



BUSINESS CASE

Business Case for a Water Sensitive Urban Design Capacity-Building Program for South Australia

December 2012

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Summary

In May 2012 the Adelaide and Mount Lofty Ranges Natural Resources Management Board engaged Alluvium Consulting and Kate Black Consulting to assess the business case for the implementation of a capacity-building program (CBP) for water sensitive urban design (WSUD) for South Australia. The project was overseen by a Steering Committee that represented a range of stakeholders across the South Australian WSUD industry.

The project objectives were to develop a business case that includes an assessment of: the **need** for a WSUD CBP in SA; a **structure** for a WSUD CBP that addresses the assessed needs; an **implementation plan** that sets out the 'who, what, when, where, why and how' of the WSUD CBP, including costs and evaluation; and the **benefits** to SA of implementing the WSUD CBP.

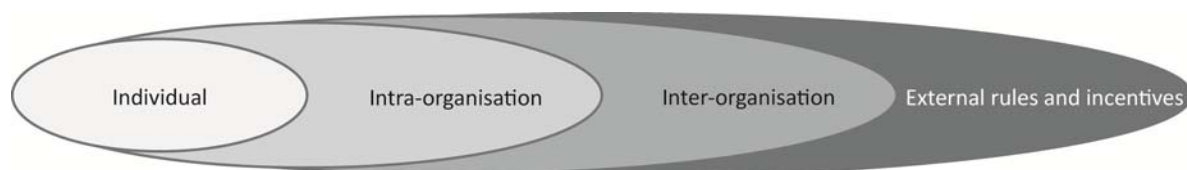
Context

The South Australian Government has committed to the implementation of a policy framework for accelerating the use of WSUD techniques across the State's urban centres, including Adelaide. Recent consultation on this framework strongly highlighted the importance of capacity-building as a critical foundation to support the uptake of WSUD in South Australia. The importance of a sustainable and ongoing CBP for WSUD is well demonstrated in other Australian jurisdictions. While various agencies in South Australia run training courses in WSUD, to date an ongoing and broadly-based CBP does not exist.

This business case assesses the needs for a WSUD CBP for SA by focussing on the following three themes:

- **Policy implementation.** The capacity of the industry to implement the State Government's *Water for Good* (2009) plan and *The 30-Year Plan for Greater Adelaide* (2010).
- **Managing existing infrastructure.** The expertise of industry to manage construction and maintenance of urban water infrastructure, and transition the stormwater infrastructure of the whole city to a new standard over the life of the assets
- **Meeting industry needs.** Meeting the needs of the existing WSUD industry and facilitating a more efficient and increased uptake of WSUD.

While exact causal relationships are difficult to establish, a substantial amount of academic effort has gone into researching the effect of capacity-building. Based on a detailed literature review, a conceptual model describing four spheres of capacity building (Brown et al., 2006) has been chosen as a way of framing this business case assessment:



Method

The business case was informed by three key means: a literature review; a review of interstate WSUD CBPs; and stakeholder engagement and needs analysis. Between June and September 2012, eight research activities, both qualitative and quantitative in nature, were used to collect data from stakeholders. These engagement activities consisted of an online practitioner survey, workshops, site visits, one-on-one interviews, and an online discussion forum, as well as sector-specific forums and meetings. The 'Water Sensitive SA' brand, including a dedicated website (www.watersensitivesa.com), was created to provide a platform for this engagement.



Industry needs analysis

Results of the stakeholder engagement activities are sourced from a total of approximately 400 people, associated with 16 industry associations, over 100 organisations, and 22 local councils. Key themes that emerged from this engagement on the gaps in industry capacity (skills, knowledge and governance) can be summarised as:

- **Institutional capacity.** In particular, the ability of various agencies and sectors to work together, collaborate on projects, and discuss and debate the technical, political and socio-economic issues.
- **Lack of project experience.** Compared to other urban centres around Australia there are relatively few examples that can be used for training and other educational uses.
- **Engineering guidelines.** A lack of awareness and application of existing WSUD technical guidelines for SA and a desire to regionalise several of the interstate guidelines to South Australia's context.
- **Coordinated approach to training.** While several organisations currently offer technical WSUD training there is no central place for practitioners to mix with other disciplines and discuss issues.
- **Advocacy.** Limited advocacy at an industry-wide level to create momentum towards achieving more water sensitive outcomes at the local level.
- **Policy.** The issue of state policy for the requirements for WSUD on all types of development was raised as an area that inhibited the uptake and implementation of WSUD.
- **Life-cycle costing.** A lack of understanding of both the capital and maintenance costs associated with WSUD was identified as a key barrier to WSUD adoption.
- **Monitoring and evaluation.** Further monitoring and evaluation was required to understand the case for WSUD.

Benefits of a WSUD CBP

A range of potential direct and indirect benefits associated with implementing the proposed CBP were identified as part of the business case assessment, across the social, economic, political and environmental spectrum, and in relation to the three key areas of need for a WSUD CBP for SA. The majority of these benefits are not readily quantifiable in a financial sense.


Based on three scenarios (1%, 5% or 10% improvements in efficiency), the potential savings in WSUD costs for SA was estimated to be between \$120,000 and \$1,200,000 per annum through the improved design, construction, operation and maintenance that a CBP would enable.

The two greatest and most immediate risks to not implementing a CBP are the lack of industry support to deliver any forthcoming WSUD policy at a State level, and a possible industry backlash. The ability to attract professionals to South Australia and to secure further grants (Australian Government and others) will also be at risk without a CBP.

An additional cost of not implementing a CBP, which has been observed interstate, is the liability that poor design, construction, operation and maintenance of WSUD poses to the financial sustainability of local councils. If a system needs resetting or modifying due to the lack of knowledge and skills of the designers, or inadequate consultation with stakeholders and the community, then the cost of WSUD will increase. This is an avoidable cost and a clear reason to support a CBP.

Options

The recommended option (Option E) incorporates an information portal, regionalisation of interstate guidelines, delivery of technical training programs, and facilitation of a Community of Practice. This option aims to engage practitioners at all levels of learning – self-directed, directed, mentoring and peer-to-peer –



and is likely to provide significant opportunities to support emerging leaders while generating a more inter-connected SA water sector, bridging government, research and industry. It is designed to address capacity needs at the individual, intra- and inter-organisation, and external rules and incentives levels, with the potential to address all three of the overarching themes related to the need for a CBP in SA. Further, this option recognises capacity differences among local councils and industry while also developing collaborative relationships with research organisations – assisting the connection of science, policy and practice.

Structure

It is recommended that a SA WSUD CBP be governed by a cross-sectoral Steering Committee and operated by three full-time staff members (Program Manager, Professional Development Coordinator and Research Liaison Advisor). This simple governance structure relies on the CBP residing within a host organisation that can provide office space and services, as well as a legal and operational framework for the program. While the program may benefit from presenting itself externally as independent, its association with a strategic host organisation would be beneficial as the CBP establishes its credibility with program partners and active links with the SA water industry.

The ideal host organisation would have aligned strategic objectives, state-wide reach, and strong relationships with relevant sectors. Several options for a potential host organisation are considered by the business case, but no particular recommendation is made. Options for hosting do not preclude the CBP from arranging secondments and placements whereby closer relationships are built with particular local councils, state government departments, or non-government organisations.

Implementation Plan

The high-level implementation plan included in this business case includes recommendations related to program objectives, staging, evaluation, champion and identity, as well as a cost estimate. The implementation plan is broken into four stages, beginning with a program establishment stage and followed by Years 1, 2 and 3 of program delivery.

The estimated cost is \$15,000 for the establishment phase, and approximately \$400,000 each year for the first three years.

Funding model

It is recommended that seed funding be contributed by the NRM Boards and relevant state government departments to establish the CBP, with contributions from research bodies, local government, industry and user-pays revenue building over time. Other organisations, including relevant industry associations or agencies such as the EPA, are likely to be better placed to make in-kind contributions to the program.



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Abbreviations

Alluvium	Alluvium Consulting Australia Pty Ltd
AMLR NRM Board	Adelaide and Mount Lofty Ranges Natural Resources Management Board
ASR	Aquifer storage and recovery
AWA	Australian Water Association
CBP	Capacity-building program
CRC WSC	Cooperative Research Centre for Water Sensitive Cities
DEWNR	SA Department of Environment, Water and Natural Resources
DFW	Former SA Department for Water
DPLG	Former SA Department of Planning and Local Government
EA	Engineers Australia
EPA	South Australian Environment Protection Authority
FTE	Full-time equivalent
IPWEA SA	SA Division of the Institute of Public Works Engineering Australia
LGASA	Local Government Association of South Australia
NRM	Natural Resources Management
PIA	Planning Institute of Australia
SA	South Australia
SA MDB NRM Board	South Australian Murray-Darling Basin Natural Resources Management Board
SIA SA	Stormwater Industry Association of SA
SMA	SA Stormwater Management Authority
UDIA	Urban Development Institute of Australia
UniSA	University of South Australia
WSUD	Water sensitive urban design



1 Introduction

In May 2012 the Adelaide and Mount Lofty Ranges Natural Resources Management Board, on behalf the project Steering Committee, engaged Alluvium Consulting and Kate Black Consulting to assess the business case for the implementation of a capacity-building program (CBP) for water sensitive urban design (WSUD) for South Australia.

The project was overseen by a Steering Committee that represented a range of stakeholders across the SA WSUD industry. Steering Committee members were from:

- Department of Environment, Water and Natural Resources (DEWNR), including staff assigned to:
 - Adelaide and Mount Lofty Ranges Natural Resources Management Board (AMLR NRM Board)
 - South Australian Murray-Darling Basin Natural Resources Management Board (SA MDB NRM Board)
 - Sustainable Water Resources Cluster
- Local Government Association of SA (LGA)
- Stormwater Industry Association of SA (SIA SA)
- SA Environment Protection Authority (EPA)
- SA Division of the Institute of Public Works Engineering Australia (IPWEA SA)
- Goyder Institute for Water Research (though not a member at the commencement of the project)

1.1 Objectives

The project objectives were to develop a business case that includes an assessment of:

- The **need** for a WSUD CBP in SA
- A **structure** for a WSUD CBP that addresses the assessed needs
- An **implementation plan** that sets out the ‘who, what, when, where, why and how’ of the WSUD CBP, including costs and evaluation
- The **benefits** to SA of implementing the WSUD CBP.

It is understood that this business case will be used as the basis for establishing a sustainable and ongoing CBP for WSUD in South Australia, in line with the Government’s commitment to increase the adoption of WSUD across the state. The primary audience for this business case are government agencies, industry groups, and research cooperatives that have the potential to commit resources (fiscal and/or in-kind) towards the program's establishment.

The document is not intended to present the case for WSUD generally. There is much research and documentation on why WSUD is considered to be the best approach to retrofitting and building new water infrastructure and how it can provide multiple benefits to a city (Water by Design, 2010, Wong, 2000 and Department for Water, 2011), but this subject was outside the bounds of this project.

1.2 Approach

Figure 1 presents the approach taken to deliver the project. It links the objectives, method and results, which correspond to sections of this business case.

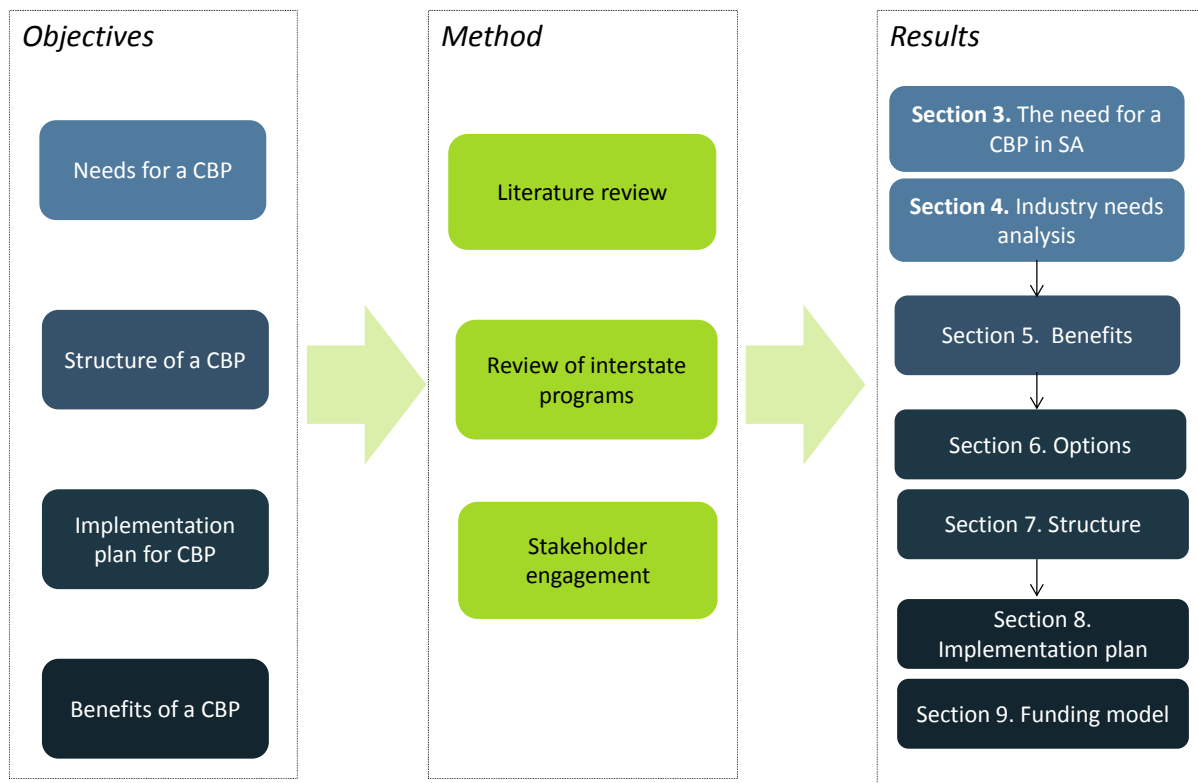


Figure 1. Process undertaken in developing the business case

1.3 Definitions

This business case focuses on two particular issues: capacity-building and water sensitive urban design. It also makes reference to ‘the industry’. For the purposes of this business case, the following definitions apply.


South Australia’s key water policy *Water for Good* (2009), describes **WSUD** as:

“...an approach to urban planning and design that integrates the management of the total water cycle into the land use planning and development process.”

This definition is expanded upon in the *South Australian WSUD Technical Manual* (2010), which breaks WSUD down to include the following elements:

- *“Integrated management of groundwater, surface runoff (including stormwater), drinking water and wastewater to protect water related environmental, recreational and cultural values;*
- *Storage, treatment and beneficial use of runoff;*
- *Treatment and reuse of wastewater;*
- *Using vegetation for treatment purposes, water efficient landscaping and enhancing biodiversity; and*
- *Utilising water saving measures within and outside domestic, commercial, industrial and institutional premises to minimise requirements for drinking and non drinking water supplies.*

Therefore, WSUD incorporates all water resources, including surface water, groundwater, urban and roof runoff and wastewater.”



The definition of **capacity-building** is taken from a United Nations Development Program definition (United Nations Committee of Experts on Public Administration (2006)):

“Capacity development is the process by which individuals, organizations, institutions and societies develop abilities to perform functions, solve problems and set and achieve objectives. It needs to be addressed at three inter-related levels: individual, institutional and societal. Specifically, capacity-building encompasses the country’s human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity-building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environment potentials and limits and of needs perceived by the people of the country concerned.”

This business case is focused on improving the capacity of the WSUD **industry**. The term industry in this context includes any sector that has an involvement or influence on the design, construction, and operation and maintenance of WSUD. This includes the engineering, planning, urban design, construction, regulatory, maintenance, and communication and marketing disciplines.

2 Context

This section outlines a short history of WSUD. The history of WSUD is important in the context of how and why a CBP would influence the future direction of WSUD in South Australia.

2.1 History of WSUD in SA

1980s The beginnings of WSUD in South Australia go back to the 1980s. In the 1980s and 1990s South Australia had some leading academics that worked with the industry and local government. **Professor John Argue** is one of the pioneering academics in South Australia who was active in progressing WSUD at this time. The creation of the 'River Torrens Linear Park' has been described as one of the early moves towards water sensitive urban design (Thomas, A., 2012, pers. comm.).

1990s The first stormwater quality treatment system (that had more than a gross pollutant objective) in Adelaide was designed and constructed in the early 1990s, with **New Brompton Estate** in 1991 often cited as one of the early examples (Argue, J., 2012, pers. comm.). A number of projects were supported by the former Catchment Management Subsidy Scheme (subsequently replaced by the Stormwater Management Fund administered by the Stormwater Management Authority). Other pilot sites include:

- **Mawson Lakes** (Gatti, S., 2012, pers. comm.)
- **Parfitt Square** (Argue, J., 2012, pers. comm.)
- **Tea Tree Gully (Dry Creek Catchment)** wetlands (Brook, G., 2012, pers. comm.; see Figure 2)


From a community perspective, a stronger political commitment to WSUD was driven by concerns about the adverse impacts of urban development and re-development on the health of South Australia's waterways and receiving waters (see the Adelaide Coastal Waters Study, 2007). South Australia has some strong community organisations, including the Friends of Gulf St Vincent and the Conservation Council of South Australia, which were both active and supportive of WSUD due to the downstream environmental benefits.

In the late 1990s, the Catchment Water Management Boards were established under the Catchment Water Management Act (1995). These were precursors to the Natural Resources Management Boards, and were also strong advocates of the principles of WSUD. In 1998 the '**Watercare**' program, a Catchment Water Management Board initiative, was established. It focused on improving waterways and promoted the general concepts we now associate with WSUD.

The history of WSUD in South Australia includes significant progress in the planning, design, implementation, operation and monitoring of stormwater recycling schemes. **City of Salisbury** is known around the world for being a leader in the implementation of WSUD. This type of WSUD started in the 1970s and came of age from the mid-1990s when stormwater treatment wetlands began to be coupled with **aquifer storage and recovery (ASR)** schemes to overcome the problem of storing treated water over low demand (winter) periods (Gatti, 2010).

2000s Local and streetscape stormwater quality assets continued to be piloted across the state in the 2000s. The City of West Torrens, City of Onkaparinga, City of Mt Barker and many other councils started to incorporate these principles into retrofit and new capital works. The forecourt of the **South Australian Museum** is another high profile site built early in the 2000s.

The **Stormwater Management Authority (SMA)** was established on 1 July 2007 as a body corporate under Schedule 1A of the *Local Government Act 1999*. The SMA manages the State contribution to the Stormwater Management Fund, towards *"the development of stormwater management plans; carrying out of works or the acquisition of land in accordance with an approved stormwater management plan or otherwise for the purpose of stormwater management; community education and awareness programs; projects or measures relating to water quality or pollution abatement;*



investigation, research, pilot programs or other projects relating to stormwater management and payment of the operational costs or expenses of the Authority.” (Stormwater Management Authority, 2011.)

In 2007, the then SA Department of Planning and Local Government (DPLG) created the **‘Institutionalising Water Sensitive Urban Design in the Greater Adelaide Region Project.’** The initiative scoped capacity solutions to support the development of interim WSUD targets (climatically and regionally relevant). This scope included the translation of WSUD principles and objectives into the actual performance of systems; preparation of technical documents and guidelines; plus the delivery of training modules. The capacity-building program did not receive seed funding.

In 2009, the South Australian Government released its water security plan, *Water for Good*. *Water for Good* includes two commitments related to WSUD, these being to introduce targets for WSUD and to introduce the best regulatory arrangements for mandating WSUD, dovetailing with The 30 Year Plan for Greater Adelaide.

2010s In 2010 the **Stormwater Taskforce** was established for the purpose of considering mechanisms to deliver on the various stormwater related commitments in *Water for Good*. With senior representation from the Adelaide and Mount Lofty Ranges Natural Resources Management Board (AMLR NRM Board), (former) Department for Water, Goyder Institute for Water Research, Local Government Association (SA), SA Water and Stormwater Management Authority, the Taskforce produced the ***Stormwater Strategy – The Future of Stormwater Management*** in July 2011. This Strategy included an action to introduce interim targets for WSUD by 2011, leading to a policy framework for WSUD.

In January 2011, the SA government released a ***Water Sensitive Urban Design Consultation Statement*** to generate industry debate and commentary on the establishment of WSUD targets and associated solutions to drive the uptake of WSUD. Widespread and considerable support was provided by the industry on the establishment of consistent, scientifically proven targets to guide urban development and re-development. The statement included the establishment of a parallel capacity-building initiative to support the legislative and/or regulatory frameworks.

Today To date stormwater recycling schemes in place or under design and construction in South Australia will provide a harvesting capacity exceeding 20 gigalitres (Department for Water, 2012) per year. The leading advocates for stormwater recycling schemes have been local councils and the regional Natural Resources Management Boards.

In the current environment, several local councils in South Australia, and some developers, are including passive stormwater treatments in capital works, but these are mostly opportunistic and not driven through regulation.



Figure 2. Early WSUD site: Tea Tree Gully wetland (Source G. Brook).

2.2 Current policy environment


There are two overarching State Government policies that are relevant to the issue of WSUD in South Australia. These are *Water for Good* (2009) and the *Planning Strategy for South Australia* which includes *The 30-Year Plan for Greater Adelaide* (2010).

The South Australian Government's key water policy is *Water for Good*. The aim stated in this Plan is 'by 2050 to secure water resources (conservation, stormwater quality and quantity)' (Department for Water, 2009) and to 'be recognised as a water sensitive state'. Action 67 of *Water for Good* says, 'By 2013, develop and implement the best regulatory approach for South Australia to mandate water-sensitive urban design, dovetailing with The 30-Year Plan for Greater Adelaide' (Department for Water, 2009). Action 68 says, 'Introduce targets for water-sensitive urban design by 2010' (Department for Water, 2009).

A WSUD policy statement is nearing completion and is intended to be released before the end of 2012.

The 30-Year Plan for Greater Adelaide sets the strategic direction for urban growth in Greater Adelaide. One of the key attributes of the plan is a greater focus on infill development: 'Over the life of the Plan, the ratio of infill development to fringe development in metropolitan Adelaide will gradually shift from the current 50:50 until about 70 per cent of all new housing is being built within existing urban areas to create an efficient urban form' (State Government, 2010). The plan indicates that there will be:

- 258,000 additional dwellings across the Greater Adelaide Region
- A rise in the average gross density from eight to 11 dwellings per hectare across Greater Adelaide (See Box 1 for a case study)
- A release of 10,650 hectares of land for development.



From a water perspective, the 30-Year Plan identifies eight relevant policies, one of which is the target in Water for Good being “Mandate WSUD for all new developments (including residential, retail, commercial, institutional, industrial and transport developments) by 2013.” There are seven water related targets included in the plan.

BOX 1: Holdfast and Marion infill development case study

In 2009 the City of Holdfast Bay and the City of Marion partnered on a project to consider the implications of *The 30-Year Plan for Greater Adelaide* from a water management perspective. They commissioned Jensen Planning and Design to report on the issue. The report identified that the region’s residential density will potentially more than double (from 15 dwelling per hectare to 32 dwellings per hectare). The change in density will also alter the impervious percentage of the catchment, with new developments generating increased stormwater quantity and flood peaks, and decreased stormwater runoff quality. The conclusions from the report included:

Approximately 1,347 hectares of land are located in the new growth areas.

