

The PC's report will
- identify opportunities for efficiency gains
- provide options to achieve identified gains
- propose a work programme for the options

The key objectives, of the Urban Water Sector, are to provide water and wastewater services to households and industrial businesses, in large and small cities, towns and smaller communities.

There are a number of impediments to achieving these objectives, including drought, climate change, population growth and reducing water quality in rivers, dams and aquifers

Distributed Water Systems

In Nubian's view, distributed water systems can and will make an increasingly important contribution to the removal or minimisation of these impediments.

Distributed systems have been defined as follows;

"In essence, distributed systems are a highly networked and localised approach to production, distribution and consumption"[1].

The strength of distributed systems lies in their inherent ability to

- *"Reduce costs and resource use*
- *Improve security and reduce risk of failure*
- *Strengthen local economies*
- *Strengthen community wellbeing*
- *Regenerate and protect the natural environment*
- *Redefine traditional water systems"2*

Distributed systems can be implemented across a spectrum of sectors, scale and applications;

- Sectors and Scale
  - Onsite – residential, commercial, industrial
  - Subdivision, redevelopment
  - Small community
  - Forming part of a larger network
- Applications
  - Replace remotely supplied drinking water with a diversity of local sources
  - Recycle water and/or treat wastewater on site or locally

They have features that make them very valuable in overcoming the impediments to achieving the objectives of the Urban Water Sector;

- They are responsive to acute situations such as drought. They are small scale, flexible in configuration, and have shorter delivery time.
- Climate change brings shifting rainfall patterns – traditional dam sites may no longer be ideal. Existing infrastructure can become redundant. Using distributed systems, we can rapidly deploy a wide range of tailored solutions at the local and decentralised level.
- Increasing populations require servicing in numerous locations – the incremental investment in central infrastructure, required to reach expanding outer perimeters, may not be cost effective or timely. Small scale solutions can be implemented as stand-alone or integrated with existing networks.
- Pressure on existing resources reduces quality – aquifers and rivers become more saline. Alternate sources can be enabled where available or where required.

While there is a clear and compelling need for a rapid increase in the use of distributed systems as part of the solution, there are however a number of impediments to the growth of distributed systems with the Urban Water Sector;

- The Urban Water Sector is characterised in many cities and regions by a structure of monopoly or near-monopoly suppliers. This structure leads to monopoly behaviour. Incumbent centralised suppliers and water authorities are

[1] http://www.ecoinnovationlab.com/uploads/attachments/234_Distributed%2520Water%2520Systems.VEIL.pdf

[2] Ibid.

often threatened by the perceived competition that distributed systems bring to the market.

- Regulation is possibly the greatest impediment to distributed systems making a contribution to achieving the objectives. There are multiple layers of regulation in each state with little uniformity, in policy and guidelines, among the states. In some cases state guidelines are opposed and with inexplicable rationale. Some examples are;
  - In Victoria, commercial and multi-dwelling greywater treatment systems cannot be used to provide recycled water for toilet flushing if the system has a capacity of < 5,000 litres per day. This is because the Victorian regulators perceive small systems to be high risk, while in Queensland, commercial greywater treatment systems with a capacity of < 3,000 Lpd, ca be used to provide recycled water for toilet flushing with a recycled water quality at domestic levels (which is significantly less than is required for commercial applications in Victoria or for large commercial applications in Queensland). This is because the Queensland regulators perceive small systems to have relatively low risk.
  - In NSW, bacterial levels of 40 cfu/100 mL for swimming at public beaches is considered safe, while all states require bacterial levels to be <1 cfu/100 mL to be safe for toilet flushing when using recycled water (other than the Queensland example referred to earlier).
  - State regulatory agencies are not uniform (examples are EPA, Health, Infrastructure, Justice) and may have conflicting agendas
  - Regulatory bureaucrats are often part time and many have little understanding of the issues and the technologies they are responsible for
  - The cost and complexity of meeting regulators' requirements are a strong disincentive to the rollout of distributed systems. This is acting directly at odds with the stated aims of state and federal governments.
  - Further the requirements of the states are in a constant state of change, and there is no certainty of direction and extent of the changes to regulatory requirements.
  - Currently, it is not possible to manufacture and sell a standard greywater treatment system, whether single dwelling or commercial, which will meet the requirements of all states.
  - For an emerging industry, relying on innovation and requiring significant investment in research and development, this creates an impossible and unnecessary situation.

In order to facilitate the rollout of distributed systems thereby achieving the benefits of their contribution to achieving the objectives stated above, there are a number of opportunities which should be pursued;

- Redesign the existing Australian regulatory structure. Through the National Water Commission or other similar body, introduce a common regulatory regime throughout Australia.
- Regulation should continue to be risk based but rational – the current tendency of some state health regulators to eliminate risk at any cost needs to be re-examined holistically. We need to remove the ability of regulators to regulate distributed systems "out of existence" by the application of increasingly higher hurdles, for little if any benefit to the community.
- Regulate outcomes and allow operators and engineers the freedom to determine how best to deliver the outcomes.

- Provide positive incentives for the development of water quality enhancement and risk minimisation initiatives.

We thank the Productivity Commission for the invitation to make a submission to this important review and hope that we have made a positive contribution to the process.

Yours sincerely

Phillip Krasnostein
Technical Director
Nubian Water Systems