# Australia's Urban Water Sector
# Productivity Commission
# Draft Report April 2011

## Submission by Stormwater NSW

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# Key points

Stormwater NSW welcomes and strongly supports a national and broad focus on urban water management. The Productivity Commission is to be commended on its draft report in and how it has sought to document and contextualize the current and possible future directions of urban water reform within its terms of reference.

Stormwater NSW would like to see a greater focus on the ***current and future role of stormwater*** as a contributor to urban water management. This must extend beyond the simplistic role of stormwater as a supply for domestic rain tanks and position stormwater as a viable and complementary potable and non-potable source across a range of scales from domestic to regional systems.

By extension there must be greater focus on the ***cost to maintain*** current and future stormwater infrastructure. This needs to consider: current and future storm events and flooding under climate change scenario (as has been a traditional focus); the planning, construction and maintenance of various water sensitive urban design features; and to provide a transparent and accountable mechanism to track expenditure against urban water plans and policies (including local government and water utilities). It would appear that the draft report has not incorporated stormwater costs as a contributor to the costs of urban water infrastructure and services. Consequently, Stormwater NSW would like to see pricing and charging of stormwater services be a separated charge on utility and local government billing. This would enable consumers to clearly understand the cost to manage this asset against the agency or local government's services that would include basic maintenance and capital upgrade of the conveyance system and broader water sensitive urban design solutions such as stormwater harvesting schemes.

There is a need for greater coordination and planning for the management of urban water reform across ***various catchment scales***. For stormwater this needs to transcend local government areas and other institutional arrangements that influence asset ownership and maintenance.

***Government policy*** in the urban water sector must transcend the current reaction based on water scarcity as reflected by restrictions and discussions on water pricing. To this end greater attention needs to be given to 'fit for purpose' water as part of the supply chain, particularly for non-potable purposes such as industry and irrigation. Stormwater harvesting is able to provide a significant contribution notwithstanding its reliance on rainfall.

# Introduction

Stormwater NSW links the diverse and multi-disciplinary interests of all stakeholders of the Stormwater Industry and represents them at both a state and national level. The Association is a not for profit organisation that exists only to serve its many individual and corporate members in NSW. Stormwater NSW sits under the national umbrella Stormwater Industry Association that supports other state associations in Queensland, Victoria, South Australia and Western Australia. In total the national association has 174 individual members, 209 corporate and sustaining members.

Stormwater NSW promotes innovative and sustainable practice technologies, standards and policies that minimise adverse environmental, social and economic impacts. The Association also facilitates an understanding of the roles and responsibilities of agencies and partners in working to improve the management of our natural and built stormwater systems, provides an advisory and reference service for the industry and promotes the concept that stormwater is a resource.

The objective of Stormwater NSW is to enable local practitioners and the broad community to learn about available stormwater management and quality technologies, provide a platform which encourages interaction between the multiplicity of disciplines and parties engaged in our industry and encourage the development and understanding of new technologies. The Association also provides opportunities for all interested practitioners and organisations to network within and across disciplines and to influence stormwater policy, legislation and industry guidelines at local and national levels.

Underlying much of the direction of SIA NSW in the past 10 years has been the promotion of integrated urban water cycle management with a specific focus on raising the importance and contribution of stormwater as a key factor and contributor to urban water management. This has incorporated the uptake of Water Sensitive Urban Design (WSUD) to embrace water including stormwater as a resource. This differentiates from a more traditional view that has seen stormwater as a flood management issue. This broader view has been captured by various water utilities, government agencies, private developers and researchers who acknowledge resolving urban water problems must extend beyond a simple analysis of potable supply, waste water treatment and flood management as has dominated much of the water planning for urban areas. In this regard, this submission seeks to encourage the Productivity Commission to further broaden its focus and attention to give stormwater greater prominence as viable supply option across multiple scales as well as recognising the important contribution that stormwater makes to the management of urban waterways and the landscape.

# Stormwater as a supply option

Stormwater (and wastewater) needs to be given greater policy, legislative and financial support to mainstream its contribution as a viable supply option at multiple scales within the urban water sector. The Productivity Commission has noted the example of Orange City Council (p13, 29) in its endeavour to integrate urban runoff into the potable supply scheme. Although the ongoing regulatory environment affecting this project has unfortunately limited its ongoing use outside severe water shortages there needs to be stronger national policy frameworks and guidelines that support the implementation and ongoing use of stormwater as a central part of water supply options. Such arrangements could also draw on the experience of Adelaide as part of its groundwater recharge scheme and also international experiences such as Singapore as cited in the draft report.
There are many sub-regional stormwater harvesting schemes in operation across Australia that are positioned between regional systems and domestic rain tanks. These typically provide water for irrigation of open space areas, such as golf courses and ovals, and augment the supply for industry where non-potable water is a viable option. The contribution of such schemes should be given greater attention as they are increasingly being constructed by local government and the private sector as an important part of the water supply system. Evidence of the emergence of these sub-regional systems in Sydney can be found at http://www.waterforlife.nsw.gov.au/recycling/water_recycling_projects.