Approximately 89% of this area will potentially be covered with impervious surfaces (including road reserves), leaving only 11% of this area with permeable surfaces. This compares broadly to the existing situation in suburbs comprised of traditional sized residential blocks (>600 square metres), which generally have over 35% permeable surfaces.

It is recognised that there may also be additional residential growth that is not within the dedicated growth areas that is spread throughout the suburbs. It is expected that this will continue, but it will not be as significant in terms of its impact on stormwater management as the impact of concentrated development in the growth areas. This is not to understate the potential for small pockets of land outside of the growth areas to be affected by localised flooding.

Source: Jensen Planning and Design, 2009.


2.3 Why a WSUD capacity-building program in SA?

South Australia has a history of national leadership in water management and reform, particularly in stormwater harvesting and re-use, wastewater recycling, groundwater management, and demand management. However, the State’s approach to urban water management has not always been implemented in an integrated fashion and has possibly missed opportunities to maximise economic, social and environmental outcomes.

WSUD is an effective means of addressing issues arising from urbanisation and delivering multiple benefits. Effective WSUD approaches can manage issues such as flood risk, water quality impacts on receiving coastal waters and urban streams, and demand for potable water resources, as well as assisting to create more liveable urban landscapes by increasing amenity and reducing the urban heat island effect.

The South Australian Government has committed to the implementation of a policy framework for accelerating the use of WSUD techniques across the State’s urban centres, including Adelaide. In developing this framework the Department for Environment, Water and Natural Resources prepared a consultation statement in December 2011 detailing a possible multifaceted approach to encouraging WSUD. Feedback from this consultation strongly highlighted the importance of capacity-building as a critical foundation necessary to support the uptake of WSUD in South Australia.

The importance of a sustainable and ongoing CBP for WSUD is well demonstrated in other Australian jurisdictions. While various agencies in South Australia run training courses in WSUD, to date an ongoing and broadly based CBP does not exist.



This business case assesses the needs for a WSUD CBP by focussing on the following three themes, which are further expanded below:

- **Policy implementation.** The capacity of the industry to implement the State Government's *Water for Good* (2009) plan and *The 30-Year Plan for Greater Adelaide* (2010).
- **Managing existing infrastructure.** The expertise of industry to manage construction, operation and maintenance of urban water infrastructure while transitioning the stormwater infrastructure of the whole city to a new standard over the life of the assets
- **Meeting industry needs.** Meeting the needs of the existing WSUD industry and facilitating a more efficient and increased uptake of WSUD.

Policy implementation

The implementation of Actions 67 and 68 in *Water for Good* are critical for the adoption of WSUD across South Australia. While the exact nature of the policy and associated implementation strategies are still being finalised, the proposed framework will be cognisant of both the government and private industry's ability to adapt. That is, adapting to the step change required to manage the total water cycle in an integrated and more effective manner. This relates to the technical abilities, knowledge and tools available to change current water practices. The ability of water practitioners to support urban development (both greenfield and infill) as outlined in *The 30-Year Plan for Greater Adelaide* is a related and key issue for implementation.

Managing existing infrastructure

There is significant investment in water-related infrastructure in South Australia. Some of the costs associated with urban water infrastructure include:

- \$459 million in grants from the Australian Government for urban water projects in South Australia, of which \$328 million relates to the desalination plant (Department of Sustainability, Environment, Water, Population and Communities, 2012).
- \$219 million in local and state contributions to stormwater recycling projects.
- \$24 million through the Stormwater Management Authority (\$4 million per year as outlined in the Stormwater Management Authority Annual Report, 2011).
- Over \$100 million in rainwater tanks across the state.

In addition to recent investments, the ability of the industry to manage and transition the current stormwater infrastructure network of South Australia to cater for urban growth and renewal is a significant challenge. The transition relates to the long-term view that a WSUD approach to water management provides multiple benefits (Water by Design, 2010), including the potential for renewal over the life of the asset using WSUD, where practical. A report by Burns et al (2001) for the Local Government Association of South Australia put the asset replacement value of stormwater infrastructure at that time at \$1.4 billion (or \$1.86 billion in 2011 dollars (RBA, 2012)¹).

Meeting industry needs

As outlined in Section 2.1 (History of WSUD in SA), there have been previous studies into the WSUD needs of the water sector. Since at least 2007, the industry in SA has identified specific factors that lead to inefficiencies. Particular gaps that have been raised include appropriate design standards, construction guidelines, research, stakeholder engagement, and evaluation of WSUD in South Australia. Section 4 presents the industry needs analysis undertaken as part of this business case project.

¹ Using the Reserve Bank of Australia (RBA) online calculator to adjust 2004 dollars to 2011 dollars with the Consumer Price Index (CPI). This is an indicative rather than exact figure, as stormwater infrastructure replacement values may or may not be increasing at a rate equivalent to the CPI.

2.4 The relationship between capacity-building and WSUD implementation

This section presents academic research demonstrating the link between capacity-building and the wide-scale application of WSUD. Research suggests that implementing WSUD requires a transition of deeply embedded water management processes and practices (Brown et al., 2009). These processes and practices are influenced by institutional frameworks underpinning urban water management, comprising social norms and shared values, administrative and organisational structures and rules, and shared knowledge frameworks (Brown, 2005; Brown et al., 2009).

Systematic evaluation of these implementation efforts has revealed that there are many barriers to changing the approach to sustainable urban water management in Australia (and internationally). The barriers identified by researchers include: uncoordinated institutional frameworks; limited community engagement, empowerment and participation; insufficient resources (capital and human); unclear, fragmented roles and responsibilities; poor and variable organisational commitment; lack of information, knowledge and understanding in applying integrated, adaptive forms of management; no long-term vision or strategy; little or no monitoring and evaluation; lack of political and public will; perceived risk; capital and maintenance costs; and unclear regulation and approval processes (Brown et al., 2009; Brown & Farrelly, 2009b). According to researchers, overall, the barriers are systemic and interrelated (Brown & Farrelly, 2009b), suggesting that there is a lack of capacity across the urban water sector to implement WSUD.

Given the numerous systemic and interrelated barriers, and also the complex policy environment of WSUD, building water sector capacity has been advocated by both scholars and practitioners as an effective strategy for the sustained institutional change required for WSUD implementation (Dahlenburg & Lees, 2004; Brown, 2005; Brown et al., 2006; Keath & White, 2006; Wong, 2006; Brown, 2008; van de Meene & Brown, 2009; Farrelly & Brown, 2011; Morison, 2011). Indeed, in recognition of the industry capacity deficits, capacity-building programs have been established around Australia (see Section 2.5). Capacity-building is also recognised as an effective strategy for achieving change in a number of disciplines such as urban planning, and natural and water resources management (see, for example, Grindle & Hilderbrand, 1995; Healey, 1998; de Loë & Lukovich, 2004; Robins, 2008). While the concept is widely used and debated, arguing for capacity-building does not mean that there is an absence of capacity, rather that there can be improvements (Van Deveer & Dabelko, 2001). In the water sector, increased recognition of capacity-building as an effective strategy is due to an improved understanding that the problems faced are largely institutional, rather than technical (de Loë & Lukovich, 2004), thus capacity-building can enable both structural and cultural change in the water sector (Brown, 2008).

Morison and Brown (2010) evaluated the New South Wales Urban Stormwater Program, which involved local councils working together to prepare stormwater quality management plans within hydrological catchments. A key criticism they made of the program was that it employed a one-size-fits-all approach which failed to consider differing capacity among local councils, and which subsequently entrenched differences in the capacity of local government (Morison & Brown, 2010).

In Minnesota, United States of America, an inter-governmental drought planning program encountered problems when local government responsibilities for drought planning were increased without concurrently improving local capacity for implementation (Pirie et al., 2004). Specifically, poor knowledge of drought and a lack of commitment to effective drought management measures were identified as constraining local government capacity. Other factors influencing local capacity include socio-economic factors, population, and extent of natural vegetation and proximity to the coast (Morison et al., 2010; Morison & Brown, 2011).

The focus on all activities reflects recent empirical findings from the Australian water sector, where institutional capacity-building is advocated across the four nested spheres of capacity (Brown, 2008; van de Meene et al., 2010; Farrelly & Brown, 2011; Morison, 2011). A number of research outputs conclude that without sustained capacity-building across all four spheres, ad hoc or incomplete institutional change may result (Wakely, 1997; Enemark & Williamson, 2004; Brown, 2008). The four spheres (Brown et al., 2006) are:

- **Individual** – the technical and management knowledge, skills and expertise, how individuals operate within the workplace and their personal characteristics (e.g. values, initiative, and leadership);

- **Intra-organisational** – the key processes, systems, cultures, and resources within organisations, including organisational structure and engagement with external stakeholders;
- **Inter-organisational** – the agreements, relationships, and consultative networks that exist between organisations to allow them to cooperatively promote sustainable urban water management, their structure and operation, and the characteristics of organisations important to form partnerships; and
- **External rules and incentives** – the overall approach or underlying principles (e.g. efficiency or resilience) and how this is conveyed in the tools and instruments, the regulations, policies, and incentive schemes that provide guidance and structure to organisations and individuals.

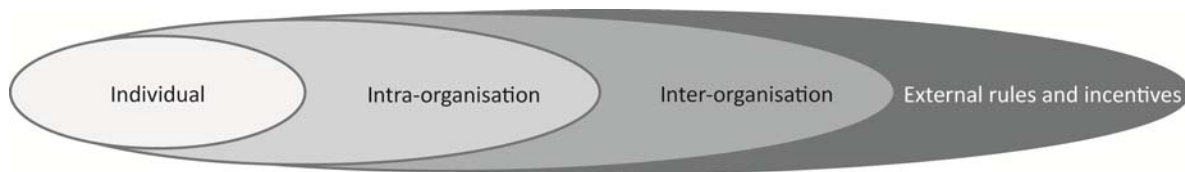


Figure 3. *The four spheres of capacity-building*

Building capability across the four nested spheres of capacity (see Figure 3) is widely called for by both urban water practitioners and academics. Evidence from the Australian water industry reveals that elements of capacity-building involving human resources development, generating local knowledge, and collaboration among stakeholders, have led to tangible outcomes in sustainable urban water management practice. Therefore, a holistic and strategic CBP that recognises capacity differences among local governments and the development sector, while also developing collaborative relationships with research organisations, is likely to create momentum for the successful implementation of WSUD policy.


Evidence from investigations into change across the water sector reveals that capacity-building emphasising knowledge sharing can enable WSUD policy implementation. Wong (2006) identifies a period of industry capacity-building as critical for the shift from water quality guidelines to mandated water quality targets in the Victorian Planning Provisions Clause 56. During this period, industry knowledge, skills and acceptance of stormwater treatment technology and practices were developed (Wong, 2006). Another key factor for achieving change is the extent of locally-developed and trusted scientific knowledge to inform policy and practice (Wong, 2006; Brown & Clarke, 2007).

In terms of empirical evidence to track the impact of CBPs, Bolton (2007) and Eggleton (2012) have documented the capacity change of local councils to manage stormwater in the greater Melbourne region using a social research tool: Melbourne Water Needs Analysis. Eggleton (2012) reported that, “Eighty-three per cent of local governments have increased in their capacity to deliver WSUD”. The average increase was 48%, and the average decrease for the remaining councils that decreased in capacity was 10%. This change is a measure of the change across nine predetermined themes that tracks the perception of change at a technical, implementation, strategic and policy levels at both the individual and institutional levels.

Similar research from other cities that assessed the needs of practitioners includes:

- 794 responded in full to the ‘Stakeholder Perceptions of Institutional Drivers and Barriers’ study from Melbourne, Brisbane and Perth (Brown and Farrelly, 2007).
- The 2007 ‘Institutionalising WSUD’ study in Adelaide had 61 respondents (Australian Water Environments, 2008).
- 210 responded to an evaluation of the ‘Water by Design’ WSUD CBP (Water by Design, 2010).

Communities of practice (also known as learning alliances, or communities of interest) provide a means for linking academia with practice and are widely considered an effective strategy to improve capacity when used in conjunction with other initiatives. This is done through the formation of stakeholder groups across public, private and civil society sectors who seek to effect widespread change through up-scaling of innovative



approaches (Butterworth & Morris, 2007). Learning alliances formed a central part of the European Commission funded program, SWITCH (Sustainable Water management Improves Tomorrow's Cities Health), to ensure research was demand-driven and also communicated effectively.

2.5 WSUD CBPs across Australia

Most states and territories in Australia have established metropolitan CBPs to promote industry uptake of WSUD within private and public development. Each has evolved in accordance with regional governance frameworks and their respective stakeholder capacity needs and wants, while also evolving over time to incorporate technical and social research developments.

While each program reflects the local governance and practitioner landscapes, all share a series of common capacity-building solutions such as web-based tools and resources, guidelines, technical training, mentoring, and issue-based projects and research initiatives. The essential differences between each are, firstly, the comparative legislative frameworks, depending on whether WSUD was voluntary or mandated (see Appendix A for more detail on legislation and the role of CBPs) and, secondly, the level of financial support provided by each state government. In South East Queensland's case, a user-pays system was introduced over time, and in New South Wales the program saw the development of a diversified funding model through training-generated income.

The following list highlights some of the key aspects of the various CBPs from across Australia:

- **WSUD.org (New South Wales)** is over 10 years old, housed in the Sydney Metro Catchment Management Authority, and is resourced by one full-time equivalent (FTE). The scope of the program is to encourage the uptake of WSUD within the Greater Sydney area at the local level.
- **Water by Design (Queensland)** is eight years old, housed within the Healthy Waterways Partnership at Brisbane City Council, and is resourced by 3.5 FTE; the objective of the program is to support the uptake of WSUD in South East Queensland by government and industry, through guidelines, online forums, fact sheets, a community of practice, and training.
- **Clearwater (Victoria)** is 10 years old and housed at Melbourne Water with 4 FTE. Initially created for the purpose of building the capacity of local government and industry professionals in best practice stormwater management, the program evolved to provide the urban water industry with the knowledge, tools and skills to drive the transition to water sensitive cities.
- **New Waterways (Western Australia)** is six years old, hosted by the Western Australian Department of Water, and resourced by one FTE. The objective of the program is to enable excellence in integrated water cycle management and to build the capacity of government and industry practitioners.

A comprehensive outline of the four interstate capacity-building programs can be found in Appendix A.

The theory of implementing policy change, or efficiently and effectively altering an established practice such as traditional urban water management, clearly points to the need for an educated and supported industry (as per the definition in Section 1). While definitive and empirical conclusions are difficult given the relative infancy of the field, there is evidence from interstate that WSUD development has been most extensive and efficient when supported by targeted capacity-building of the industry.

Significant anecdotal evidence is also provided by the longevity of interstate programs. In the cases of South East Queensland, Victoria and Sydney, each of the programs has been operational for over eight years; they have all received funding from multiple funders, indicating a wide spread of value to stakeholders; and they have continued to operate through a period of rapid development in the field.



3 Method

This business case was informed by three key forms of enquiry:

- Literature review.
- Review of interstate WSUD CBPs.
- Stakeholder engagement.

These were used to address each of the four project objectives outlined in Section 1.1; that is, to inform and test the needs, structure, plan and benefits related to a potential WSUD CBP for SA. Based on advice from the project Steering Committee, the majority of the project was focussed on the stakeholder engagement (partially because this also addressed the aims of preparing an implementation plan).

3.1 Stakeholder mapping

Prior to any engagement being undertaken, the relevant stakeholders were mapped by the project team with guidance from the project Steering Committee. The purpose of identifying and mapping stakeholders was to ensure that the business case was based on sound evidence, and that all parts of the industry, including those traditionally more difficult to engage, had been given the opportunity to contribute. The Steering Committee also supported the need to work through industry associations. This enabled a significantly greater reach to more practitioners in the industry and also gave the project a stronger standing.


Stakeholders were mapped according to degree of influence (high or low) and degree of support (high or low), in order to establish a hierarchy of engagement. This resulted in a stakeholder map with four segments:

- High Influence / High Support = "Key players" – engagement method = COLLABORATE
- High Influence / Low Support = "Keep satisfied" – engagement method = CONSULT
- Low Influence / High Support = "Keep informed" – engagement method = INFORM
- Low influence / Low Support = "Relatively low effort" – engagement method = MONITOR

3.2 Stakeholder activities

Between June and September 2012, eight research activities, both qualitative and quantitative in nature, were used to collect data from stakeholders. In July 2012, the 'Water Sensitive SA' website was launched (www.watersensitivesa.com) to provide an online platform for this engagement. Further details on the project's stakeholder engagement activities can be found in Appendix B. The eight methods adopted were as follows and focused within the 'Collaborate', 'Consult' and 'Inform' segments of the stakeholder map:

- **Online survey** – open for four weeks, promoted through industry associations, agency newsletters and networks of the Steering Committee, comprising 48 questions (three open questions, 22 general questions, and 23 optional questions on 'policy', 'design', 'maintenance', 'construction', 'planning', 'regulation', 'community engagement'). There were 225 responses to the survey. (See Appendix C for the full questionnaire and Appendix D for the geographic distribution of respondents.)
- **Workshops** – two half-day workshops with 100+ people in attendance across both workshops.
- **Site visits** – two site visits to notable WSUD sites in Adelaide.
- **Online forum** – over 50 comments discussing WSUD issues and needs.
- **Local Government (LG) Forum** – 25 WSUD practitioners from 10 local metropolitan councils, discussing infill development, WSUD, Stormwater Management Plans, and institutional relationships in a half-day workshop. Attending councils included Holdfast Bay, Mitcham, West Torrens, Burnside,



Norwood Payneham & St Peters, Port Adelaide Enfield, Onkaparinga, Tea Tree Gully, Salisbury, and Playford.

- **Australian Water Association (AWA) conference** – one hour session in the 2012 SA State Conference to discuss WSUD and links to individual roles and organisational responsibilities.
- **Developer meeting** – meeting with Urban Development Institute of Australia SA committee members and staff to discuss interests and needs of developers in WSUD.
- **One-on-one interviews** – semi-structured interviews conducted with some of the leaders in the industry to explore their views on the needs and solutions for WSUD capacity-building in South Australia.

4 Industry needs analysis

This section of the business case presents the combined results of the eight stakeholder engagement activities. The online survey is the main source of data, with other methods used to verify and critique these findings.

The results represent a sum total of approximately 400 people, including members of over 16 industry associations, over 100 organisations, and 22 local councils. This compares very favourably to similar engagement exercises (as outlined in Section 2).

Figure 4 illustrates how the eight engagement activities align with the 'four spheres' of capacity-building (Brown, 2006).

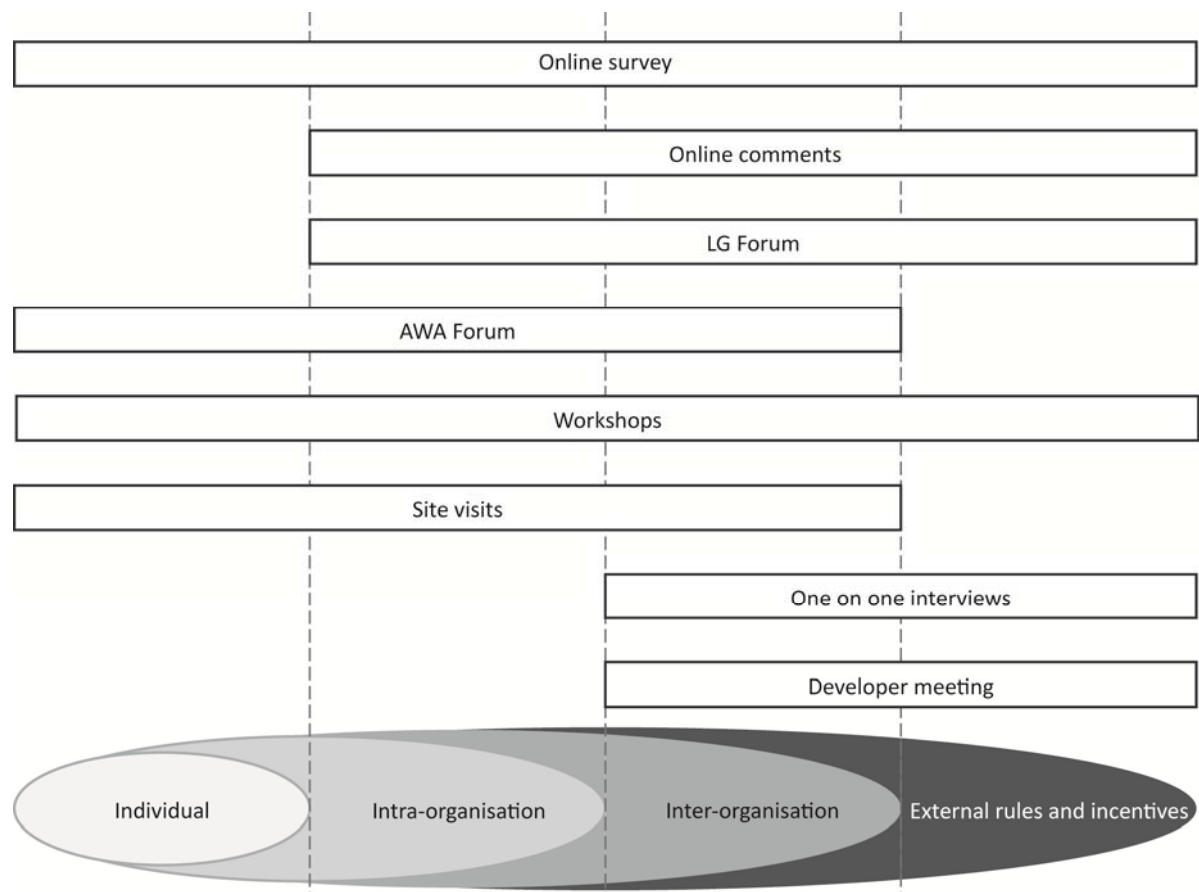


Figure 4. Engagement activities and alignment with capacity spheres

4.1 Stakeholder mapping

Prior to any engagement taking place, stakeholders were mapped according to their degree of influence or support. The results of this stakeholder mapping are presented in Figure 5. It should be noted that the results of the stakeholder mapping are focused on the organisations, rather than individuals. It is important to remember that this exercise, with significant input from the Steering Committee, was completed with the business case in mind, rather than the implementation of WSUD generally.

B - Consult AIA AILA AWA Botanic Gardens SA Civil Contractors Federation Conservation Council SA Consult Australia DPTI Construction Industry Training Board Stormwater Management Authority SA SA Local Government Supervisory Officers' Association Engineering Australia PIA Parks and Leisure Australia University SA University of Adelaide Urban Renewal Authority All SA Councils	A - Collaborate AMLR NRM Board Developer sector - Property Council - Housing Industry Association - UDIA DFW Goyder Institute IPWEA LGASA SA MDB NRM Board SA Water SIA State Govt.
D - Monitor General public	C - Inform All of the NRM Boards outside the steering committee Allwater Friends of Gulf St Vincent Hydrological Society of SA Keep SA Beautiful

Figure 5. Results of stakeholder mapping

4.2 Individual

The results at an individual level (as defined by the technical and management knowledge, skills and expertise, how individuals operate within the work force and their personal characteristics (e.g. values, initiative and leadership from Brown et al (2006)), indicate that WSUD is considered to be in its infancy in South Australia. Despite a large number of stormwater recycling schemes, 40% of respondents indicated they have been involved in less than four projects. The figures below (Figure 6 – Figure 8) indicate a limited exposure to WSUD, but the projects themselves have involved a reasonable cross section of the urban water cycle.

