Submission to Environment and Communications References Committee on Senate Inquiry into Stormwater Management

Dr Peter Freewater currently coordinates a variety of urban water management programs for Greater Sydney Local Land Services (GS LLS):

- WSUD in Sydney
- Sydney Harbour Catchment Water Quality Improvement Plan (SHCWQIP)
- Botany Bay Water Quality Improvement Plan (BBWQIP)
- Sydney Consortium for the CRC for Water Sensitive Cities (CRC WSC)
- Sydney Harbour Coastal Zone Management Plan (SHCZMP)

These programs are all interrelated and deal with the best practise management of urban stormwater for water quality outcomes, water supply outcomes, social, economic and environmental benefits. Dr Freewater has developed funding models for collaborative partnerships between local and state government agencies that are currently funding most of these initiatives. Financial Project Partners for the SHCWQIP include GS LLS, 17 Local Councils (i.e. Ashfield, Blacktown, Parramatta, Holroyd, Strathfield, Canada Bay, Ryde, City of Sydney, Burwood, Ku-ring-gai, Auburn, Manly, Lane Cove, Woollahra, Marrickville and Leichhardt), NSW Office of Environment and Heritage, Roads Maritime Services and Sydney Water. Other partners include the Sydney Institute for Marine Sciences (SIMS) and Harbour City Ferries. These same organisations, together with the Sydney Coastal Council Group and the Parramatta River Catchment Group, are now also partnering in the development of a whole of government, whole of catchment, Estuary Processes Study and Management Plan for Sydney Harbour; the Sydney Harbour Coastal Zone Management Plan (SHCZMP). There are currently 11 members of the Sydney Consortium for CRC WSC, which includes: 7 individual Councils (namely, City of Sydney; Blacktown; Fairfield; Hornsby; Ku-ring-gai; Newcastle; and Warringah); The Cooks River Alliance (a partnership of 8 Councils and hosted by Strathfield Council); and 3 State Government Agencies (namely, NSW Department of Planning & Environment, Metro Water Directorate and GS LLS).

Dr Freewater is currently working towards a collaborative partnership between all of Sydney's local government and state government agencies, together with the federal government, to unite all programs within a self-funding Urban Water Management Program. To achieve this objective, potential partners will be requested to sign a Memorandum of Understanding and contribute funds on an annual basis. In return, partners are provided with technical support, training, seminars and other outputs (including model policies, management plans, planning instruments and decision support tools) to assist them with stormwater management and improving the social amenity and ecological resilience of Sydney. The program is to begin in July 2015.

The overarching objective of the Urban Water Management Program will be to make Sydney a Water Sensitive City through the vehicle of water-sensitive urban design (WSUD).

WSUD is a land planning and engineering design approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban

design to minimise environmental degradation and improve aesthetic and recreational appeal. WSUD is catchment management in urban areas. It is a paradigm that proposes the designing and retrofitting of urban landscapes to be more sympathetic to the natural water cycle.

WSUD Principles

- Protecting and enhancing creeks, rivers and wetlands within urban environments;
- Protecting and improving the water quality of water draining from urban environments into creeks, rivers and wetlands;
- Restoring the urban water balance by maximising the reuse of stormwater, recycled water and grey water;
- Conserving water resources through reuse and system efficiency;
- Integrating stormwater treatment into the landscape so that it offers multiple beneficial uses such as water quality treatment, wildlife habitat, recreation and open public space;
- Reducing peak flows and runoff from the urban environment simultaneously providing for infiltration and groundwater recharge;
- Integrating water into the landscape to enhance urban design as well as social, visual, cultural and ecological values; and
- Easy and cost effective implementation of WSUD allowing for widespread application.

WSUD Objectives

- Reducing potable water demand through demand and supply side water management;
- Incorporating the use of water efficient appliances and fittings;
- Adopting a fit-for-purpose approach to the use of potential alternative sources of water such as rainwater;
- Minimising wastewater generation and treatment of wastewater to a standard suitable for effluent reuse and/or release to receiving waters;
- Treating stormwater to meet water quality objectives for reuse and/or discharge by capturing sediments, pollution and nutrients through the retention and slow release of stormwater;
- Improving waterway health through restoring or preserving the natural hydrological regime of catchments through treatment and reuse technologies;
- Improving aesthetics and the connection with water for the urban dwellers;
- Promoting a significant degree of water-related self-sufficiency within urban settings by optimizing the use of water sources to minimise potable storm and waste water inflows and outflows through the incorporation into urban design of localised water storage;
- Counteracting the 'urban heat island effect' through the use of water and vegetation assisting in replenishing groundwater.

WSUD Benefits

Manage catchments to maintain or improve water resources

- Manage runoff from all rainfall events as high in the catchment as possible.
- Post development hydrology should mimic pre-development conditions.
- Maintain or improve water quality of surface water and groundwater.
- Manage, protect and restore waterways and wetlands.
- Minimise pollutant inputs through implementation of appropriate non-structural controls.
- Retain native vegetation and natural landform.
- Protect public drinking water source areas.
- Safeguard the quality and availability of water resources for the future.

Manage risks to human life and property

- Provide adequate clearance from 100-year average recurrence interval flooding and surface or groundwater inundation and waterlogging.
- Prevent flooding or inundation of upstream or adjacent developed areas.
- Manage surface water flows to prevent damage to downstream infrastructure and assets.
- Manage risk to public health from disease vector and nuisance insects.

Ensure the efficient use of water resources

- Minimise water use within developments.
- Maximise water reuse, including using wastewater and harvested stormwater.
- Achieve highest value use of fit for purpose water, considering all available forms of water for their potential as a resource.

Ensure that economic, social and cultural values are recognised and maintained

- Enhance social amenity through multiple use corridors and by integrating water management measures into the street and lot landscape to increase visual, recreational, cultural, public health and ecological values.
- Implement water management systems that are economically viable in the long-term.
- Ensure the delivery of best practice urban water management through planning and design of high quality urban areas in accordance with sustainability and precautionary principles.

Improve water quality for economic benefits

- Increased biodiversity results in more resilient ecosystems
- Enhanced productivity in waterways
- Increased fish stock for recreational and commercial fisheries
- Protection of aquaculture such as oyster industry
- Increased tourism
- Increased property value

The concept of a self-funded Urban Water Management Program has arisen from the realisation of state and the federal government budget savings. Because of these budget savings, the success and the longevity of the Urban Water Management Program will be dependent on the securing of partnerships now and in the future. This submission, therefore, seeks the support of the Environment and Communications References Committee in the establishment of the Urban Water Management Program for Sydney and to work collaboratively with the federal government to assist with the funding and future direction of the Program. This collaborative funding model for integrated stormwater management, water security and ecological resilience, which could be used across Australia, is offered for your consideration.

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