# Cost of water services

The cost of water and waste water services would seem to exclude the management of stormwater assets (p14). Typically this borne by a combination of local government and the local water utility; however, it is unclear if this cost breakdown is reflected in Table 2.1. While it is acknowledged that stormwater would comprise a smaller fraction of the total cost of a typical $1000 charge, it is appropriate to itemize stormwater as a separate cost as it represents part of the urban water system and infrastructure.

In NSW, local government is able to impose a fixed stormwater charge that is to be used exclusively for the management of its stormwater services. While accepting that such a change goes some way to reflect the cost of provision of this service, it does not cover the full cost incurred nor is there separate accountability of this charge with respect to the breadth or scope of services that are funded.

The Commission asserts that there are very few variable costs in providing stormwater services that tend to enable pricing to be fixed (p162). While Stormwater NSW tends to agree with this assessment, there is a need for ongoing and cumulative investment in stormwater services that responds to demands by NSW Government to invest in water efficiency, such as stormwater harvesting schemes. These require additional investment over and above current operational budgets. Such maintenance costs are often and falsely assumed to be able to be incorporated within current maintenance budgets or factored into productivity savings.

# Asset management

Local government in NSW is required to assess the condition of their assets to assist in long term business planning. This includes stormwater infrastructure. Theoretically this should identify the condition and in turn inform investment decisions

to improve asset condition covering various aspects from capital investment, land use policy to maintenance practices. However, these expectations are large and likely to be unfulfilled due to a number of reasons including:

- the current rate capping conditions that exist in NSW (the only State in Australia to have such an impost)
- the asset management process is unlikely to involve detailed hydraulic and hydrological modelling and monitoring to assess actual performance of the stormwater system to cope with various rain events
- to what extent the systems can cope with anticipated changes in storm frequency and intensity as a result of increased forms of development (infill and greenfill) as well as climate change
- the implications to private and public property as a result of asset failure (that would extend to structural collapse and system failure under certain rain events)
- the breadth of stormwater infrastructure that would be included as part of the asset review such as the landscape elements of water sensitive urban design features.

Therefore the quantitative assessment of the condition of stormwater assets is unlikely to provide the full picture of the state and future investment required for this asset class. These broader factors should inform the analysis of the investment decisions required to more holistically manage urban water resources and particularly where decisions on the contribution of stormwater assets are seen as contributing to urban water investment and returns as part of any economic analysis.

# Flood mitigation

Stormwater systems provide the major infrastructure in managing flooding and overland flow in urban areas. These must be designed and maintained to cope with extreme events. While there are technical, economic, social and environment limitations to the degree of protection, current and future investment in this area should not be underestimated. In this regard all agencies involved in flood mitigation and management should be required to disclose their level of investment and programs designed to manage this risk. This is anticipated to become more critical to many cities under climate change as extreme events are anticipated to occur more frequently with greater severity.

# Policy and regulatory setting

## *Water restrictions*

Water restrictions have been used in NSW by various water utilities and the state government as a viable means to manage potable water use. Accompanying the restrictions government has tended to support stormwater harvesting and other water conservation initiatives. However the support for these incentive schemes is finite and reactive to periods of extended drought.

Stormwater NSW would encourage the Productive Commission to investigate the impact of continuing various policy and government incentive schemes as a proactive and reactive mechanism to mainstream the conservation of potable water supply and encourage the growth of water recycling. Examples could include ongoing restrictions or limits on the use of potable water for the irrigation of golf courses and ovals. This would have multiple benefits including: maintaining an ongoing interest and skill development in design, construction and maintenance projects; reinforcing

community and government perspectives on the value of potable water as a resource; incrementally improve the quality of runoff entering waterways; and maintaining a stable investment program to support ongoing innovation.

### *Health and water quality*

Health and safety of recycled water remains a significant impediment to its introduction as both a non-potable and potable urban water supply. As noted by the CSIRO, 'Australian approaches to the health risk associated with reclaiming and reusing rainwater, stormwater, greywater and wastewater generally have been very conservative and cautious' (Hatton_MacDonald and Dyack 2004, p. 3). The authors allude to a number of recent technological and management innovations that will result in safer application of reused water. However, harvesting and reuse of stormwater and recycled sewage appears to have been caught up in the debate about health issues with little consideration as to its use as a resource; 'failure to recognise the potential worth of recycled sewage ... is one of the major impediments …similar problems arise with stormwater' (Hatton et al 2004, p. 15).