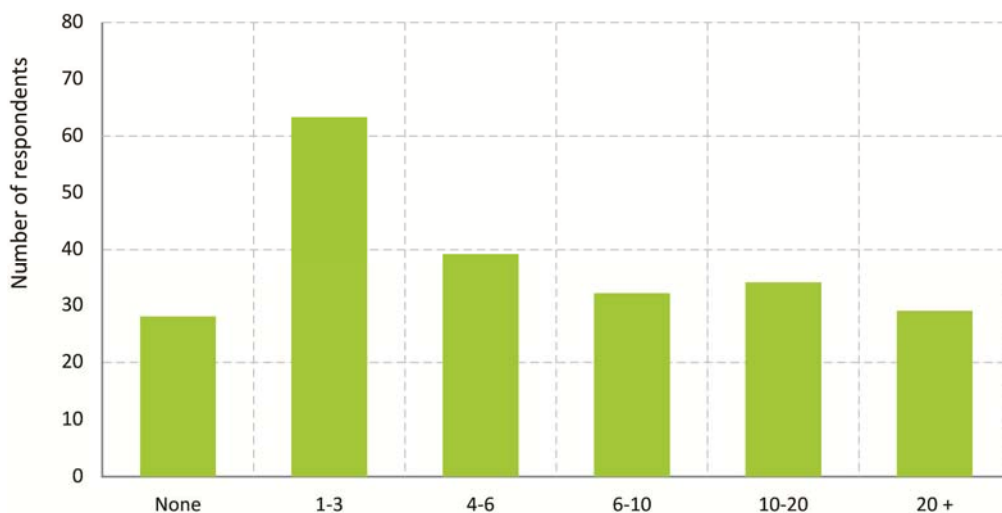


Figure 6. How many WSUD projects have you been associated with? (n=225)

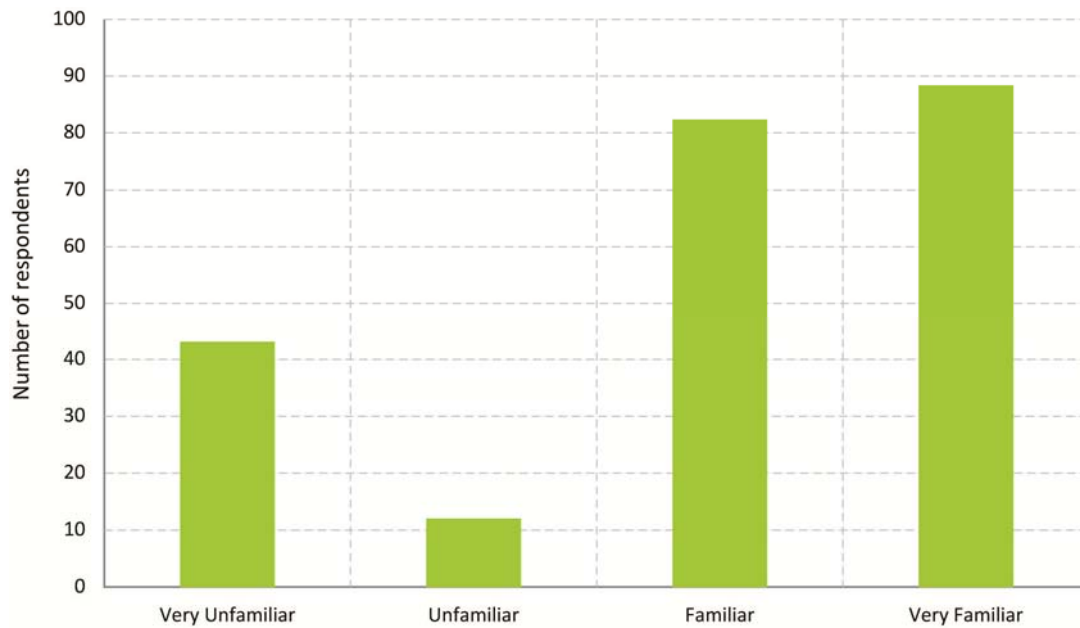


Figure 7. Results from 'How familiar are you with the term WSUD' (n=225)

Twenty-five per cent of respondents were not familiar with the term WSUD, providing a good indication that data collected in the online survey was not solely representative of 'WSUD converts'.

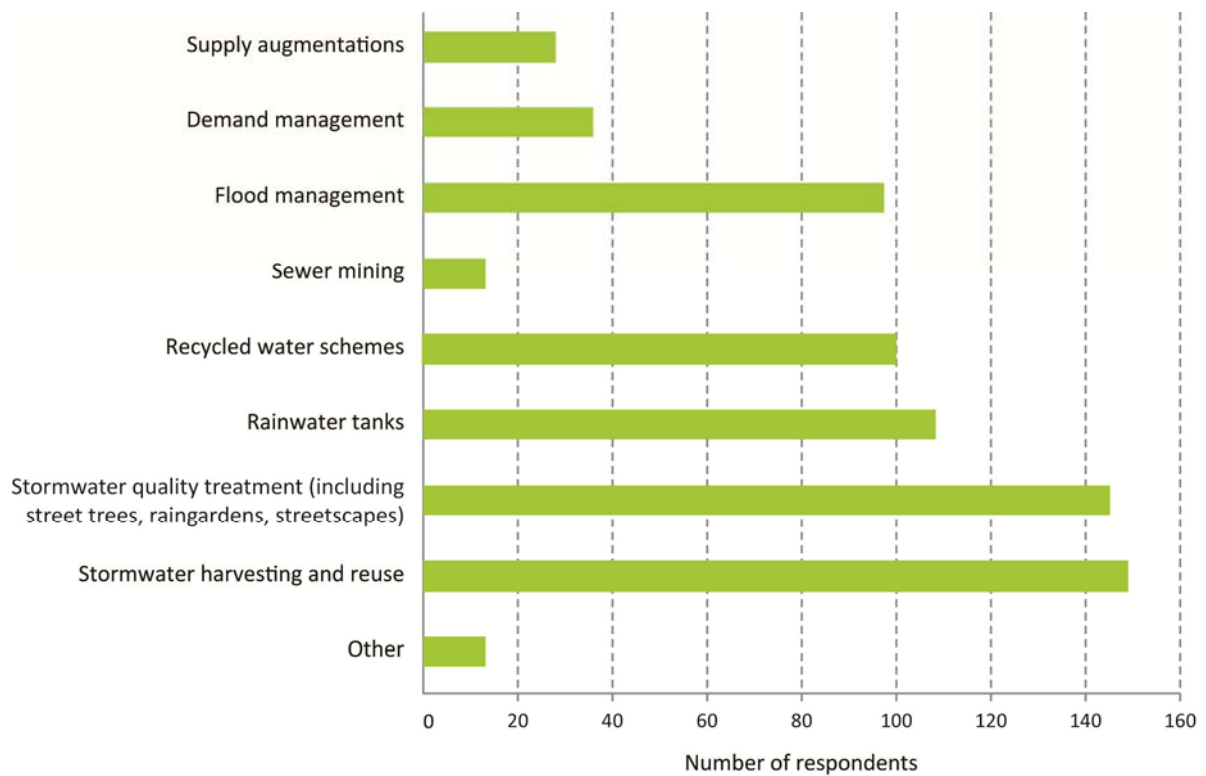



Figure 8. Results from question "Of the WSUD projects you have been associated with, what part of the water cycle have they involved?" (n = 225)



The workshops and forums also touched on the level of experience in and knowledge of WSUD. Many of the comments in the workshop evaluations were requesting more information about specific projects. Some of these comments are transcribed below in response to a question ‘what could be improved in this workshop’.

“Update of where we are at as a state (a lot of assumed knowledge).”

“More practical issues.”

“More detailed introduction to WSUD.”

The AWA forum was a means to explore the current level of experience in the industry more broadly. That is, traditionally, anecdotal evidence suggests AWA members are slightly more inclined to come from a traditional urban water management field, rather than the stormwater industry. For example, initially less than one third of the audience (which included approximately 90 practitioners from government, industry and research) considered they had a direct WSUD role and involvement. However, following a discussion about the definition and breadth of WSUD, more than two thirds of the audience indicated they were involved in WSUD projects.

Also in terms of individual needs, the results from an online survey question, ‘where you would like to improve your knowledge in the following areas of WSUD,’ are presented in Figure 9. There was not a huge variation in the responses, supporting the need for capacity-building in a range of fields. The bars in Figure 9 are sorted from left to right based on the weighted average.

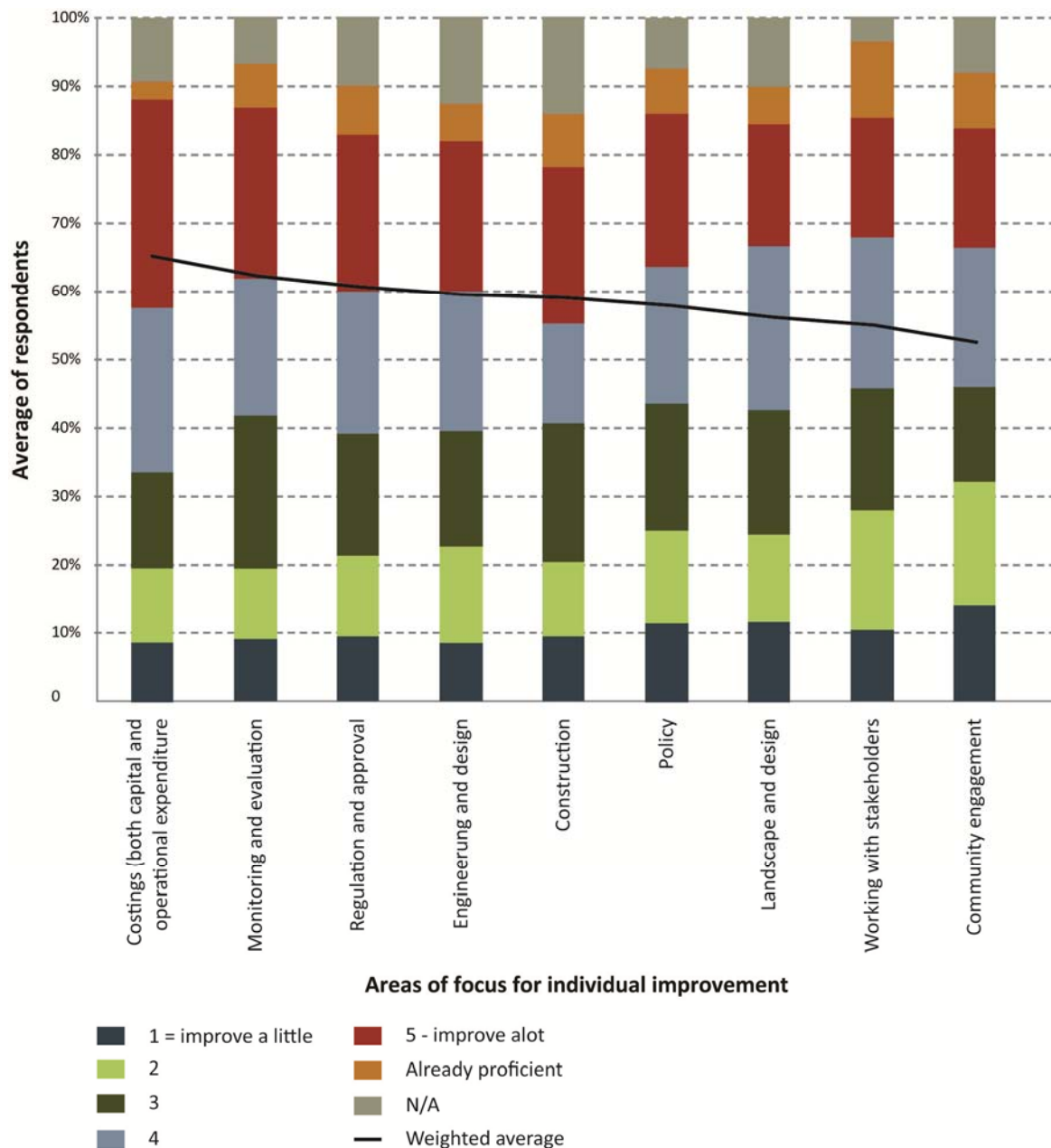


Figure 9. Areas for improvement

Fifty-four per cent of respondents to the online survey indicated they wanted to improve or improve a lot in the area of 'Costings (both capital and operational expenditure)'.

Another interesting observation is the way the workshops contributed to a heightened result for 'working with stakeholders'. This could be reflective of group-based discussions driving an awareness of how and why this issue is important. The least 'most desirable' area for improvement was 'community engagement' (with only 37% indicating they wanted to improve or improve a lot in the area).

However, this may be more reflective of a lack of general understanding of the importance of community engagement, that together with other capacity elements results in an increased in the uptake of WSUD.

4.3 Intra-organisation

Intra-organisational capacity is the key processes, systems, cultures and resources within organisations, including organisational structure and engagement with external stakeholders (Brown et al, 2006); several of

the results from a question on 'rating the strength of barriers to WSUD' indicated that practitioners felt that intra-organisational issues were a barrier to WSUD.

A question from the online survey identified that most of the options presented were seen as barriers. Figure 10 illustrates how the perceived barriers vary by discipline (these are average results out of ten, when respondents were asked to rate the strength of the barrier – where ten was a very strong barrier).

Community support was not seen as a barrier, indicating that industry believes there is community support and that could be a means to leverage support for the adoption of WSUD, or indicating a lack of industry understanding about the general import of community engagement altogether.

Insufficient budget and resources are seen as the highest barrier to implementing WSUD. Of note is the view of 'CEOs/Directors' who have the lowest rating of barriers, and asset managers who have the highest rating for life cycle data and monitoring and evaluation. Insufficient resources (where landscape architects and operation managers gave the highest rating of importance) was the highest rating barrier. Eighty-two per cent of respondents gave a seven out of 10 rating or higher for this barrier.

Rating for 'poor organisational commitment at a senior management level' was a mid-tier response (40% giving that barrier a seven or more out of ten rating).

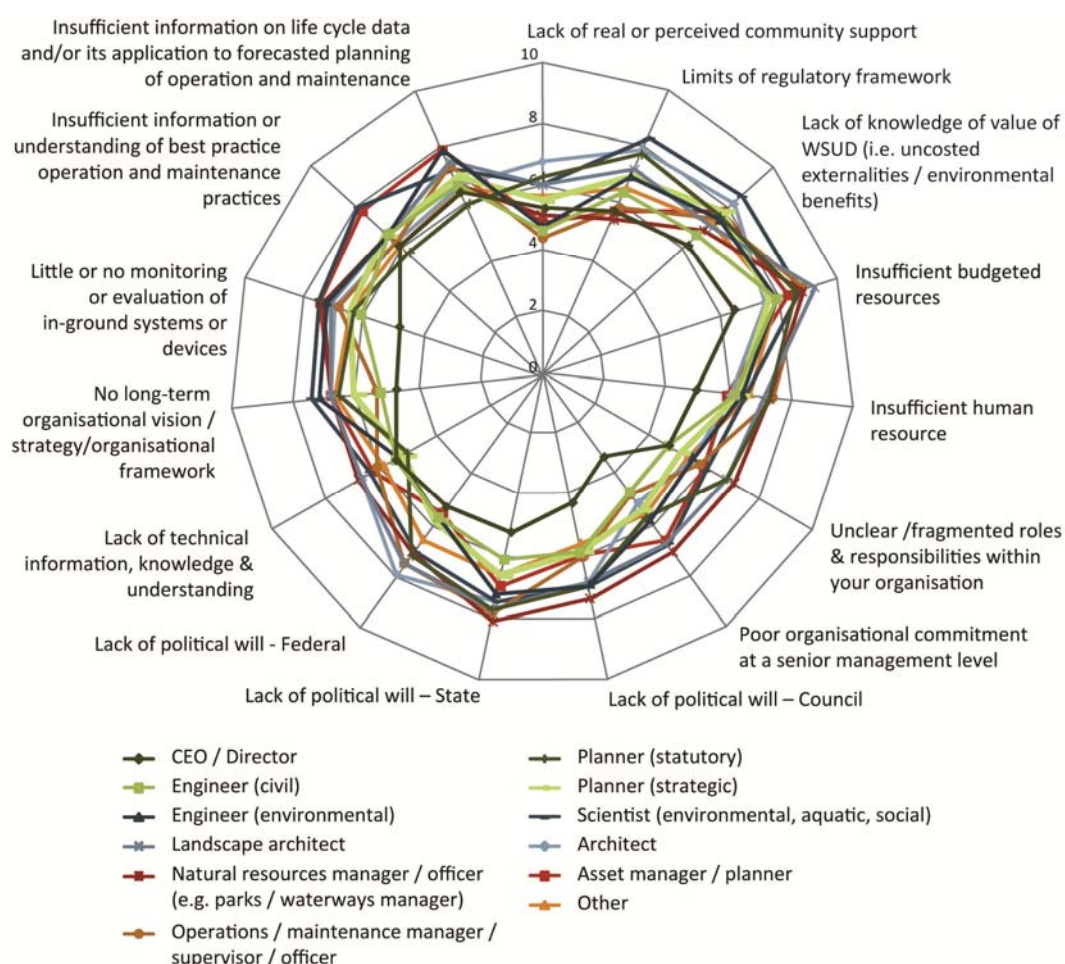


Figure 10. Barriers to WSUD, breakdown by discipline (where 10 is the highest rating of a barrier)

The LG Forum and the online discussion forum comments reinforced some of the problems practitioners are observing in the intra-organisation sphere. The LG Forum particularly raised the issue of the integration within

councils, and the need for engineers, operators and asset managers to be more connected with the planning departments from within their own council. A comment from the forum, *“Planners are seen to be ‘dragging the chain,’* is informative in terms of the way engineers are both distanced from other departments, as well as how there may be a misunderstanding between these departments about their respective roles and responsibilities. It should be noted that intra-organisation issues are evident not just in local government but also in state government, academic institutions and private industry.



Figure 11. Local Government Forum – 31 July 2012

4.4 Inter-organisation

Inter-organisational capacity encapsulates the agreements, relationships and consultative networks that exist between organisations to allow them to cooperatively promote sustainable urban water management, their structure and operation and the characteristics of organisations important to form partnerships (Brown et al, 2006).

With this in mind, the one-on-one interviews indicated that WSUD professionals in South Australia are very well connected at an individual level, but the inter-organisation issues across the broader WSUD industry are not as cohesive. The nature of relationships between organisations (and especially between local and state government), at present, is very much driven by the discussion around the implementation of *Water for Good*.

The data collected in this project revealed two main links related to inter-organisational issues: Local government and state government relationships, and local government and developers. The Local Government Forum, Developer meeting, and site visits all highlighted institutional capacity as an important issue for the future of WSUD in South Australia. The following quote was taken from the Local Government Forum: *“There is no backing to these from state government however — have had issues with state government entities twice in recent times for having requirements over and above other local government areas – there seems to be pressure from some developers to go ‘the other way’ (i.e. against the current policy, against flow management via WSUD).”*

More data on the relationships between organisations was captured in the online survey (see Figure 12 and Figure 14). This identifies quite a range in the strength of relationships, but also a large degree of variation between the respondents when broken down by sectors. While a weak relationship does not necessarily mean a negative relationship, if there are organisations that are important in the delivery of WSUD and capacity-building, this would be an area of concern. Two examples from the online survey is the strength of relationships with:

- Department of Treasury and Finance (80% of respondents indicated the strength of the relationship was rated 5 or less out of 10)
- Department of Premier and Cabinet (75% of respondents indicated the strength of the relationship was rated 5 or less out of 10)

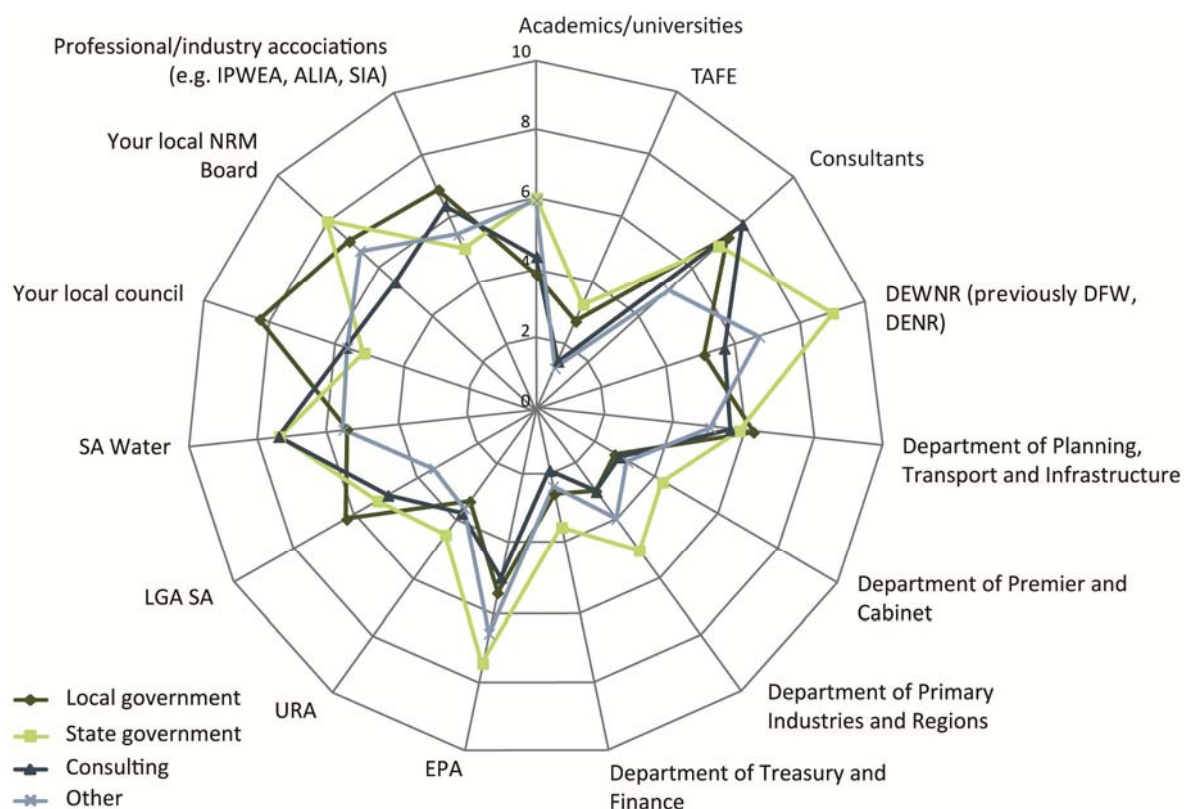


Figure 12. *Strength of relationships, broken down by sector*

Figure 12 shows that there is a difference in the strength of relationships when broken down by the sector, but there is no pattern to this distribution. Initially it appears that TAFE and various state government departments have relatively weak relationships; whereas Figure 14 explores how the strength of relationships varies with the number of responses.

More data on the perception of different agencies was obtained by asking practitioners about their view of a potential host of the CBP. Figure 13 shows the results of that question, with the NRM Boards viewed as very popular.

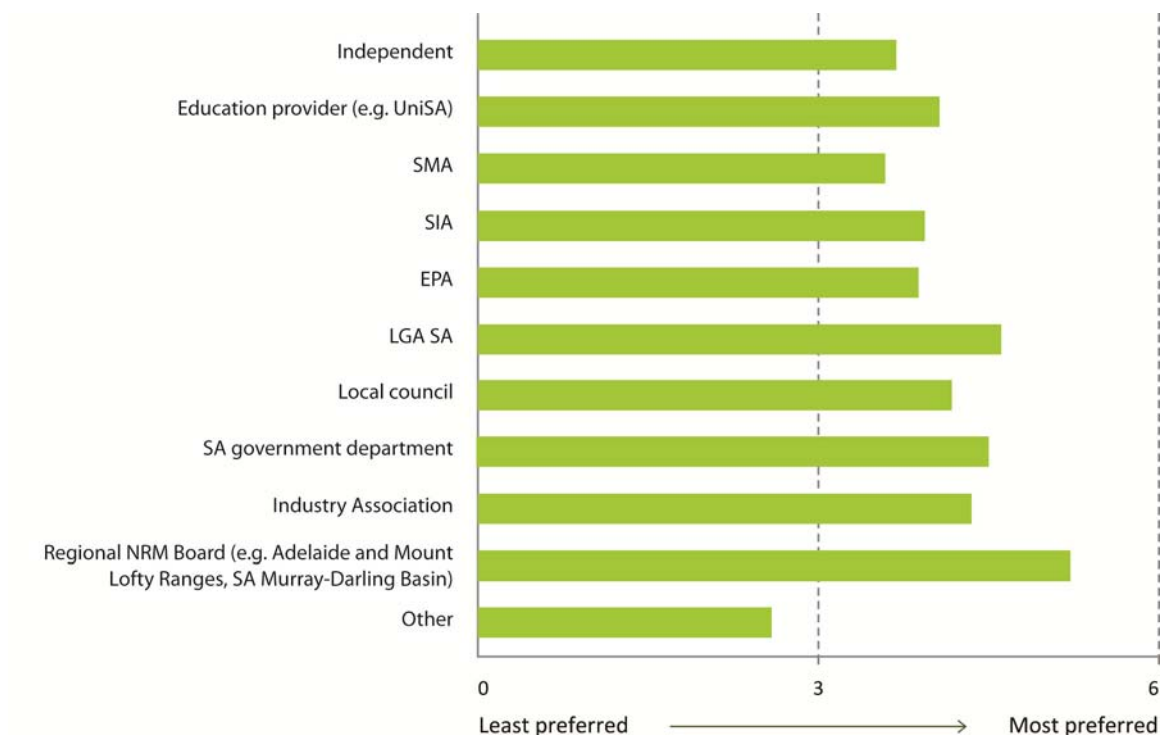


Figure 13. *Popularity of a potential host of the CBP*

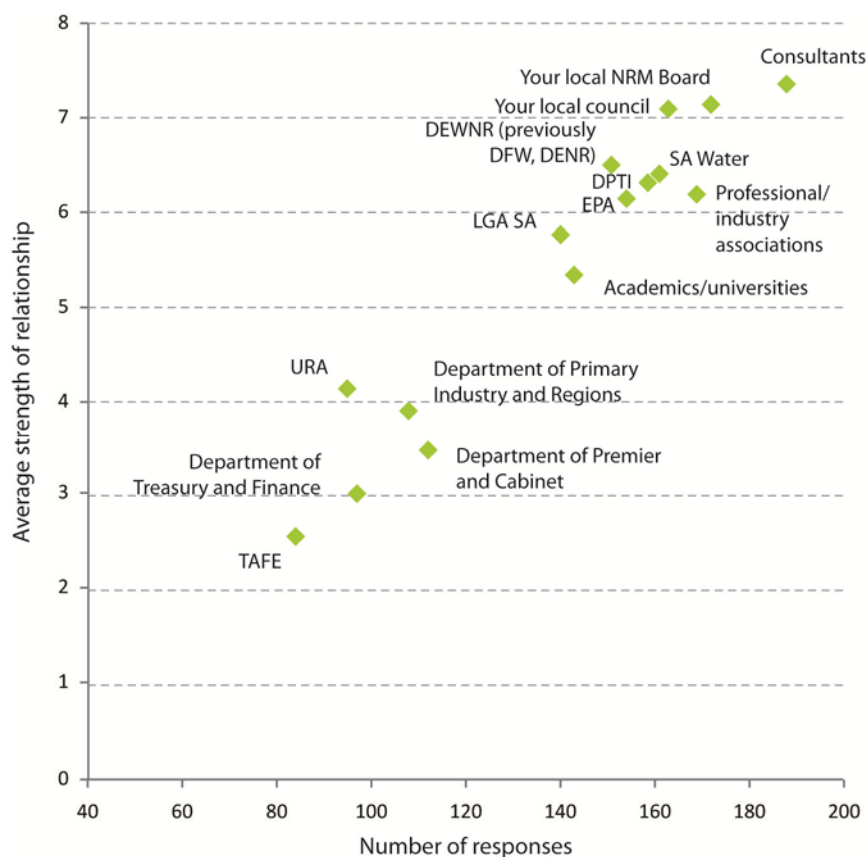


Figure 14. *Response numbers verses average strength of relationships*

4.5 External rules and incentives

Brown et al (2006) determines that external rules and incentives incorporate the overall approach or underlying principles (e.g. efficiency or resilience) and how this is conveyed in the tools and instruments, the regulations, policies, and incentives schemes that provide guidance and structure to organisations and individuals.

The issue of a state government policy to support the implementation of WSUD was raised in many of the engagement activities conducted during the course of this project. The results from one-on-one interviews were especially focused on the need for a stronger driver to require WSUD. The president of the Engineers Australia South Australia branch, Gerry Doyle, said, *“what we need is more projects,”* which could be referring to the need for a stronger policy and increased awareness of the benefits of WSUD, which will flow on to more WSUD projects. Dr Robin Allison, WSUD consultant, said, *“there will only be a few projects until there is a state-wide target embedded in policy.”*

This issue of ‘policy’ is spread throughout the whole discussion on WSUD in South Australia. Many practitioners that engaged in this project look to the eastern states and see more effective implementation, including more projects, stronger policy frameworks, and established capacity-building programs. The site visits and the reaction from participants were particularly valuable in confirming the perception that WSUD projects are relatively sparse on the ground in the greater Adelaide region.

The results from one-on-one interviews revealed that most of the industry identifies the issue of ‘policy’ as a significant barrier. Essentially, this refers to the use of statutory planning frameworks strengthening local planning controls to require stormwater quantity and quality management at the local scale. The results that support this view are as follows:

- In the online survey, there was a question that presented a range of policy options and asked respondents to rate their importance in achieving WSUD options. Of 105 responses, the highest-rating option was ‘planning controls’, where 75% of respondents gave it an importance of 8, 9 or 10 out of 10.
- The Local Government Forum identified three issues to focus on and further discuss in the workshop itself (greenfield development, brownfield development, and engineering design) – two out of three involved an in-depth discussion on planning frameworks and WSUD: the greenfield and brownfield development discussions.
- The developer meeting was clear that while developers consider policy important, they strongly prefer less ‘red tape’ and believe that the knowledge of officers in local government and associated incentives to improve capacity are the most effective ways of achieving policy outcomes.
- Two typical comments from Workshop #1 are as follows: “industry has demonstrated desire and involvement, now we need involvement from policy and planning to move it on. The time is now!”; and “should target planners and planning systems next!”
- The outcome from the workshops that focused on these particular issues of policy (see Figure 15 and Figure 16).
- The AWA Forum discussed the preference for the mandating of WSUD targets at a state government level, with a view to recognising the importance of strengthened consistent local development planning controls, with the provision that some flexibility for their application was afforded in development approvals.

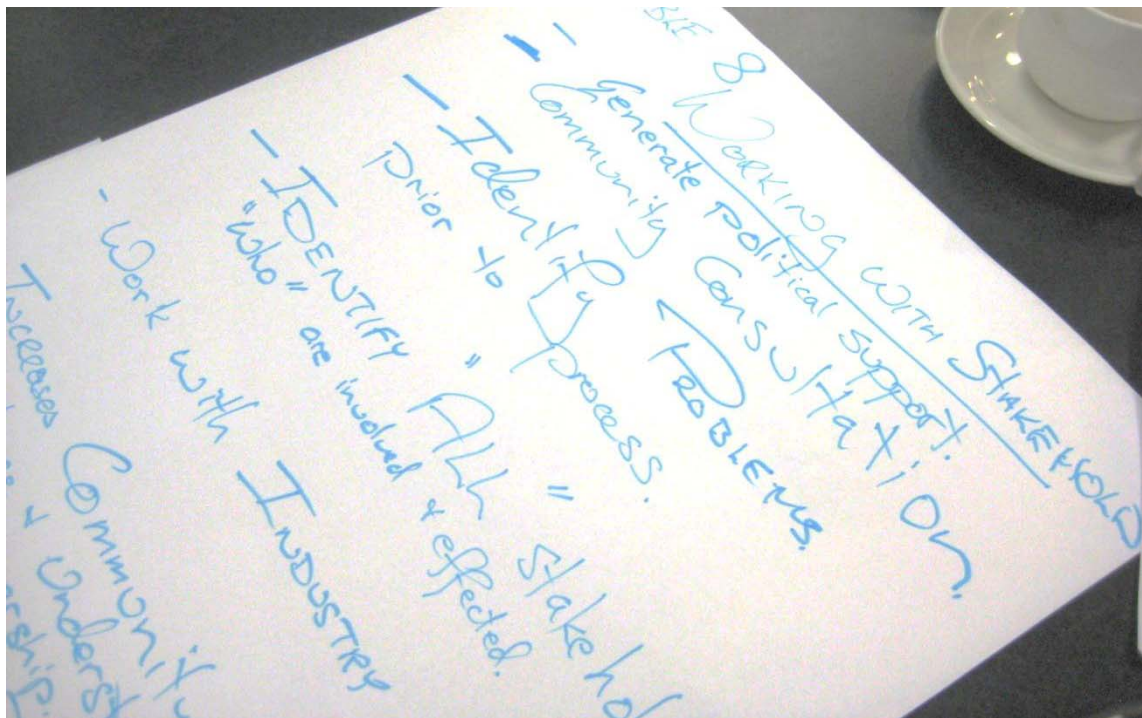


Figure 15. Example of table discussion at the workshops

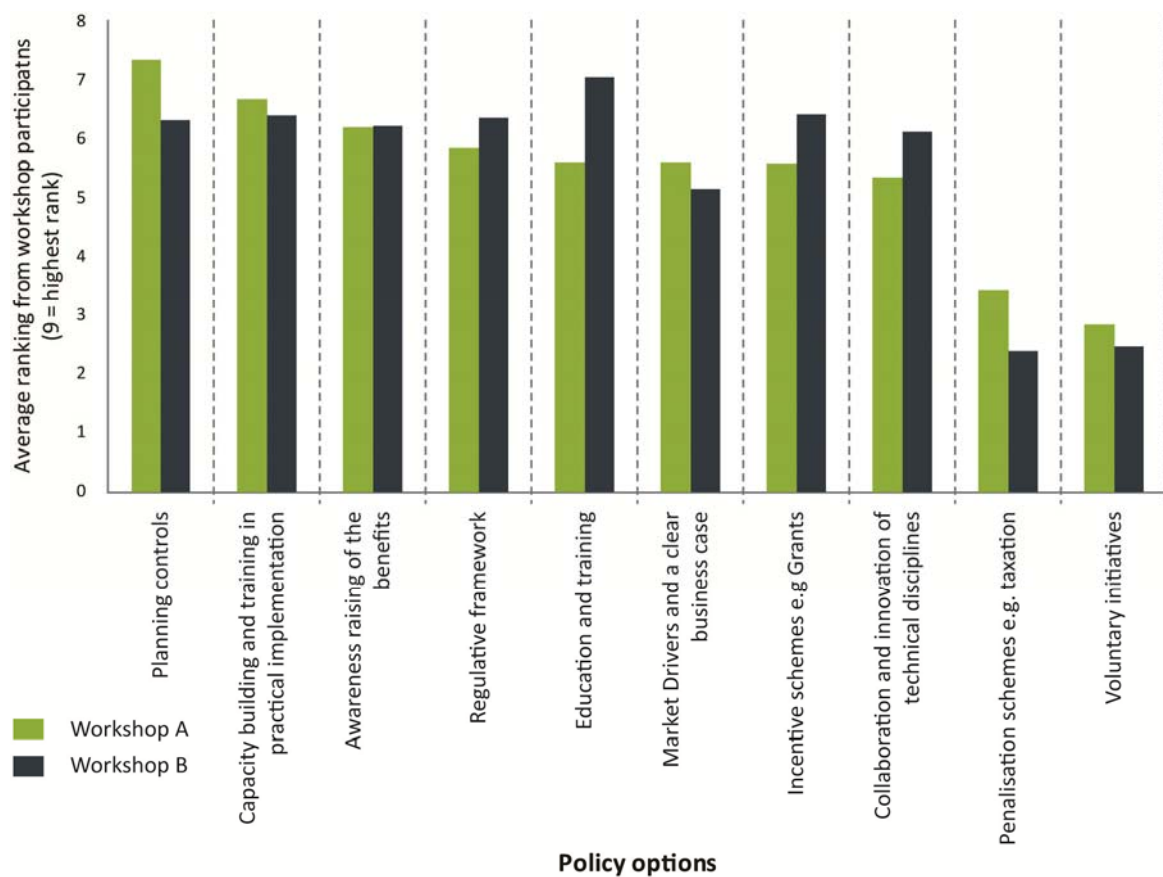


Figure 16. Results from practitioners' ranking of policy options at two workshops (n=110)

All of this data confirms both the nature of one of the problems (i.e. that the industry is conscious of the implementation of *Water for Good*, and aware of the need for a support mechanism), and also the potential for capacity-building to overcome some of these issues.

4.6 Benefits of a capacity-building program

In addition to the data collected across the four capacity spheres, data on the benefits of a CBP were gathered (see Figure 17 and Figure 18). The industry was particularly keen on a number of benefits, but the most popular benefit was ‘more appropriate design solutions with local conditions in mind.’

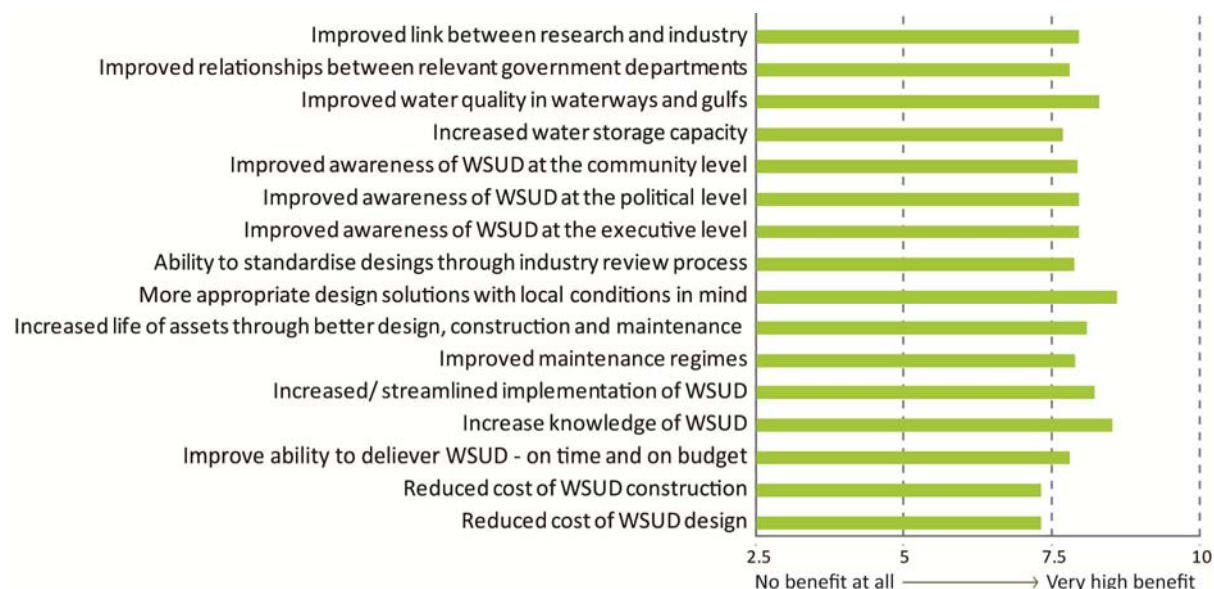


Figure 17. Responses to perceived benefits of a CBP

Figure 17 particularly highlights the fact that there is no single benefit that the industry is expecting from a CBP, but rather a range of benefits that stakeholders prefer. It is important to note that the benefits spread across many themes, from the political support, awareness raising, knowledge and maintenance of WSUD, links between research and industry, and environmental benefit to Gulf St Vincent. It may also represent the view from practitioners that there are high expectations of a CBP and there will be many benefits.

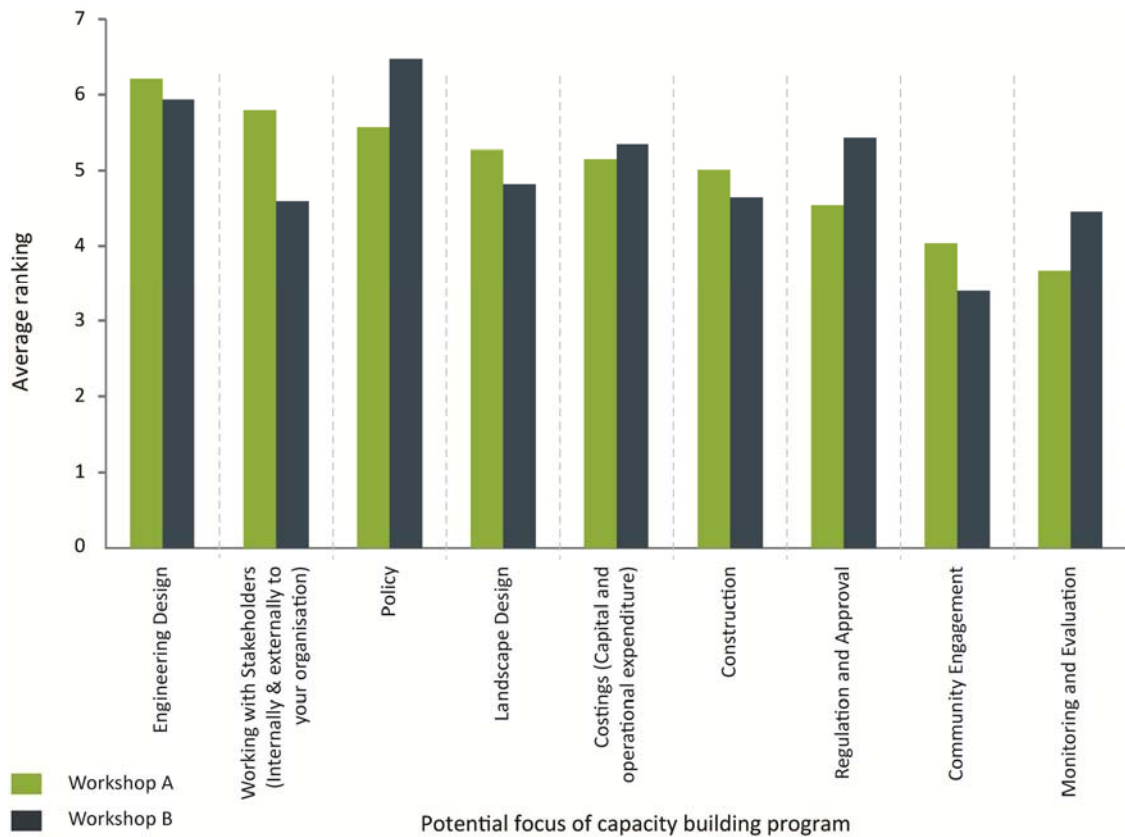


Figure 18. Workshop results on CBP focus

Several of the methods explored the possible benefits of a CBP. Most of these relate to meeting specific needs, with the results indicating that the benefits were often beyond the need for just technical training. An example of the type of discussion from a workshop is quoted below, in response to the question ‘Final comments regarding your preferred capacity-building solutions and mechanisms to deliver them.’

“Providing tools and knowledge to broad range of stakeholders. Need a range of delivery tools to suit the broad range of stakeholders. E.g., guidelines, workshops.”

4.7 Summary of results from on industry needs analysis

From the data collected, the gaps in the industry (as recognised by industry itself) can be summarised as follows:

- Institutional capacity.** Practitioners are currently less than satisfied with the ability of various agencies to work together; collaborate on projects; and discuss and debate the technical, political and socio-economic issues. Many barriers to implementing WSUD are related to inter-organisational and external relationship capacity spheres. There are some encouraging systems and practices in place, such as the ability of 16 different industry groups to actively support the stakeholder engagement elements of this project. The Stormwater Industry Association and Planning Institute of Australia and other industry groups have existing systems in place to encourage cross-sectoral engagement, but these events are not ‘the norm’. Agencies collaborate on a project-by-project basis, with no formal and wider means to encourage collaboration. This issue was uniformly identified via the project’s workshops, site visits and forums. There is a disconnect between individuals in similar positions and across organisations, plus a sense of frustration in their ability to work across sectors. There are some rare examples (such as the City of West Torrens) where individuals are connected not just to their peers and the executives within their own organisations, but to others outside the organisation. This is usually a function of passionate individuals who actively seek to build their own personal networks and share their individual knowledge and expertise.