As more stormwater harvesting schemes become operational, the industry will learn many lessons on how to operate, manage, and maintain these schemes. Coupled with this should be an increase in the confidence and understanding of users as to the purpose of the water and its application as a non-potable resource. The industry must learn how to minimise health risks, liability and water supply shortfall potential. This should be guided at a national level so as to overcome state and regional inconsistencies that occur presently that only serve to confuse rather than inform design processes and operational maintenance.

## Institutional and governance arrangements

In Sydney the planning of urban water management has been dominated by a central water monopoly for nearly 150 years. Consequently, it is not surprising that the role of local government and specifically stormwater management is not well documented in literature and in turn reflected in state and national policy reform agendas. In NSW at least the State Government has played an increasing role in urban water management through strategic planning and policy for water demand and supply and the management of drinking water catchments. This is reflected in the recently formed NSW Office of Water is now leading this with other responsibilities being allocated to the Independent Pricing and Regulatory Tribunal and the Department of Planning.

As reflected in the 2010 Metropolitan Water Plan stormwater management remains a minor factor in the potable and non-potable water supply arrangements despite the potential of this sector to facilitate and manage decentralised water systems. This is in spite of strong community support for water recycling and the involvement of local government by local residents. The continued emphasis on the centralised provision of bulk water as the major potable supply and wastewater (largely concerned with sewage) only seeks to perpetuate an indifference to stormwater as part of urban water management. In this regard Stormwater NSW would like to see:

- a greater emphasis given to case studies that document the positive contributions that stormwater reuse can make to urban water supply;
- how the effective stormwater management is able to positively influence the condition of waterways and

- the importance of flood management as a central part of urban water management that has tended to have drought as its catalyst of focus (notwithstanding the recent floods affecting Brisbane).

### *Development approvals and regulation*

A significant portion of the stormwater infrastructure occurs on private property with the specifications and performance typically imposed as part of the development approval process. However, the ongoing review and assessment of these systems (such as on-site detention and retention scheme, rain-water tanks including connection to non-potable purposes) goes with very little to no monitoring and evaluation. If the water sector is to rely on the cumulative contribution of smaller developments to the broader catchment water reform (as is clearly evident as part of demand management schemes such as dual flush toilets there needs to be investment and support for an ongoing monitoring and regulatory system. This would be particularly relevant where third party operators may be involved in the purchase and use of stormwater as a commercial water supply arrangement (as at p334) where there access to stormwater would be calculated as a function of runoff less that used by the private landholder at source.

### *Skills shortage*

Stormwater NSW concurs with the concern regarding the current and long term skills in the urban water sector. As there have been rapid changes in the focus in urban water reforms, there has not been a commensurate re-education of the existing water professionals to the new policy ideals. This is particularly notable in the lack of suitably qualified and experience water and environmental engineers and scientists.

## Land use planning and development control

The legal, planning and policy arrangements affecting stormwater services have historically provided limited protection and consideration to urban riparian environments. This area is also silent in the Productivity Commission's report apart to passing references to environmental externalities and environmental and other public goods

There are five main factors that need consideration if there is to be stronger integration of urban water reform to the broader urban land use planning and development. These include:

1. the traditional value of rivers is positioned as having only a utilitarian function to manage flooding;
2. there is limited appreciation of riparian areas as an biodiversity resource;
3. there is a failure to recognise the cumulative impacts of development that also extends to the ever increasing water footprint needed to support urban areas;
4. there is an inadequate legal definition of a 'river' as defined in legislation and interpreted by the courts which in turn limits the effective integration of landuse planning within the principles of integrated urban water management; and
5. there is legal and policy ambiguity around the property rights to water particularly in urban areas that affect runoff, capture and storage (as would be the case for farm dams in regional areas). This in turn influence the hydrology and general condition of streams and waterways in urban areas.. This is a complex area defined by legislation, regulation and common law.

> The main questions for consideration are: 1. Who owns the right to use the harvested water? 2. Who has the 'rights' to access water-related infrastructure? Ultimately, it is necessary to define property rights along the full length of the hydrological cycle as this will be the only way to reduce uncertainty for private investors. An example of this uncertainty occurred in Sydney some years ago. A large 'greenfield' industrial estate was developed and it included the construction of a central water body/lake. The lake captured stormwater runoff with the intention of reusing the water. However, the State Government claimed rights to the harvested water and the owners of the estate were not able to use the water in the manner in which they originally intended. This was noted in the review by CSIRO ' …who owns stormwater is not well defined though responsibility for managing the water is straightforward and defined. With the encouragement of full cost pricing, water restrictions and catchment planning and management, the issue of stormwater is likely to become a more interesting question' (Hatton et al 2004, p. 15).

These factors must be given greater attention if urban water reform is to make significant inroads as part of a broader sustainability agenda.

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