- **Lack of project experience.** Compared to other centres around Australia there are relatively few examples that can be used for training and other educational uses.
- **Engineering guidelines.** While the then DPLG led and delivered a project to create the South Australian WSUD Guidelines in 2010, practitioners were either unaware of these guidelines, required guidance that was not of an engineering nature, or simply did not use the document for everyday practice. There is a strong sense that there is a need to regionalise several of the interstate guidelines to South Australia's context, such as Water by Design's (South East Queensland) Construction and Establishment of Vegetated Systems Guideline.
- **Coordinated approach to training.** Several organisations are offering training in WSUD (e.g., AMLRNRMB, LGA, EA, PIA, SIA, AWA, UniSA), but all are focused on the more technical aspects of WSUD, and there is no central place for practitioners to mix with other disciplines and discuss issues that relate to WSUD. A coordinated approach would deliver efficiencies and ideally result in more training overall.
- **Advocacy.** Through the one-on-one interviews and the workshops it was apparent that there is a gap in advocating for change that encompasses the whole industry. The Stormwater Industry Association and other industry bodies coordinate sessions to respond to industry wide issues (e.g., the Department for Water's Policy Statement), but they have limited ability to work across all sectors and advocate and lead the industry momentum in its entirety towards achieving more water sensitive outcomes at the local level.
- **Policy.** Across almost all research methods, the issue of state policy for the requirements for WSUD on all types of development (greenfields, brownfields, infill) was raised as an area that inhibited the uptake and implementation of WSUD. It should be noted that there are some stakeholder groups that are not interested in new policy and the mandating of WSUD targets. Further, there is some debate in the research community and government sector as to precisely how this would be effectively implemented.
- **Life Cycle Costings.** The life cycle costs associated with the implementation of WSUD is another area identified by practitioners as lacking depth and therefore is a perceived barrier to the adoption of WSUD. Relating to both capital and maintenance costs, the lack of uniform data and a means to collate and house it contributes to a perception of increased development cost and an inability to adequately forecast maintenance budgets.
- **Monitoring and evaluation.** Another issue was the need for more monitoring and evaluation of WSUD. These comments were made in the context of a discussion around 'what is the case for WSUD' and 'how well do we know that it works'. It should be noted that the WSUD program of the Goyder Institute for Water Research is currently developing a monitoring and evaluation initiative.

Figure 19 presents a summary of the key issues raised through the stakeholder engagement, according to the four spheres of capacity.

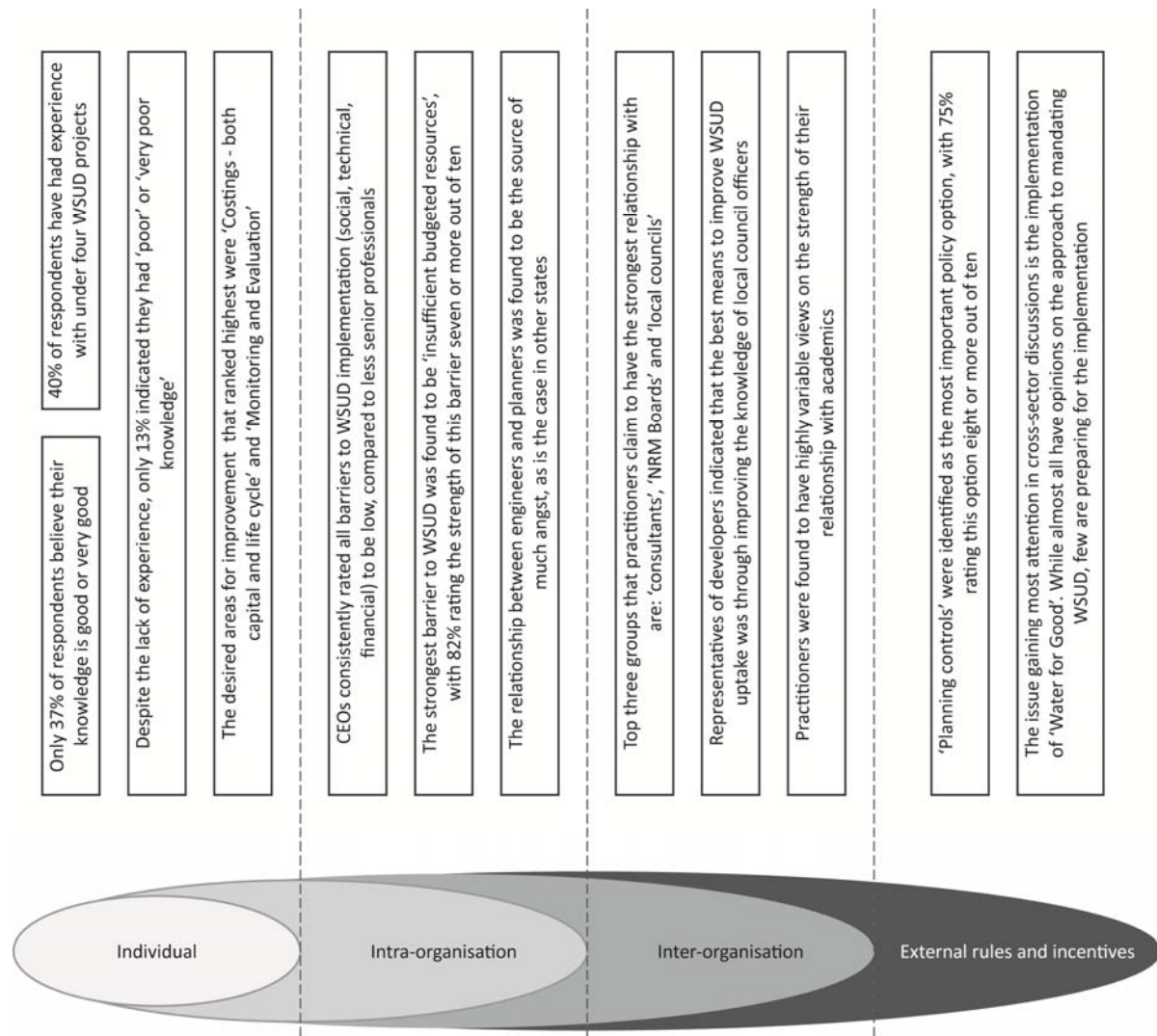


Figure 19. Summary of key issue raised by stakeholders, according to the four spheres of capacity

5 Benefits of a WSUD CBP

Given the results presented above, the establishment of capacity-building activities would appear to have significant benefits given the local context in the Adelaide region. In terms of the problems that this business case relates to, there is now evidence to suggest that these problems can be partly addressed through a capacity-building mechanism. Table 1 and Table 2 presents a summary of the likely direct and indirect benefits a CBP would deliver, in relation to the key problem areas (as outlined in Section 2.3).

5.1 Direct and indirect benefits


Table 1. Summary of likely benefits of a CBP in relation to key needs

Needs	Potential benefits of a capacity-building program
The capacity of industry to implement the State Government's <i>Water for Good</i> plan (2009) and <i>The 30-Year Plan for Greater Adelaide</i> (2010).	<p>Increased ability of practitioners to deliver trusted technologies in an efficient manner.</p> <p>Increased strength of relationships and reduced confusion on roles and responsibilities for agencies.</p> <p>Reduced impact of development.</p> <p>Raised awareness within elected officials and the community.</p>
The expertise of industry to manage construction and maintenance of urban water infrastructure, and transition the stormwater infrastructure of SA to a new standard over the long term.	<p>Increased practitioner knowledge on the alternatives to traditional urban water infrastructure.</p> <p>Reduced financial risk through run-down of existing assets.</p> <p>Potential reduced financial risk through a need to fund increased pipe capacity upgrades.</p>
Meeting the needs of the existing WSUD industry and facilitating a more efficient and increased uptake of WSUD.	<p>Increased ability for practitioners to hear about good and bad case studies.</p> <p>Increased ability for practitioners to work towards a uniform understanding of the problems, the needs, and the design and construction of solutions.</p>

Table 2 lists the potential indirect benefits associated with implementing the proposed CBP, broken down by social, economic, political and environmental categories, and type of beneficiary. This list draws from the stakeholder engagement results and the literature review. These potential benefits are generally associated with the benefits that come from the increased adoption and appropriate maintenance of WSUD. It is important to note that the majority of these benefits are not readily quantifiable fiscally.

Table 2. Potential indirect benefits of implementing a WSUD CBP

Type	Beneficiaries	Benefit
Social	Institutions State of SA Individuals	<ul style="list-style-type: none"> • Increased and streamlined implementation of WSUD. • Greater coordination of efforts across relevant government agencies and sectors (e.g. planning, water management, developers, architects). • Improved management of flood risk. • Improved urban amenity and liveability (support of 'green infrastructure', waterscapes, urban heat island effect mitigation). • Increased water storage capacity. • Improved awareness of WSUD at the community, political and executive levels. • Improved access to fit-for-purpose water supply. • Local-level understanding of water practitioners' capacity needs and wants to achieve water sensitive cities.
Environmental	State of SA Aquatic ecosystems	<ul style="list-style-type: none"> • Improved water quality in waterways and Gulf St Vincent (as per Adelaide Coastal Waters Study). • Reduced reliance on waterways for potable water supply. • Avoidance of adverse water quality impacts on receiving waters. • Improved hydrological balance. • Groundwater recharge. • Reduced urban heat island effect and more liveable water sensitive cities, reducing energy consumption and therefore greenhouse gas emissions.
Political	Elected public representatives Voting public State of SA	<ul style="list-style-type: none"> • Greater certainty in achieving State Government policy objectives of implementing WSUD (see Section 2.3). • Reclaim South Australia's title as national leaders in WSUD. • Alignment with other relevant policies, strategies and plans.



Type	Beneficiaries	Benefit
Economic	State of SA Institutions	<ul style="list-style-type: none"> • Protection of existing (and forecasted) infrastructure, including potential for negating the need to supplement stormwater and flood management systems to cater for increased run-off from urban renewal and growth. • Increased life of assets through better design, construction and maintenance. • Improved maintenance regimes. • Support existing investment into research on WSUD barriers (Goyder Institute). • Increase South Australia's attractiveness for Federal and private investment in WSUD. • Avoidance of rehabilitation cost associated with water quality issues. (Costs of \$25 per metre of stream restoration per year have been reported in other regions; Water by Design, 2010). • Increased investment into WSUD by private sector. • Reduced cost of WSUD design and construction. • Improved market property value of developments with functioning WSUD features. Increases by about 7 per cent if located adjacent to natural or constructed wetland (Water by Design, 2010). • Marketability of sustainable developments (Water by Design, 2010). • Improved market for recreational fishing through more fish. Improved opportunity to maintain water quality and therefore fish habitat. (Approximately 236,000 SA residents recreationally fish, providing 'millions of dollars' to the SA economy each year (SA Government, 2012).)


5.2 Economic benefits

Part of the process to present a case for a capacity-building program in SA was to investigate the financial costs and benefits of such a program. The costs are relatively straightforward and can be based on equivalent programs elsewhere. Many of the functions of the program come with costs, which are reasonably well understood (e.g. staff and resource costs).

The translation of the more qualitative benefits, however, are much more difficult. Based on conversations with the project team and steering committee there are two main financial benefits to such a program:

1. Increased efficiency in the progression towards a 'water-sensitive city' through having a more informed industry, more appropriate tools, and a better level of training.
2. Increased efficiency in the application of WSUD technologies through better design and construction skills, a greater understanding of maintenance, and ultimately less costly implementation.

The first point is particularly difficult to quantify as the goal of a 'water-sensitive city' is rather ill defined economically at present. While assumptions could be made about the possible financial implications of



advocacy and leadership training, they are confounded by the complex nature of the topic and the aspirational nature of the goal. We believe that the uncertainties surrounding any assumptions will make any result suspect and not particularly useful. Instead of applying financial measures to this topic at the outset, we believe that annual evaluation of any program should be established to measure progress along a preferred path using milestone measurements.

The second point is related to on-ground outcomes, and therefore is in some regards more measurable, assuming there is accurate data on existing and forecasted assets. Anecdotal evidence from NSW, Queensland and Victoria would suggest that the multiple funders of equivalent programs see investment as value for money over time. We have attempted to quantify this efficiency but it should be noted that the assumptions are large and difficult to measure. It should therefore be seen as a guide together with the other, non-financial, benefits of such a program. The results have been presented in terms of a 'sensitivity' analysis rather than absolute numbers.

The process of calculating a financial value on the benefits of a CBP was as follows:

- Obtain data and graph the historical and current investment in water sensitive urban design infrastructure.
- Forecast water sensitive urban design expenditure over the next 30 years using *The 30 Year Plan* as a guide, which dictates more growth than has traditionally been observed in South Australia.
- Attempt to quantify the efficiency in the improvement in design and construction in new WSUD through evidence from interstate.
- Attempt to quantify the efficiency improvement in maintenance of WSUD through evidence from interstate.
- Model 1%, 5% and 10% improvements in efficiency of design, construction and maintenance on forecast expenditure.

There are numerous assumptions in both the forecast of future expenditure and the link between a capacity building program and efficiency gains. While there has been a measured increase in capacity to deliver WSUD in regions with a capacity building program (Eggleton, 2012), the casual link between the CBP and WSUD infrastructure delivery is difficult to prove.

Nonetheless some of the assumptions that have been used in the development of this data are:

- Total replacement value of \$1.86 billion in stormwater infrastructure (Burns et al, 2001).
- Rainwater tanks in 48% of homes (ABS, 2011).
- Current number of lots in greater Adelaide is 475,000 (Australian Bureau of Statistics, 2011).
- Projected number of new houses in *The 30-Year Plan* is 258,000 (Department of Planning and Local Government, 2010).
- Growth rate of 1.8% over next 30 years (whereas growth rate per 2010 was less than 1.0%) to 2040 (Department of Planning and Local Government, 2010).
- \$131 million in grants for MAR schemes to 2012, with a forecast of only minor grants beyond 2012 (Department of Sustainability, Environment, Water, Population and Communities, 2012).
- \$350 million in total for MAR schemes, which includes local and state contributions.
- Assumed that over the whole 30 years approximately 20% of residential developments include some WSUD infrastructure.

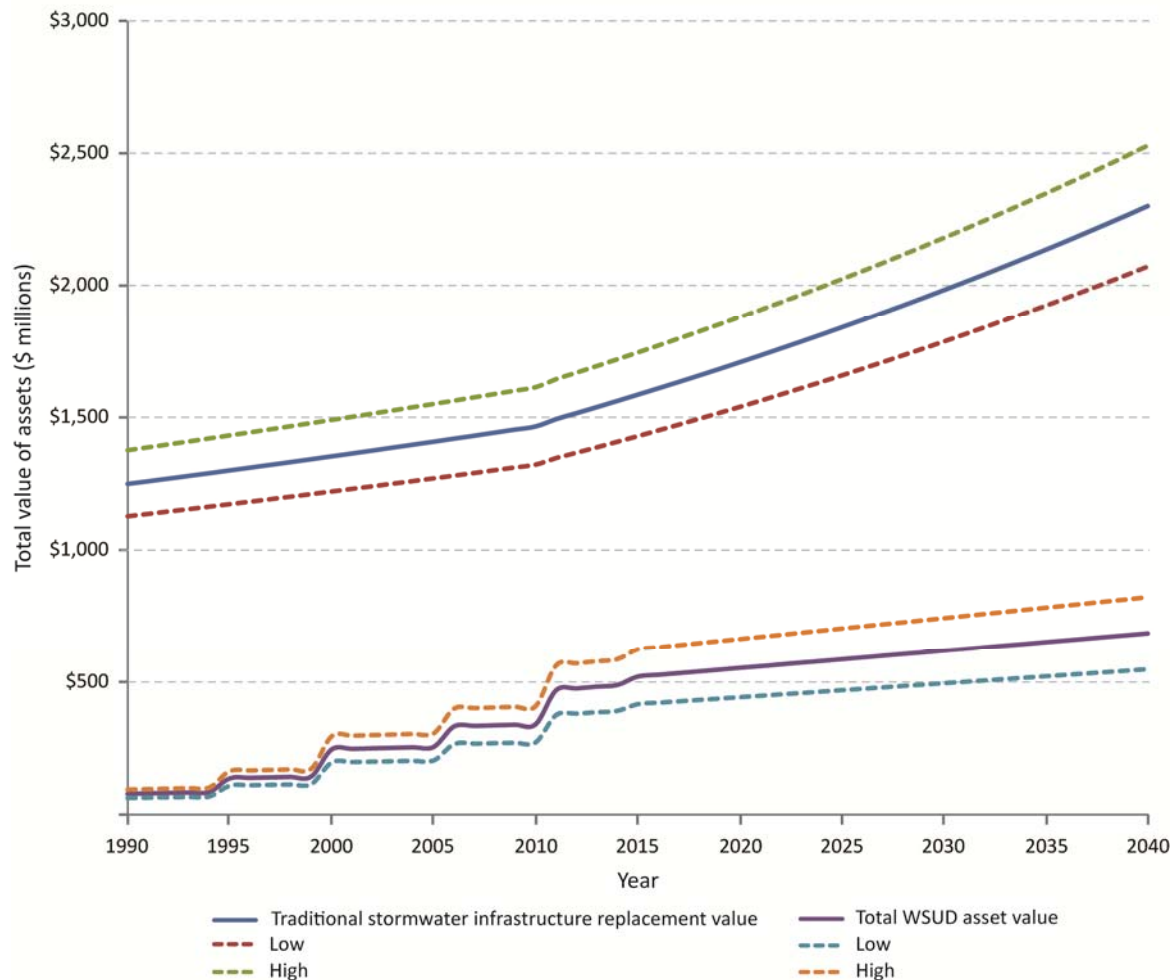


Figure 20. *Approximate asset value of WSUD and traditional stormwater pipes and pits, between 1990 and 2040*

Figure 20 illustrates a few points in regard to the level of investment in water sensitive urban design and traditional stormwater infrastructure:

- The value of the ‘traditional’ (meaning the stormwater pits and pipes) has a far greater asset value now and is projected to stay that way into the future, compared to the value of WSUD assets.
- The WSUD assets are currently valued at between \$450 million and \$500 million, based on a combination of MAR schemes, rainwater tanks, and council owned assets.
- *The 30-Year Plan* is explicitly promoting an increase in the rate of investment in WSUD and development generally, which then influences the increase in value of WSUD assets based on successful policy implementation.

From this asset projection, the potential savings that a CBP could drive is represented in Table 3 and averaged over a 30-year period.

Table 3. Range of savings that a capacity-building program may achieve through efficiency of delivery and maintenance

Scenario	Total potential saving over 30 years	Average potential saving per year
1% more efficient implementation	\$3,400,000	\$110,000
1% more efficient maintenance	\$100,000	\$10,000
5% more efficient implementation	\$17,100,000	\$570,000
5% more efficient maintenance	\$800,000	\$20,000
10% more efficient implementation	\$34,200,000	\$1,140,000
10% more efficient maintenance	\$1,700,000	\$50,000

In summary, based on the current and forecast investment in water sensitive urban design (and a range of assumptions), there could be a potential saving to the industry of between \$120,000 and \$1.2 million per year through the improved design, construction and maintenance that a CBP would enable.

6 Options


This section of the business case outlines a range of options that relate to the needs for a CBP described in Section 2 and the results from Section 4. This section of the business case was informed by the review of interstate WSUD CBPs, in combination with the results of the stakeholder engagement activities.

6.1 Option analysis


Table 4 presents an assessment of a range of options that exist to provide capacity-building solutions for the SA WSUD industry. The range of options presented progressively expands in scope and in potential to address the needs outlined in Sections 2 and 4.

Table 4. Assessment of potential options for capacity-building approach

	Option A Do nothing	Option B Information Portal	Option C B + Regionalised Guidelines	Option D B + C + Technical Training	Option E B + C + D + Community of Practice	Option F B + C + D + E + Leadership Network
Scope	None.	Focused on collating all current local information, linking to interstate guidelines and fact sheets where appropriate, and customising other materials where possible.	Addresses some of the issues of regionalisation of information and resources.	Provides opportunities for face-to-face mentoring and peer-to-peer network engagement and shared learnings. Potential to earn income from training events that could seed fund additional projects.	Engages practitioners at all levels of learning – self-directed, directed, mentoring and peer-to-peer learning.	Extends reach beyond self-identified practitioner needs. Engagement across industry more diversified. Greater potential to effect change and have influence via a direct advocacy role.



	Option A Do nothing	Option B Information Portal	Option C B + Regionalised Guidelines	Option D B + C + Technical Training	Option E B + C + D + Community of Practice	Option F B + C + D + E + Leadership Network
Features	Not applicable.	Online engagement platform (e.g. website, discussion forum) and other more direct engagement mechanisms (e.g. newsletters and social media) are used to centralise and communicate capacity-building solutions and associated tools and resources.	Regionalisation of existing best practice guidelines used interstate. These guidelines would be based on social and technical research grounded in practice.	Directed learning that addresses identified knowledge gaps to build the individual skills and expertise of industry practitioners. Methods may include seminars, workshops, technical training and site visits or tours.	Facilitates the development of a Community of Practice, with the principal aim of advancing best practice and improving inter-organisational capacity. Methods may include technical training, mentorship programs, group-based workshops, an awards program, scholarships, and other professional network development opportunities. The program would also work in partnership with change advocates (individuals and organisations or groups) to provide best practice WSUD information and guidance to inform public and industry debate.	Seeks to build networks across a broad range of sectors and to promote leadership and effect change in policy and practice. Methods might include alliance building, representation on relevant committees, preparation of position papers and speaking in public forums. The Program Manager would also act as a change advocate and industry leader to ensure WSUD practitioner needs are met.
Alignment with capacity spheres	None.	Individual.	Individual.	Individual, Intra-organisation, Inter-organisational.	Individual, Intra-organisation, Inter-organisational, external rules and incentives.	Individual, Intra-organisation, Inter-organisational, external rules and incentives.
Benefits	Low cost.	Minimal effort. Could be housed within an existing agency/program.	Begins to meet some of the needs of the industry and does not require large investment.	Greater regionalisation of training materials. Potential to earn income from training events that could seed fund additional capacity focussed projects.	Significant opportunities to identify and support emerging leaders and champions and actively work across sectors.	Greater potential to effect change and have influence.



	Option A Do nothing	Option B Information Portal	Option C B + Regionalised Guidelines	Option D B + C + Technical Training	Option E B + C + D + Community of Practice	Option F B + C + D + E + Leadership Network
Risks	Maintaining the current status quo and practitioner malaise in terms of WSUD adoption. Failure to strengthen consistent planning controls at the local level. Failure to achieve State policy and targets.	Does not meet the identified needs of the industry. Information and resources sourced from interstate may not be applicable to local conditions. Potential failure to strengthen consistent planning controls at the local level.	Does not adequately deal with local hydrological, hydraulic and meteorological conditions and so potentially leads to poor design, construction and maintenance. Continues to address largely individual rather than organisational capacity needs – “band-aiding” the problem rather than effecting change.	With increased scope and delivery, the risk of not achieving and delivering brings with it the risk that the increased investment is not money well spent. Potential failure to strengthen consistent planning controls at the local level. Engagement of industry is not diversified. E.g. not across total water cycle; limited to government practitioners and/or engineers only.	Sustainable funding model may be more challenging. Potential failure to strengthen consistent planning controls at the local level.	Potential failure to strengthen consistent planning controls at the local level if advocacy is ineffective.
Ability to address the identified needs	Does not address any of the needs, and will likely see the industry become despondent and less likely to be innovative and able to deliver new policies over time.	Limited ability to influence policy implementation and infrastructure protection. Including the integration and strengthening of consistent local planning controls.	Limited ability to influence policy implementation and infrastructure protection.	Potential to assist in asset management and partly addressing industry needs, but still will struggle to support policy implementation.	Good opportunity to address all areas of need and then become proactive in setting the direction of the industry and policy.	Good opportunity to address all three areas of need and then become proactive in setting the direction of the industry and policy.
Indicative resourcing	Not applicable.	1.0 FTE.	1.5 FTE.	2.0 FTE.	3.0 FTE.	4.0 FTE.



6.2 Preferred option

The preferred option is Option E. This preference is based on the data, the effectiveness of the option in addressing the needs, and discussion with the Steering Committee.

Option A is not a viable option as it will do nothing to address the identified problems. Options B and C could achieve small gains in terms of providing some guidance to the industry and assisting it to move towards a common set of tools and standards. These options will not, however, address the key issue raised by practitioners around policy implementation – compromising the implementation of Water for Good.

Option D includes the provision of technical training. While a portion of the industry specifically requested basic training in WSUD, this still will not fully assist the implementation of policy, or do anything to overcome the institutional barriers to implementing WSUD.

Option E is preferred as it includes a means to build capacity between organisations, and will over time assist in breaking down the barriers between the main sectors of the water industry that are responsible for implementing WSUD (see Section 4.4 and 4.5). Option E includes a specific position to work on institutional capacity. This option also includes working in partnership with industry change agents (e.g. industry groups) to ensure the provision of best-practice WSUD for integration within local planning controls without being directly involved with advocacy per se. This reflects the 3.0 FTE estimate, while also recognising the reality that there is likely a limited pool of practitioners who would be equally proficient in the technology of WSUD and capacity building. It is likely that the skills required to facilitate some projects, such as ‘regionalisation’ of guidelines, would be outsourced. It is important to note that there is no CBP across Australia which has more than 4.0 FTE, suggesting that Option F is near the limit of necessary and realistic resourcing for a CBP. Additional roles and/or project-based work could also be funded via external resourcing (e.g. grant funding) and/or seed funding from regional initiatives such as the Goyder Institute for Water Research or Water Sensitive Cities CRC. Refer also to Section 8 – Funding Model – for further information.

Option F may be a possibility once the capacity-building program has established a reputation for providing information and delivering training and services to raise the knowledge and ability of individuals and organisations. It is suggested that this option be revisited in three to five years. A direct involvement in advocating for change within the water industry has been incorporated.

The presentation of these options as nested options also implies that it is unrealistic to jump straight to an advocacy and leadership-orientated approach (Option F). Rather, it would be better to build towards this goal. It is recognised that this may be slightly at odds with the views of the broader industry, which are looking for a whole-of-industry position and advocacy approach to the implementation of policy. However, qualitative evidence garnered from existing CBPs suggest responsibility for this role should be distributed amongst existing networks in order to ensure the CBP is not seen as the sole entity responsible for advocacy.

It should be noted that the cost of each option increases as more activities are added (progress from left to right in Table 4). It should also be noted that comparable programs across the country operate at, or historically operated at, levels equivalent to each of the options above. The ability to learn from those interstate programs and clearly identify who should be engaged, and when, has also influenced the recommendations. Specifically, this relates to a need to engage with developers, with maintenance and asset managers, and track the costs and effectiveness of WSUD. The level of funding (or personnel in the CBP) in Option E could also be managed to some degree through in-kind contributions.

7 Structure

This section of the business case was largely informed by the review of interstate WSUD CBPs, in combination with the results of the stakeholder engagement activities, in particular the one-one-one interviews with industry leaders.

7.1 Governance

The CBP would be best served by a simple governance structure, as presented in Figure 21. This structure is comparable with those of WSUD CBPs interstate and, like these other programs, relies on the CBP residing within a host organisation.

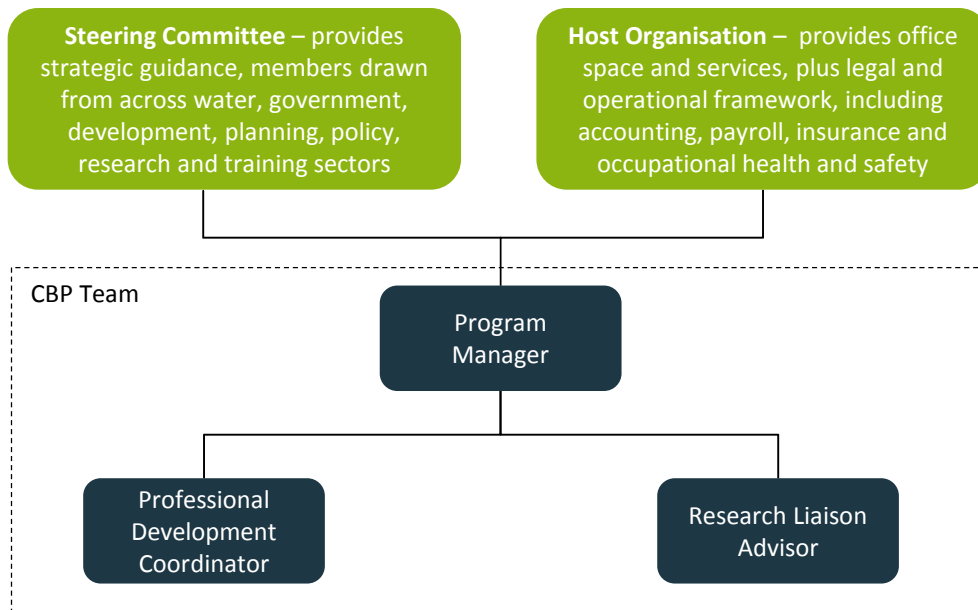



Figure 21. *Proposed governance structure of the CBP*

The key elements of Figure 21 are explained below.

- **Steering Committee:** A committee of not more than eight senior experts, drawn from across the water, local and state government, development, planning, policy, research, and training sectors. The broad make-up of this committee is important for ensuring the program has links across a range of WSUD-related disciplines. This committee would provide strategic guidance at quarterly meetings and act as ambassadors for the program.
- **Host organisation:** The program's host organisation would provide office space and services, as well as a legal and operational framework for the program. While the CBP should brand itself externally as independent and take its strategic direction from the program Steering Committee, from an operational perspective it will effectively be a unit within the host organisation. For example, it will rely on the host organisation for business functions such as accounting, payroll, insurance and occupational health and safety. This approach is consistent with CBP programs interstate. Potential options for the host organisation are outlined in Section 7.2. It will be important for the program to manage both the strategic direction as set by the Steering Committee as well as the strategic priorities of the host organisation.
- **CBP team:** In order to fulfil the full potential of Option E, the ultimate program team would comprise three positions: Program Manager, Professional Development Coordinator, and Research Liaison Advisor. How long it takes to build the full team will depend on the timeframe for securing appropriate levels of funding. The Program Manager and Professional Development Coordinator



positions should be filled first, as these roles will be critical as the program's business plan, brand and website are established. There is, of course, potential for appropriately-skilled personnel to be seconded to the program from relevant government departments or industry groups that have a stake in the program. The specific responsibilities of these roles are detailed in Section 8.2.

It should be recognised that the governance structure may evolve over time, and is likely to be influenced by the funding bodies behind the program. While not indicated in Figure 21, there is the potential to set up project specific committees when necessary (e.g. regionalising interstate guidelines). A scientific advisory committee could also be formed to provide expert advice on the task of ensuring research adoption pathways adequately meet identified knowledge gaps, for example.

An alternate governance arrangement could be to establish the CBP as an incorporated association, in accordance with the South Australian *Associations Incorporation Act 1985*. This would make the CBP an independent legal entity with the ability to function in its own right. While this approach would afford the CBP significant independence from any one host organisation, it would add complexity to the governance structure. The CBP would need to be governed by a committee that, as a whole, had a broad range of competencies including financial management, policy development, legal matters, risk management, and organisational development. It would also mean significant CBP team staff time would be diverted from core business into establishing and managing service providers for business functions such as payroll, accounting, IT, and telecommunications.

7.2 Host

It is recommended that the program promote itself as an independent organisation, governed by its cross-sectoral Steering Committee. This will help generate a sense of trust as an independent authority, which is not aligned to any one sector or department.

However, as outlined in Section 7.1, unless the CBP is established as an incorporated association or similar, it will be reliant on a host organisation to provide a range of operational functions. Strategically, the CBP would be best placed within a host organisation that has aligned objectives and strong relationships with relevant sectors. While the program may benefit from presenting itself externally as independent, its association with a strategic host organisation would be beneficial as the CBP establishes its credibility with program partners. By working within the offices of a relevant organisation, the CBP staff will benefit from the links, introductions and exchange of information that the host can offer.

In terms of strategic alignment, the ideal host organisation would have the following attributes:

- Strong links to both local government and the development community.
- A history of promoting and understanding WSUD.
- Strong relationships with WSUD practitioners.
- The ability to work across the whole of the state.

The following list presents several options for a potential host organisation (in no particular order) and outlines some considerations related to each:

- **Regional NRM Boards / Regional service delivery teams of DEWNR:** The hosting of the program in a regional Board such as Adelaide and Mount Lofty Ranges NRM Board is an option. The AMLR NRM Board have shown leadership in promoting WSUD and are a trusted organisation. They have a history of working with local councils to support their move towards the adoption of strategies and the designing and building of WSUD infrastructure. Regional CBP initiatives could be negotiated via other NRM Boards. NRM Boards are also funded externally to state government budgets.
- **Local Government Association of South Australia:** The LGA is positioned as a key voice and advocate for local councils, and already undertakes activities aimed at improving the capacity of councils to manage stormwater. The LGA liaises with the state government on a range of policy issues, which includes WSUD.

- 
- **Renewal SA (Urban Renewal Authority):** Renewal SA is well positioned to engage and influence the development industry. SA Government's Department of Premier and Cabinet identified URA as a 'key vehicle for implementing WSUD principles in SA' via consultation processes associated with the WSUD Consultation Statement (Department for Water, 2010). Renewal SA does not have a particularly strong relationship with local government. However, these relationships would be strengthened over time via delivery of the CBP.
 - **Urban Development Institute of Australia (South Australia branch):** The UDIA is positioned very closely to developers and could be resourced to support a CBP. The UDIA already offer a range of capacity-building activities, and have some understanding of WSUD. The UDIA have a good understanding of the needs and skills in local government, and also interface with the State Government.
 - **Planning Institute of Australia (South Australia branch):** The PIA administrative body has been an excellent advocate and supporter of the 'Water Sensitive SA' project. The need to engage with and involve planners in the move towards implementing WSUD policy was a key issue derived from the industry needs analysis and as supported in social research as best practice. The PIA could provide adequate administrative support, and are experienced in working with both the developer industry and local government.
 - **Stormwater Management Authority:** The SMA are a standalone agency and knowledgeable on the issues of WSUD. The SMA is well positioned in working with local councils on stormwater issues, and has the benefit of an Act that provides certainty to their existence .

Any of the above options for hosting do not preclude the CBP from arranging secondments and placements whereby closer relationships are built with particular local councils, state government departments, or non-government organisations.

The selection of a host should be made with reference to the views of practitioners (see Figure 13 and Figure 14).



8 Implementation Plan

This section of the report outlines the ‘who, what, where, when and how’ of implementing the preferred CBP option. It was largely informed by the review of interstate WSUD CBPs in combination with the results of the stakeholder engagement activities.

8.1 Objectives

A clearly articulated mission and objectives will provide the CBP with focus and a framework in which to measure success. The CBP’s mission could be as simple as:

To build the capacity of individuals and organisations to support the institutionalisation of WSUD in SA.

Objectives may include:

- To provide training and resources designed to build the skills and knowledge of WSUD practitioners.
- To provide a forum for WSUD practitioners to exchange experiences and ideas.
- To promote WSUD best practice and encourage its advancement.
- To support the implementation of WSUD policy.
- To raise the profile of WSUD while improving connectivity across all relevant water industry sectors.
- To fully realise the benefits of WSUD.
- To monitor the needs of the industry on WSUD issues.

8.2 Tools

In line with the preferred CBP option outlined in Section 6.2, the program should draw upon the following capacity-building tools and techniques, either on its own or in partnership with others:

- **Website:** A central hub for program information and resources, such as fact sheets, reports, case studies, picture library, and policy, guidelines, procedural or process templates and checklists that incorporate best practice, formulated from technical and research findings.
- **Online forum:** Part of the website, this can provide the opportunity for practitioners to discuss issues and share advice online. It can serve to provide some regionalisation of science and practice. However, ongoing resourcing is required to ensure information is relevant, accurate and to maintain an ongoing dialogue with practitioners.
- **E-newsletter:** A means by which to communicate with practitioners and other relevant stakeholders on a regular basis to promote program activities and to share relevant news and resources.
- **Social media:** Another avenue to communicate with practitioners and other relevant stakeholders using tools such as Twitter, Facebook and YouTube.
- **Guidelines:** Used to convey best practice using self-directed learning; guidelines are based on social and technical research grounded in practice. Existing best practice guidelines used interstate can be regionalised for SA application.
- **Training:** Directed learning that addresses identified knowledge gaps to build the individual skills and expertise of industry practitioners. Methods may include seminars, workshops, technical training and site visits or tours. This training can be designed to address both technical and institutional issues.

- **Community of practice:** A means by which to facilitate peer-to-peer learning and the advancement of best practice; elements of a community of practice program could be online (i.e. remote) or face-to-face via group-based workshops, mentorship and awards. Tackling institutional issues would be the primary focus.
- **Mentorship:** A mechanism for peer-to-peer learning and knowledge transfer. It could be a particularly useful tool for promoting cross-sectoral learning.
- **Awards:** A means by which to recognise excellence and raise the profile of best practice at a policy, procedural, process or project level; an awards program acts as an incentive for practitioners to promote their own efforts while also providing the opportunity for peer-to-peer learning and network building.

8.3 Stages

The plan presented below is broken into four stages, beginning with a program establishment stage and followed by Years 1, 2 and 3 of program delivery. It assumes Year 1 will start on 1 July 2013. A continuous process of evaluation and review will help determine the program's future direction. It also assumes the full team of three personnel are recruited from the beginning of Year 1. Should funding constraints prevail, the team could be built over time with particular personnel deferred, reassessed, or redistributed. This will, of course, affect how well the CBP is able to meet the full potential of Option E.

Program establishment

November 2012 – June 2013

The program establishment phase includes promotion of the business case to garner both in-kind and fiscal support for the development and delivery of the CBP. Resourcing of this stage is likely to rely on the continued in-kind support of the Water Sensitive SA project Steering Committee.

Expected tasks and lead personnel are as follows:

Expected task	Lead personnel
Assign a Bridging Program Manager (0.5 FTE)	Current Steering Committee or other nominated representative
Secure seed funding	Bridging Program Manager, current Steering Committee
Establish CBP Steering Committee, with clear Terms of Reference	Bridging Program Manager, current Steering Committee
Formalise hosting arrangement	Bridging Program Manager, new Steering Committee
Promote project status, keep abreast of relevant policy developments	Bridging Program Manager, new Steering Committee
Develop staff position descriptions and contract conditions	Bridging Program Manager, new Steering Committee
Recruit Program Manager (to commence on July 1, 2013)	Bridging Program Manager, new Steering Committee

Key deliverables include:

- Seed funding secured.
- Steering Committee established.
- Hosting arrangement formalised.
- Program Manager recruited.

Year 1 of Program

Financial year 2013/14

Year 1 expected tasks and lead personnel:

Expected task	Lead personnel
Procure office equipment	Program Manager
Develop detailed Year 1 Business Plan, including mission, objectives, expected outcomes, and reporting and evaluation framework	Program Manager
Establish internal policies, processes and financial systems	Program Manager
Recruit staff and establish individual work plans	Program Manager
Review and regionalise an initial selection of existing interstate best practice guidelines	Professional Development Coordinator / Research Liaison Advisor
Initiate review and practitioner application of WSUD Technical Manual for Greater Adelaide	Professional Development Coordinator / Research Liaison Advisor
Develop communications and marketing plan, including branding and database management	Program Manager
Develop website content (e.g., fact sheets, case studies) and functionality (e.g., forum)	Professional Development Coordinator / Research Liaison Advisor
Launch website and initiate communications (e.g., e-newsletter, social media posts)	Professional Development Coordinator / Research Liaison Advisor
Develop detailed training and professional development program	Professional Development Coordinator
Launch initial training program (e.g., seminars, workshops, site visits)	Professional Development Coordinator
Develop detailed Year 2 Business Plan, following evaluation of Year 1 outcomes	Program Manager
Engage with relevant issues and stakeholders in government, research and industry to further inform the program, build support and grow networks	Program Manager / Professional Development Coordinator / Research Liaison Advisor
Review of industry needs analysis raw data to identify knowledge gaps and a priority plan for bridging the gap between science, policy and practice	Research Liaison Advisor
Review of existing research initiatives commencing with Goyder Institute and Water Sensitive Cities CRC to identify potential adoption pathways and associated opportunities for integration into CBP deliverables	Research Liaison Advisor

Year 1 key deliverables:

- Program team, business system and work plans in place.
- Regionalisation of Best Practice Guidelines initiated.
- Review of WSUD Technical Manual initiated.
- Program identity, website and communication tools launched.
- Initial training and professional development program launched.
- Identification of research-focussed adoption pathways.

Year 2 of Program

Financial year 2014/15

Year 2 expected tasks and lead personnel:

Expected task	Lead personnel
Promote and deliver training program	Professional Development Coordinator
Promote and maintain website resources (e.g., checklists, templates, photo library, etc.)	Professional Development Coordinator / Research Liaison Advisor
Promote and issue communications (e.g., e-newsletters, social media)	Professional Development Coordinator
Regionalise further interstate best practice guidelines and promote use	Professional Development Coordinator / Research Liaison Advisor
Engage with relevant issues and stakeholders in government, research and industry	Program Manager / Professional Development Coordinator / Research Liaison Advisor
Develop a plan for a Community of Practice (e.g., group workshops, awards, mentorship, etc.)	Professional Development Coordinator
Launch initial Community of Practice program	Professional Development Coordinator
Integration of research adoption pathways into CBP deliverables (e.g. website, training, tools, resources (e.g. reports, models, templates, etc.))	Research Development Coordinator
Development of a research Adoption Pathways Plan	Research Development Coordinator
Develop strategy for diversified future program funding	Program Manager
Develop detailed Year 3 Business Plan, following review of Year 2 outcomes and evaluation	Program Manager

Year 3 key deliverables:


- Initial program of training events delivered.
- Website resources developed and communications issued.
- Further best practice guidelines regionalised.
- Community of Practice launched.
- Diversified funding strategy developed
- Research adoption pathways outputs identified and integrated into CBP delivery.

Year 3 of Program

Financial year 2015/16

Year 3 expected tasks, approximate timing and lead personnel:

Expected task	Lead personnel
Promote and deliver Community of Practice program	Professional Development Coordinator
Promote and deliver refined training program	Professional Development Coordinator
Promote and maintain website resources	Professional Development Coordinator / Research Liaison Advisor
Promote and issue communications	Program Manager, Professional Development Coordinator / Research Liaison Advisor



Expected task	Lead personnel
Develop further best practice guidelines and promote use	Professional Development Coordinator / Research Liaison Advisor
Research adoption pathways further integrated into CBP delivery	Research Liaison Advisor
Engage with relevant issues and stakeholders in government, research and industry	Program Manager / Professional Development Coordinator / Research Liaison Advisor
Support research and develop program on maintenance and life cycle costs issues	Research Liaison Advisor
Conduct a detailed evaluation of program impact to date, and practitioner needs analysis	Program Manager
Secure diversified future program funding	Program Manager
Develop detailed Year 4 Business Plan, following review of Year 3 outcomes and evaluation	Program Manager

Year 3 key deliverables:

- Initial Community of Practice program delivered.
- Refined program of training events delivered.
- Website resources developed and communications issued.
- Further best practice guidelines regionalised.
- Research adoption pathways further integrated into CBP delivery.
- Detailed program evaluation and needs analysis report completed.
- Diversified program funding secured.

8.4 Cost estimate


A summary of program costs, by stage, shows the split between operational, labour and project expenses. A detailed breakdown of costs by tasks and relevant assumptions is given in Appendix E.

In all stages, labour is the major cost component. Project costs reach a peak in the second year of the program when a number of activities such as training module and website development are undertaken. In Year 3, the project costs are reduced because it is assumed that training courses become a source of (minor) income for the program.

Given this, it should be noted that these figures are very sensitive to the number of staff employed by the program. A reduction from three to two staff would result in the total costs in Years 2 and 3 reducing by \$100,000 each year.

Table 5. Costs over first three years

Period	Total Cost	Type	Indicative split of costs
Program establishment, November 2012 – June 2013	\$15,000	Operational (office running)	80%
		Labour (staff)	0%
		Project (consultants, projects)	20%
Year 1, July 2013 – June 2014	\$392,000	Operational (office running)	16%
		Labour (staff)	70%
		Project (consultants, projects)	14%



Period	Total Cost	Type	Indicative split of costs
Year 2, July 2014 – June 2015	\$403,000	Operational (office running)	9%
		Labour (staff)	88%
		Project (consultants, projects)	3%
Year 3, July 2015 – June 2016	\$403,000	Operational (office running)	9%
		Labour (staff)	88%
		Project (consultants, projects)	3%

8.5 Evaluation Plan

A continuous process of monitoring and evaluation will be critical for assessing the program's impact and will help to determine its future direction. A detailed evaluation framework must be developed early in the first year of the CBP's operation, as part of the Year 1 Business Plan and via the development of an outcomes hierarchy and associated risk management framework.

The evaluation plan should include key performance indicators, setting milestone targets for these indicators, and identifying those responsible for monitoring and reporting.

Performance indicators for key program activities may include:

Program activity	Performance Indicators
Website	Number of visits, posts to online forum, document downloads (e.g., guidelines)
E-newsletter	Number of editions, growth in subscribers
Training program	Number of events run, number of practitioners engaged, quality of post-training feedback
Stakeholder engagement	Number and diversity of engagements, quality of outcomes
Community of Practice	Number and diversity of practitioners engaged, quality of feedback
Funding	Amount and diversity of funds secured

At a minimum, the evaluation framework must include:

- Regular reporting to program Steering Committee on progress towards performance targets.
- Annual evaluation of program outcomes to feed into the following year's business plan.
- A detailed evaluation of the program's impact to date at the beginning of Year 3 of the program, including a repeat of the practitioner needs analysis conducted to inform this business case.

There are also several questions from the Online Survey that could be used to track progress and issues relevant to South Australian practitioners. One example is presented in Figure 22.

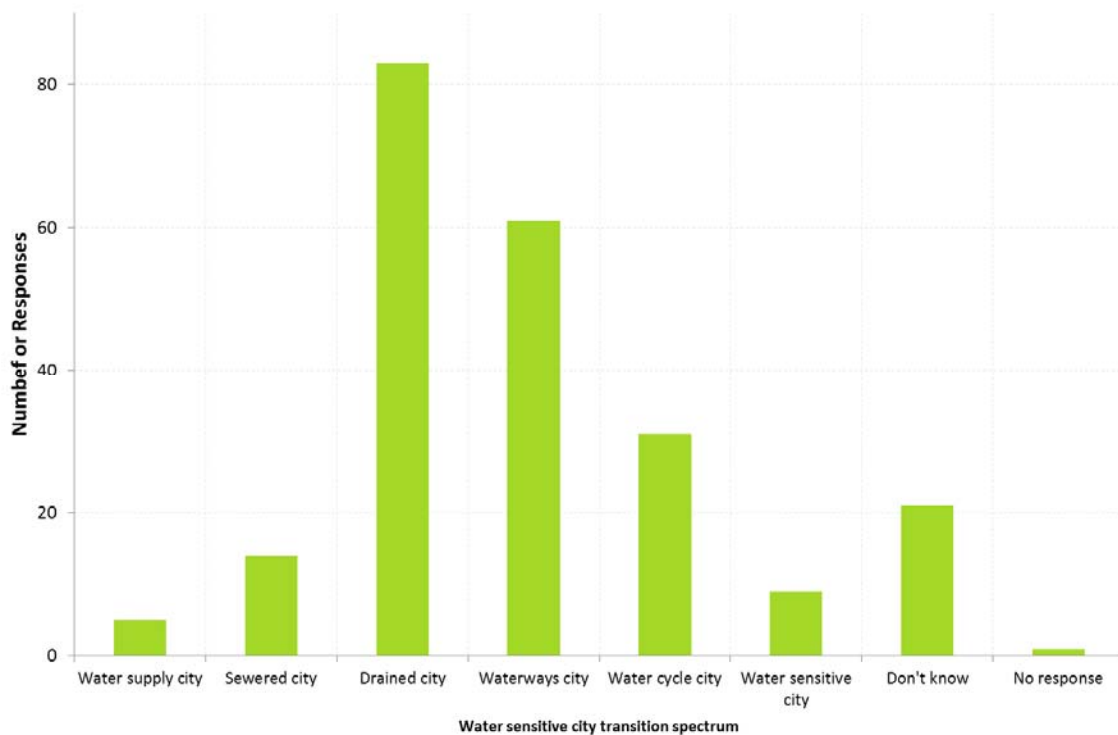


Figure 22. Results from the 'Needs Analysis' and a potential tracking question for the industry 'Where is Greater Adelaide on a spectrum?'

8.6 Champion

There is a need for a senior executive (or political) champion who could be a member of the CBP Steering Committee and who would need to support the industry champion recruited as the Program Manager. The senior executive champion would promote the CBP at a high level (nationally, state and locally) within government, research and industry. The senior level champion would provide support and mentor the Program Manager, as well as open doors using his or her knowledge, expertise, network and personal profile. During the Program Establishment phase of the program, the role of a senior level champion is also deemed important for the promotion of the business case and securing high level elected official and senior management support for both a capacity-building program and WSUD more broadly within urban renewal and growth of both public and privately led development.

8.7 Identity

As a means to engage with the industry over the course of this project (see Section 3.1 on Stakeholder Engagement), a unique brand was developed: 'Water Sensitive SA'. One of the options for the CBP is to continue with this brand and website name. The advantages of this are:

- The brand's name is established and has gained some profile during the course of this project.
- Reflects the overall intent of the program.
- Not 'owned' or associated with any one agency.
- The internet domain is owned outright (requiring renewal periodically).

Disadvantages include:

- Limited nature of its graphic and architectural design.
- Only includes an online platform and a simple logo.

- Existing features were not defined based on WSUD stakeholder consultation and therefore needs and wants.
- Shares a similar acronym with Water Services Association of Australia (WSAA).

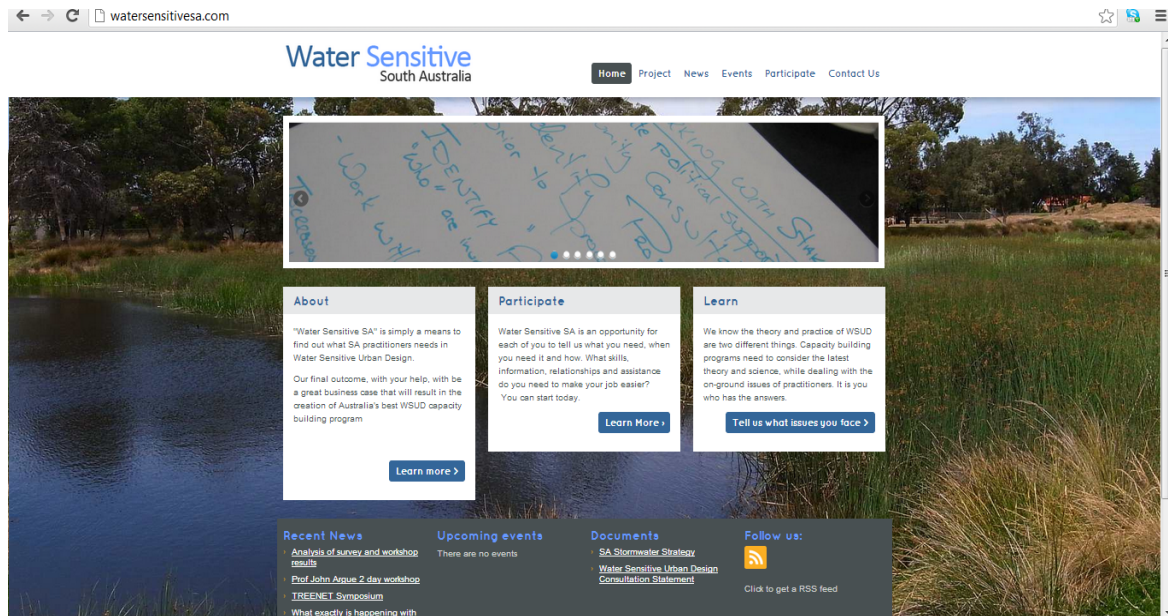


Figure 23. *Water Sensitive SA website and logo*

Regardless of whether the Water Sensitive SA identity is retained, there is a need to formally develop a brand (meaning a logo, an identity, a set of values, a clear outline of the service / product, and a vision) as part of formally establishing the CBP. It is recommended that a professional agency be engaged to create the branding package, including logo, colour palette, website design, letterhead, report templates, and business cards.

9 Funding model

9.1 Potential funding sources

Throughout this project there were several discussions with agencies and institutions on possible funding opportunities for the potential CBP. It is not the role of this business case to determine who has committed funding, but it is possible to identify some potential funding sources. The range of potential funding sources listed in Table 6 is primarily based on the alignment with organisational objectives, informal discussions with representatives of the agencies, and also the history of the agencies in supporting such initiatives.

Table 6. Potential funding sources for the CBP

Potential funding source	Likely scale of contribution
Regional NRM Boards, particularly the Adelaide and Mount Lofty Ranges NRM Board and the South Australian Murray-Darling Basin NRM Board. ²	Given the history of leadership the AMLR NRM Board have demonstrated in promoting WSUD and the associated fiscal investment made to date, this Board would be one of the primary targets for contributing a substantial level of seed funding for the CBP, as well as providing in-kind support during the program's establishment. The SAMDB NRM Board may be more likely to provide in-kind support, for example through staff secondments or training facilities. Furthermore, NRM Boards have annual recurrent funding derived from the NRM Levy, which could be used to contribute to funding of the CBP.
State government departments, including Department for Environment, Water and Natural Resources; Department for Planning, Transport and Infrastructure; Renewal SA; and EPA.	Of all the possible funders, state government departments probably have the greatest potential to make a significant financial investment in the CBP. In addition, the likely benefits delivered by the CBP are most closely aligned with the policy objectives of key state departments. Departments with less available resources, such as EPA, may better positioned to provide in-kind contributions, such as staff secondments or training facilities. It should be noted that across Australia, there are no examples of a CBP becoming wholly independent of state government, and there should be an expectation of some sort of contribution over a long period.
Local Government Association SA and local councils.	The LGA may be in a position to contribute a moderate level of funding, but it would likely be modest compared to the overall scale of investment required. The in-kind support of the LGA (e.g. promotion of CBP initiatives) and individual councils will be critical for both the program's establishment and operation. Local councils will likely become a source of 'user pays' revenue as the program evolves.
Research bodies such as Goyder Institute for Water Research and Cooperative Research Centre for Water Sensitive Cities.	These research bodies may be in a position to make financial contributions, but are likely to be for specific purposes aligned with their particular research priorities – a mechanism to disseminate research findings and outputs to practitioners. It is possible they may be interested to partly fund the Research Liaison Advisor position and/or make substantial in-kind contributions through provision of research services. Further, the Research Liaison Advisor could ensure regionally-specific research objectives are met within those research bodies funded by the SA Government. Ensuring research is practitioner relevant and, where practicable, practitioner led.
Corporate sponsorship, including development industry and consultants.	Event or project specific, corporate contributions could be made on the basis that these groups gain recognition for their contribution (and hence benefit through marketing), while also benefiting from the increased knowledge and relationships that this contribution brings. Until the program is up and running and its reputation established, it is likely to be difficult to secure funding from corporate sponsors. Further, corporate sponsorship would need to be in accordance with the host organisation's procurement policy.

² Recognising that the regional NRM Boards now operate closely with the Department for Environment, Water and Natural Resources.

Potential funding source	Likely scale of contribution
Industry associations, such as the Stormwater Industry Association and the Planning Institute of Australia.	While certain industry associations may have an interest in supporting the program's establishment – perhaps even as a program host – the scale of investment required to do so is likely to be beyond their individual scope. However the in-kind support of these groups will be critical for both the program's establishment and operation. For example, access to their expertise, knowledge of member capacity needs and membership networks will be extremely valuable as the CBP establishes and grows.
User pays revenue.	As is the case for corporate sponsorship, user pays revenue (the contribution made by individuals and institutions in accessing training and resources) will likely be limited until the CBP is well established.

9.2 Recommended funding model

It is recommended that seed funding be contributed by the NRM Boards and relevant state government departments to establish the CBP, with a view to diversifying the program's funding model over time.

The experience of similar programs around Australia is that a diverse funding base provides the greatest security against changes in budgetary priorities. Gaining the financial commitment of a diverse range of funders is also an effective way to gain buy-in for the program with a greater spectrum of stakeholders.

Figure 24 presents an indicative approach to the funding model of the preferred option of the CBP.

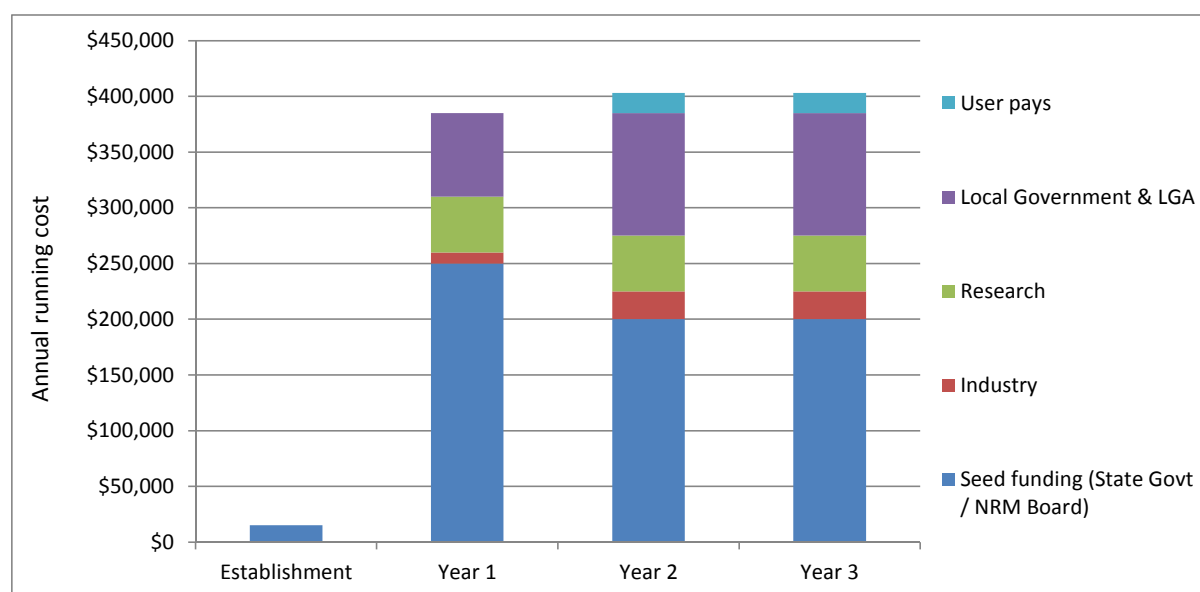


Figure 24. Suggested funding model over first three years

9.3 Risk assessment

A preliminary assessment of the key risks to the success of this investment is presented in Table 7. The risks identified primarily focus on the issues that may increase the cost of the program or prevent it from achieving its objectives. Each risk has been rated based on the consequence and likelihood of occurrence and preliminary risk mitigation strategies have been identified. Ongoing risk assessments must continue as the program development progresses, including reviews of risk ratings, the addition of any new risks and identification of those parties responsible for risk monitoring and management.

Table 7. Assessment of key project risks and proposed mitigation strategies

Risk	Likelihood	Consequence	Mitigation Strategy
Change in state government policy priorities	Medium	Medium	Work with relevant stakeholders to ensure that WSUD remains relevant to the policy agendas across the political spectrum. Liaise with similar practitioners from interstate to learn how best to maintain momentum and a policy focus.
Development industry refusal to support WSUD targets – voluntary or mandated	Low	High	Upfront engagement via existing industry networks, e.g., Urban Development Institute of Australia, Property Council of Australia, and government agencies.
Difficulty in recruiting appropriately-skilled staff	Medium	High	Ensure adequate effort goes into recruitment Australia-wide and that attractive salaries and conditions are offered.
Difficulty in reaching target audiences	Low	High	Seek to reach target audiences through building partnerships with existing industry networks and programs (e.g. Water Industry Alliance, Stormwater Management Authority).
Delays in program establishment phase	Medium	Medium	Ensure that a motivated and capable Bridging Program Manager is identified and engaged.
Program fails to meet needs of target audience	Low	High	Evaluation processes must be built into every program activity to keep abreast of practitioner capacity needs and wants.
Security of ongoing funding	High	High	Build relationships with potential funders and ensure delivery of a quality program that will attract funding.

9.4 Costs of not implementing a CBP

The two greatest and most immediate risks to not implementing a CBP are the lack of industry support to deliver on any forthcoming WSUD policy at a State level, and a possible industry/practitioner backlash. Several people in the course of this project raised the potential for an industry backlash. It relates to the inter-organisational capacity issues and the need to break through the inertia that is perceived by practitioners in South Australia. An often-cited example is the lack of progress that stemmed from the 2007 ‘Institutionalising WSUD in Greater Adelaide’ project.

The ability to attract professionals to South Australia and to secure further grants (federal government and others) will also be at risk without a CBP. Furthermore, opportunities to identify significant capacity building interventions based on regionally specific social and technical research may be lost. For example, the CRC for Water Sensitive Cities has indicated that they will focus on three national capitals for case studies – Perth, Melbourne and Brisbane – excluding Adelaide altogether. While the Goyder Institute for Water Research provides a more feasible option in this regard, an assurance that research bridges existing knowledge, capacity and policy gaps could also be lost if direct industry and government connectivity via a CBP is not ensured.

The other cost of not implementing a CBP, which has been observed in the eastern states, is the liability that poor design, construction and maintenance of WSUD poses to the financial sustainability of local councils. If a system needs modification because construction does not meet its design objective then the cost of WSUD will increase. Anecdotal evidence suggests this often occurs due to the lack of knowledge and skills of the designers or inadequate consultation with stakeholders and the community. This is an avoidable cost and a clear reason to support a CBP.



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Appendix A – Review of WSUD capacity building programs across Australia

Clearwater program – Melbourne, Victoria

Objective and Target Audience	Inception	Governance Structure	Host Organisation	Funding Model	Capacity Solutions	Relevant Legislation
Initially created for the purpose of building capacity of local government and industry professionals in best practice stormwater management. The program evolved to provide the urban water industry with the knowledge, tools and skills to drive the transition to Water Sensitive Cities.	2002	<p>Steering Committee governed with representatives from:</p> <ul style="list-style-type: none"> National Water Commission Melbourne Water. Water Sensitive Cities CRC. <p>Program Delivery is via four full time staff members, three of whom are funded by Melbourne Water.</p>	Melbourne Water	<p>Recurrent funding from Melbourne Water.</p> <p>Three Victorian Government agencies also provide additional project specific funding.</p>	<p>Website http://www.clearwater.asn.au</p> <p>Including a series of web based tools and resources, e.g. Case Studies, Fact Sheets, Presentations, Video Gallery and Image Gallery, Papers and Reports (E.g. Report entitled Integrated Water Management Planning in Melbourne, Australia).</p> <p>Issue based events program – Hot Topics.</p> <p>Technical Site Visits Program.</p> <p>Technical Training Program:</p> <ul style="list-style-type: none"> Raingarden Essentials. Stormwater Harvesting: Concept & Design. MUSIC Training. WSUD: Stormwater Management Principles & Practices. <p>Guidelines:</p> <ul style="list-style-type: none"> Melbourne Water MUSIC Guidelines. Precinct Structure Plan Guidelines. Developing a Strategic Approach to WSUD Implementation. Maintenance Manual: Green Spine WSUD Project. WSUD Model Guideline (Inner Melbourne Guidelines). WSUD Maintenance Checklist. IDM Infrastructure Design Manual. Design Construction & Maintenance of WSUD Melbourne Water Constructed Wetlands Guidelines. WSUD Guidelines (South East Growth Councils). Risk Management Guidelines for WSUD. 	<p>Victoria Planning Provision. Clause 56.07-4 Urban Runoff Management Objectives and Standard (C25).</p> <p>Including water quality and runoff quantity.</p>

New Waterways – Perth, Western Australia

Objective and Target Audience	Inception	Governance Structure	Host Organisation	Funding Model	Capacity Solutions	Relevant Legislation
Enable excellence in integrated water cycle management and build capacity of government and industry practitioners.	2006	<p>A partnership delivered via an MOU amongst the following who are represented on a Board of Management:</p> <ul style="list-style-type: none"> • Department of Planning. • Department of Water. • Western Australian Local Government Association. • Water. • Urban Development Institute of Australia (WA). • Swan River Trust. <p>The program is delivered via one full time Program Manager.</p>	Western Australian Department of Water	Information currently unavailable	<p>Website http://www.newwaterways.org.au Including a series of tools and resources such as picture library, weblinks etc. A series of lecture based seminars covering the following topics:</p> <ul style="list-style-type: none"> • Retrofitting for WSUD. • Introduction to stormwater practices. • Better Urban Water Management – Everything you need to know. 	<p>State Planning Policy 2.9 governs:</p> <ul style="list-style-type: none"> • Water conservation, • Minimizing waterway pollution, Groundwater recharge, • Flood prevention, • Waterway erosion and stability. <p>Planning Bulletin 61 Urban Stormwater Management governs development of urban water management plans for subdivisions greater than 25 lots.</p>

Water by Design – Brisbane, Queensland

Objective and Target Audience	Inception	Governance Structure	Host Organisation	Funding Model	Capacity Solutions	Relevant Legislation
Support the uptake of WSUD in South East Queensland by Government and Industry.	2005	<p>Steering Committee governed with representatives from:</p> <ul style="list-style-type: none"> State Govt (five Agencies), Local Govt (Local Government Association & three councils), Industry (SIA, AILA & UDIA). <p>Project Reference Groups are established, as required. E.g. Development of publications or reports.</p> <p>A Scientific Expert Panel (Urban Water Group) provides scientific advice, as required.</p> <p>Program delivery via three permanent staff.</p>	Healthy Waterways Partnership (since inception).	<p>Initial funding \$3 million over three years. Now reduced.</p> <p>Currently jointly funded by Local Governments of South East Queensland, Queensland and Australian Governments.</p> <p>User-pay contributions for various products and services.</p>	<p>Website http://waterbydesign.com.au/ Including a series of web based tools and resources. E.g. Case Studies, Fact Sheets etc.</p> <p>Online Community of Practice – technical advice and support</p> <p>Technical Training Modules:</p> <ul style="list-style-type: none"> Introduction to WSUD. Concept Design of Water Sensitive Urban Developments. Fundamentals of Bioretention Design. Advanced Bioretention Design. Fundamentals of Stormwater Wetland Design. Fundamentals of Swale and Sediment Basin Design. Construction and Establishment of Vegetated Systems. Stormwater Harvesting MUSIC Assessors Training. Maintaining & Rectifying Stormwater Assets. <p>Guidelines:</p> <ul style="list-style-type: none"> Business Case Costs & Benefits. Concept Design Guideline. Stormwater Harvesting Guidelines. Deemed to Comply & Worked Solutions. Technical Design Guidelines. Standard Drawings. Best Practice Erosion & Sediment Control. Construction & Establishment Guideline. Asset Transfer Guideline. Maintenance Guideline. Rectification Guideline. <p>Issue based events and projects to address knowledge gaps. E.g. <i>Meeting the Proposed Stormwater Management Objectives in Queensland: A Business Case.</i></p>	<p>Mandated WSUD Design targets:</p> <ul style="list-style-type: none"> Water Quality; Waterway erosion; Reduced frequency flow disturbance.

Water Sensitive Urban Design Program – Sydney, New South Wales

Objective & Target Audience	Inception	Governance Structure	Host Organisation	Funding Model	Capacity Solutions	Relevant Legislation
Encourage the uptake of WSUD within the Greater Sydney area at the local level.	2002	<p>Project Reference Groups are established, as required. E.g. Water Sensitive Cities CRC Consortium.</p> <p>A Scientific Expert Panel is available via the Sydney Metropolitan CMA's Board.</p> <p>Program Delivery is via one full time person.</p>	Housed at the Sydney Metropolitan CMA since 2006.	<p>\$100,000 per annum since its inception. Funding is via National Grant Funding. Income derived from training provides seed funding for issue based projects.</p> <p>Sydney Metropolitan CMA provides in-kind funding by housing the program and may provide some funding from recurrent budget, if available.</p> <p>A User Pays System is enacted for the Water Sensitive Cities CRC for the management and secretariat services for a Sydney Consortium of one Government agency and seven councils.</p>	<p>Website http://www.wsud.org houses a series of tools and resources. E.g. Case studies, picture library, fact sheets etc.</p> <p>Technical Training Program using existing modules:</p> <ul style="list-style-type: none"> • Introduction to WSUD. • Climate Change and Sydney's Stormwater Infrastructure. • Licensing and regionalization of Clearwater and Water by Design Program's technical training modules. <p>Technical Site Visit Tour Program.</p> <p>Issue based projects and events program.</p>	<p>Environmental Planning and Assessment Act, 1979 -State Environmental Planning (Building Sustainability Index - BASIX) governs residential: potable water.</p> <p>Local Government Act, 1993 – places onus on local councils to prepare sustainable urban water management planning controls. Implemented via Development Control Plans governed by Local Environment Plans, objectives vary, if enacted at all.</p>



Appendix B – Stakeholder Engagement

Steering Committee

The project was overseen by a Steering Committee made up of the following representatives:

- Sam Phillips (Project Manager), Adelaide and Mount Lofty Ranges NRM Board
- Steve Morton, Department of Environment, Water and Natural Resources
- Martin Allen, Department of Environment, Water and Natural Resources
- Graham Brook, South Australian Murray-Darling Basin NRM Board
- Andrew King, Stormwater Industry Association
- Andrew Thomas, Institute of Public Works Engineering Australia
- Simon Thompson, Local Government Association of South Australia
- Ruth Ward, Environment Protection Authority South Australia
- Peter Newland, Environment Protection Authority South Australia

The following members of the Steering Committee joined in the latter half of the project:

- David Pezzaniti, University of South Australia
- Ashok Sharma, CSIRO

The project team consisted of:

- Rob Catchlove, Alluvium Consulting
- Kate Black, Kate Black Consulting
- Leonie Duncan, Alluvium Consulting
- Matt Francey, Alluvium Consulting

Industry groups

During the course of the project, 16 industry groups were engaged by the Steering Committee to promote the project, reach as many practitioners as possible, and gain their support. Primarily this support involved the dissemination of project information through established networks and encouraging members to engage with the project and participate in the variety of engagement activities. The industry groups engaged were as follows:

- Australian Institute of Architects
- Australian Institute of Landscape Architects
- Australian Institute of Project Management
- Australian Water Association

- Civil Contractors Federation
- Consult Australia
- Engineers Australia
- The Goyder Institute for Water Research
- Housing Industry Association
- Hydrological Society of SA
- Institute of Public Works Engineering Australia
- Local Government Association of SA
- Planning Institute of Australia
- South Australian Local Government Supervisory Officers' Association
- Stormwater Industry Association SA
- Urban Development Institute of Australia

Stakeholders engaged

During the course of this project a large range of stakeholders were engaged, including people from the following companies, organisations and agencies:

- | | | |
|---|--|---|
| • Adelaide City Council | • City of Norwood
Payneham & St Peters | • Eco Management
Services |
| • AIA | • City of Onkaparinga | • EcoProTem |
| • AILA | • City of Playford | • Emilis |
| • Alexandrina Council | • City of Port Adelaide
Enfield | • EPA |
| • Allwater | • City of Salisbury | • Fyfe |
| • AMLR NRM Board | • City of Tea Tree Gully | • GHD |
| • Aspect Studio | • City of Unley | • Goyder Institute |
| • Australian Water
Environments | • City of West Torrens | • Grieve Gillett |
| • AWA | • Conservation Council
SA | • Heart Foundation |
| • Barossa Council | • Consult Australia | • HIA |
| • BB Architects | • CSIRO | • Hydrological Society
of SA |
| • Best Group | • David McKechnie
Irrigation | • Infrastructure Project
Management Group |
| • Bureau of
Meteorology | • District Council of Mt
Barker | • IPOS Consulting |
| • Botanic Gardens | • Designwell | • IPWEA |
| • Campbelltown City
Council | • District Council of
Yankalilla | • KBR |
| • Cheesman Architects | • DPTI | • Local Government
Association of South
Australia |
| • Construction Industry
Training Board | • Engineers Australia
(South Australia) | • Light Regional Council |
| • City of Burnside | • Ecodynamics | • Miller Architecture |
| • City of Charles Sturt | | • Mott MacDonald |
| • City of Marion | | • Nova Systems |
| • City of Mitcham | | |

- Parks and Leisure Australia
- Planning Institute of Australia (South Australia)
- Property Council of Australia
- Rocla
- Rural City of Murray Bridge
- SAMDB NRM Board
- SA Water
- SIA
- SMEC
- Southfront
- Stormwater Management Authority SA
- Swanbury Penglase
- Tonkin Consulting
- Town of Gawler
- Treepeople
- UDIA
- University of Adelaide
- University of SA
- Urban Renewal Authority
- Water Industry Alliance
- Water Plan Consulting
- Wax Design

Engagement schedule

Activity	Stakeholders engaged	Dates
Online survey	225 responses, representing a broad range of stakeholders. The responses to the online survey came from interstate as well as South Australia.	Open from 9 July to 3 August 2012
Workshops	100 participants, representing a range of stakeholders.	22 and 23 August 2012
Site visits	Hosted by Renewal SA and Glenelg Golf Course, participants represented a range of stakeholders.	22 and 23 August 2012
Online forum	A range of stakeholders engaged with the discussion forum: waterssensitivesa.com .	July to August 2012
Local Government forum	Senior engineers or WSUD officers from local councils: Holdfast Bay, Mitcham, West Torrens, Burnside, Norwood Payneham & St Peters, Port Adelaide Enfield, Onkaparinga, Tea Tree Gully, Salisbury, and Playford.	30 July 2012
AWA conference	AWA members, predominantly from water authorities.	17 August 2012
Developer meeting	UDIA SA: Terry Walsh, Executive Director; Anne Highet, Research and Policy Manager; John Stimson, Fairmont Group/UDIA Executive Council; Monish Bhindi, Greenhill Engineers/UDIA Executive Council; Steve Kindstrom, Landscape Construction Services/UDIA Sustainable Development Committee; Kyra Reznikov, Finlaysons/UDIA Sustainable Development Committee.	19 September 2012
Individual meetings	Robin Allison (Design Flow); Matthews Wright-Simon (Ecocreative); Simon Thompson (South Australian Local Government Association); Steve Morton (South Australian Government's former Department of Water); Baden Myers (University of SA); Paul Harding (Australian Institute of Landscape Architects); Richard Marks (Australian Water Association); Kylie Hyde (South Australian Stormwater Industry Association); Tony Minns (Goyder Institute for Water Research); Peter Morison (Melbourne Water); Susan van de Meene (formerly Monash University); Tony Wong (Monash University); Ana Deletic (Monash University); Professor John Argue (University of SA); Phil Donaldson (Urban Renewal Authority); Peter Newland (South Australian EPA); Greg Ingleton (SA Water); Andy Roberts (Water Industry Alliance); Martin Ely (Arbor Design).	June to October 2012



Appendix C – Online Survey Questions

The online survey included the following questions.

Introduction and Profile

1. Before we begin, please type in the postcode of where you live, or your primary employment location
 - a. 4 digit box
2. What sector do you work in? (select one)
 - a. Consulting
 - b. EPA
 - c. Industry association
 - d. Contractor
 - e. General public - my employment is not related to WSUD
 - f. Local government
 - g. Non-government organisation
 - h. Research
 - i. State government
 - j. Water authority
 - k. Other
3. What best describes your current role? (select one)
 - a. Architect
 - b. Asset manager / planner
 - c. CEO / Director
 - d. Community group member
 - e. Drafter
 - f. Educational manager / officer
 - g. Elected representative
 - h. Engineer (civil)
 - i. Engineer (environmental)
 - j. Land developer or development manager
 - k. Landscape architect
 - l. Layperson
 - m. Marketing / communications manager / officer
 - n. Natural resources manager/ officer (e.g. parks / waterways manager)
 - o. Operations / maintenance manager / supervisor / officer
 - p. Planner (statutory)
 - q. Planner (strategic)
 - r. Scientist (environmental, aquatic, social)
 - s. Senior executive public servant (Director, Secretary)
 - t. Urban designer
 - u. Compliance manager / officer
 - v. Other - please specify
 - i. Open text
4. How long have you been in your current industry sector or interested in WSUD? (select one)
 - a. Student/graduate
 - b. < 2 years
 - c. 2- 5 years
 - d. 5 – 10 years
 - e. 10 + years
5. What industry or professional associations are you currently a member of? (Alphabetical and spelt out in full) (multiple select)
 - a. AIA, Australian Institute of Architects
 - b. ALIA, Australian Institute of Landscape Architects
 - c. AWA, Australian Water Association
 - d. Consult Australia

- e. EA, Engineers Australia
- f. Housing Industry Association
- g. IPWEA, Institute of Public Works Engineering Australia
- h. LGASOA, Local Government Association of South Australia
- i. PIA, Planning Institute of Australia
- j. SIA, Stormwater Industry Association of SA
- k. SALGSOA, South Australia Local Government Supervisory Officers' Association
- l. UDIA, Urban Development Institute of Australia
- m. Other – please specific
 - i. Open text
- n. None

Current drivers and association of WSUD

We are collecting this particular information to help us establish a benchmark to monitor WSUD knowledge and capacity in the state.

6. How familiar are you with the term water sensitive urban design? (select one)
 - a. Very unfamiliar
 - b. Unfamiliar
 - c. Neither
 - d. Familiar
 - e. Very familiar
7. Water-sensitive urban design (WSUD) promotes the sustainable use and re-use of water in urban development and buildings. This type of design integrates the total water cycle and water from all sources, including rainwater, storm water, groundwater, mains water and waste water, into urban development and building processes.

WSUD measures and tools can be applied to residential, commercial and industrial developments and buildings. They range from the storage, treatment and use of runoff to water-efficient landscaping. WSUD can help communities achieve greater water sustainability and become more pleasant places to live and work.

How well does this match with your understanding?

- a. I was not aware it could encompass all these things
 - b. That is about how I would describe it
 - c. That is exactly how I would describe it
 - d. This is a new concept to me
8. The following are potential drivers for the adoption of WSUD. Please rate what you perceive to be the importance of these drivers, where 1 is the least important and 10
 - a. Improving waterway health
 - b. Improving the health of the Gulf / receiving waters
 - c. Mitigating floods
 - d. Reducing the consumption of potable water
 - e. Increasing alternative water supplies
 - f. Reducing the load on the sewer system
 - g. Improving amenity
 - h. Improving urban design (i.e. softer landscapes in urban areas)
 - i. Reducing urban heat island impacts and improving the microclimate

Current experience

9. How many WSUD projects have you been associated with?
 - a. 1 – 3
 - b. 4 – 6
 - c. 6 -10

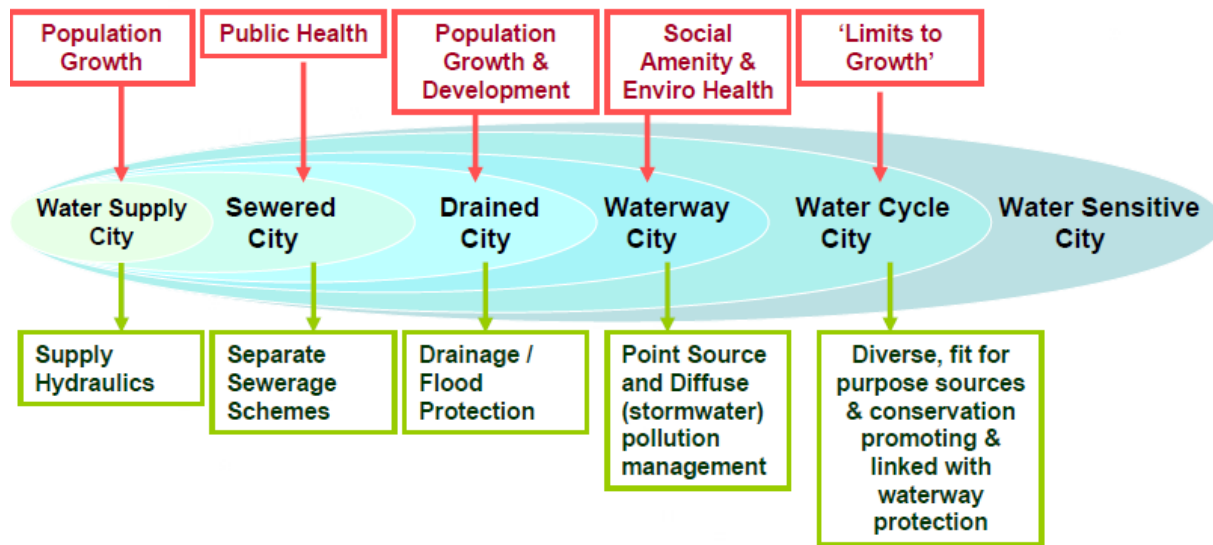
- d. 10 – 20
e. 20 +
f. None
10. Of these project(s), what part of the water cycle have they involved?
- Stormwater harvesting and reuse
 - Stormwater quality treatment (including street trees, raingardens, streetscapes)
 - Rainwater tanks
 - Recycled water schemes
 - Sewer mining
 - Flood management
 - Demand management
 - Supply augmentations
 - Other
11. How would you rate your current and desired knowledge, where 1 is very poor and 5 is very good?
- 1 - Very poor
 - 2 - poor
 - 3 - Ok
 - 4 - Good
 - 5 - Very good
12. How would you rate your current and desired confidence, where 1 is not at all confident and 5 is very confident?
- 1 - Very poor
 - 2 - poor
 - 3 - Ok
 - 4 - Good
 - 5 - Very good
13. The following are well accepted and researched spectrums of organisational development in the water industry.

Please select where you feel your organisation is on this spectrum.



- Growth
 - Insider
 - Integrated
 - Outsider
 - Project
 - Don't know
14. Below is a diagram of the city water management spectrum. Please select where you feel Adelaide is on this spectrum.

DRIVERS



Management Response



National Urban Water
Governance Program



MONASH University

- Water supply city
 - Sewered city
 - Drained city
 - Waterways city
 - Water cycle city
 - Water sensitive city
 - Don't know
15. For the following list of potential barriers of WSUD, please rate the strength of this barrier, where 10 is an extremely large barrier and 1 is very small barrier
- Lack of real or perceived community support
 - Limits of regulatory framework
 - Lack of knowledge of value of WSUD (i.e. uncoded externalities / environmental benefits)
 - Insufficient budgeted resources
 - Insufficient human resources
 - Unclear /fragmented roles & responsibilities within your organisation
 - Poor organisational commitment at a senior management level
 - Lack of political will – Council
 - Lack of political will – State
 - Lack of political will - Federal
 - Lack of technical information, knowledge & understanding
 - No long-term organisational vision/strategy/organisational framework
 - Little or no monitoring or evaluation of in-ground systems or devices
 - Insufficient information or understanding of best practice operation and maintenance practices
 - Insufficient information on life cycle data and/or its application to forecasted planning of operation and maintenance
16. Of the following organisations, who do you work with and what is the strength of that relationship?
- Academics/ universities
 - TAFE
 - Consultants
 - DEWNR (previously DFW, DENR)
 - Department of Planning, Transport and Infrastructure



- f. Department of Premier and Cabinet
- g. Department of Primary Industries and Regions
- h. Department of Treasury and Finance
- i. EPA
- j. URA
- k. LGA SA
- l. SA Water
- m. Your local council
- n. Your local NRM Board
- o. Professional/ industry associations (e.g. IPWEA, ALIA, SIA)

- a. 1 Very weak
- b. 2
- c. 3
- d. 4
- e. 5
- f. 6
- g. 7
- h. 8
- i. 9
- j. 10 Very strong
- k. N/A

17. Can you tell us a story about a memorable project that you have been involved in, either positive or negative.

Needs

This set of questions explores what you need and would like to learn more about.

18. Please select where you would like to improve your knowledge in the following areas of WSUD (where 1 is improve a little, 5 improve a lot, and 6 already proficient)
- a. Policy
 - b. Engineering design
 - c. Landscape design
 - d. Construction
 - e. Regulation and approval
 - f. Costings (both capital and operational expenditure)
 - g. Community engagement
 - h. Monitoring and evaluation
 - i. Working with stakeholders
19. Are there any other comments you'd like to make about your needs in the area of WSUD?

Specific sector questions

The next group of questions goes into detail on a range of subjects. You can choose to skip these questions if you are not able to answer them.

Policy Questions

20. The following questions are on POLICY issues. Are you able or do you have experience in policy and can answer this section (select one)
- a. Yes
 - b. No, I'd like to skip this section
21. Of the following policy options, in your opinion how important do you think each of the following is in achieving WSUD outcomes?


- a. Incentive schemes, e.g. grants
- b. Penalisation schemes, e.g. taxation
- c. Regulation
- d. Planning controls, e.g. neighbourhood strategies.
- e. Voluntary initiatives
- f. Market drivers and a clear business case
- g. Collaboration and innovation of technical disciplines
- h. Awareness raising of the benefits
- i. Education, degree courses
- j. Capacity building and training in practical implementation

Technical Design Questions

22. The following questions are on TECHNICAL DESIGN issues. Are you able or do you have experience in technical design and can answer this section (select one)
- a. Yes
 - b. No, I'd like to skip this section
23. Please rate your ability to use the following tools on a scale of skill (1 = absolutely no skill, 10 = very skillful)
- a. MUSIC (software)
 - b. Urban Developer (software)
 - c. Source (software)
 - d. WSUD Engineering Guidelines
 - e. Other
 - i. Open text
24. How would you rate your understanding of each of the following aspects of WSUD treatment systems on a scale of 1 to 10 (1 = no idea, 10 = extremely well understood)
- a. Capital cost
 - b. Performance
 - c. Life cycle costs
 - d. Maintenance

Construction Questions

25. The following questions are on CONSTRUCTION issues. Are you able or do you have experience in construction and can answer this section (select one)
- a. Yes
 - b. No, I'd like to skip this section
26. How confident are you in the following aspects of construction of WSUD systems (1 = not at all confident, 10 = very confident)
- a. Civil and landscape specifications;
 - b. Construction and establishment procedures / protocols;
 - c. Sign-offs checklists and forms for certification and compliance;
 - d. Creating your own drawings, illustrations and photograph; and
 - e. Interpreting drawings, illustrations and photographs
27. How confident are you in the construction of the following WSUD systems on a scale of 1 = not at all confident, and 10 extremely confident, including an NA)
- a. Managed aquifer recharge systems (including ASR)
 - b. Blackwater system
 - c. Greywater system
 - d. Permeable paving
 - e. Raingarden/ biofilter
 - f. Rainwater tanks / roofwater harvesting
 - g. Swale
 - h. Wetlands

- 
- i. Detention systems
 - j. Others (e.g. green walls, green roofs, tree pits, etc)

Planning and Development Questions

28. The following questions are on PLANNING and DEVELOPMENT issues. Are you able or do you have experience in planning and development and can answer this section
- a. Yes
 - b. No, I'd like to skip this section
29. How satisfied are you with WSUD requirements that are currently applied to any development application?
- a. Very unsatisfied
 - b. Unsatisfied
 - c. Neither
 - d. Satisfied
 - e. Don't know
30. How much flexibility do you feel developers have in meeting WSUD objectives?
- a. Not much
 - b. A little
 - c. A lot
 - d. Don't know
31. If you work in an authority that approves conditions and requirements on development applications, how confident are you in working on the following parts of the process (1 = not confident at all, 10 = extremely confident, NA):
- a. Setting objectives and requirements
 - b. Assessing applications
 - c. Referring applications to other authorities
 - d. Monitoring construction
 - e. Verifying on ground outcomes and performance
 - f. Capturing as built asset information

Maintenance Questions

32. The following questions are on MAINTENANCE issues. Are you able or do you have experience in maintenance and can answer this section (select one)
- a. Yes
 - b. No, I'd like to skip this section
33. How confident are you of the maintenance requirements of the following WSUD systems on a scale of 1 = not at all confident, and 10 extremely confident, including an NA)
- c. MAR system
 - d. Blackwater system
 - e. Greywater systems
 - f. Permeable paving
 - g. Raingarden/ biofilter
 - h. Rainwater tanks / roofwater harvesting
 - i. Swale
 - j. Wetlands
 - k. Detention systems
 - l. Others (e.g. green walls, green roofs, tree pits, etc)
34. Has your organisation collected data on the effectiveness of maintenance? (select one)
- a. Yes
 - b. No
 - c. Don't know
35. Has your organisation collected data on the cost of maintenance? (select one)
- a. Yes
 - b. No

- c. Don't know

Enforcement and Regulation Questions

36. The following questions are on ENFORCEMENT AND REGULATION issues. Are you able or do you have experience in enforcement t or regulation of WSUD and can answer this section (select one)
- a. Yes
 - b. No, I'd like to skip this section
37. Below are a number of statements relating to enforcement. For each, could you please indicate the extent to which you personally agree or disagree:
- a. On handover, the relevant authorities undertake the appropriate inspection and verification of systems
 - b. Site management enforcement/education is undertaken to ensure constructed stormwater quality systems are protected from sediment and erosion damage
38. Who do you think should be responsible for enforcing WSUD development requirements? (select one)
- a. Local government
 - b. EPA
 - c. SA Water
 - d. Self regulated
 - e. State Government department
 - f. Other- please suggest

Community Engagement Questions

39. The following questions are on COMMUNITY ENGAGEMENT issues. Are you able or do you have experience in community engagement and can answer this section
- a. Yes
 - b. No, I'd like to skip this section
40. Which of the following have you used in engaging with the community on WSUD issues:
- a. Face to face meetings
 - b. Newsletters
 - c. Webpage
 - d. Online forum
 - e. Local papers
 - f. Working through community groups
 - g. Fact Sheets/publications
 - h. Information sessions
 - i. Other (please specify)
 - ii. Open text
41. From your experience, how enthusiastic do you think the community is in embracing the following parts of the water cycle for non-potable use (1 = not there at all, 10 = absolutely there)
- a. Rainwater
 - b. Stormwater
 - c. Desalination
 - d. Greywater
 - e. Recycled effluent

Business case

There is a real opportunity in the near future to create a specific WSUD capacity building program for South Australia. For the following questions we are interested in your views on this potential program.

42. Have you ever attended any kind of training on water issues since completing your formal qualifications? If so where was that?
- a. No
 - b. Regional NRM Board course (e.g. Adelaide & Mount Lofty Ranges, SA Murray-Darling Basin)

- c. Stormwater Industry Association Technical meeting
 - d. LGA Training
 - e. Site course
 - f. TAFE course
 - g. Informal training
 - h. Centre for Water Sensitive Cities Short week course
 - i. University short course
 - j. Your professional / industry body
 - k. Other
43. An important aspect of a potential capacity building program is where it is hosted (or where it 'sits'). Please rank the following in terms of your preferred host of a capacity building program
- a. Regional NRM Board (e.g. Adelaide and Mount Lofty Ranges, SA Murray-Darling Basin)
 - b. Industry Association
 - c. SA government department
 - d. Local council
 - e. LGA SA
 - f. EPA
 - g. SIA
 - h. SMA
 - i. Education provider (e.g. UniSA)
 - j. Independent
 - k. Other
44. Please rate on scale of 1 to 10, where 10 is a very high benefit, and 1 no benefit at all, the following list of potential benefits of a WSUD capacity building program:
- a. Reduced costs of WSUD design
 - b. Reduced costs of WSUD construction
 - c. Improved ability to deliver WSUD – on time and on budget
 - d. Increase knowledge of WSUD
 - e. Increased/ streamlined implementation of WSUD
 - f. Improved maintenance regimes
 - g. Increased life of assets through better design, construction and maintenance
 - h. More appropriate design solutions with local conditions in mind
 - i. Ability to standardise designs through industry review process
 - j. Improved awareness of WSUD at the executive level
 - k. Improved awareness of WSUD at the political level
 - l. Improved awareness of WSUD at the community level
 - m. Increased water storage capacity
 - n. Improved water quality in waterways and gulf
 - o. Improved relationships between relevant government departments
 - p. Improved link between research and industry
45. What sort of training methods do you prefer in a program?
- a. Half-day workshops
 - b. Full day workshops
 - c. Multiple day workshops
 - d. Evening lectures
 - e. Breakfast seminars
 - f. Site visits
 - g. One on one technical advice
 - h. Study tours
 - i. Online forums
 - j. Online courses
 - k. Partnerships with other industry groups to deliver training through existing avenues
 - l. Fact sheets
 - m. Guidelines
 - n. Accredited courses
 - o. Mentoring Programs
46. Finally what would happen if there was no WSUD capacity building program? (multiple choice)

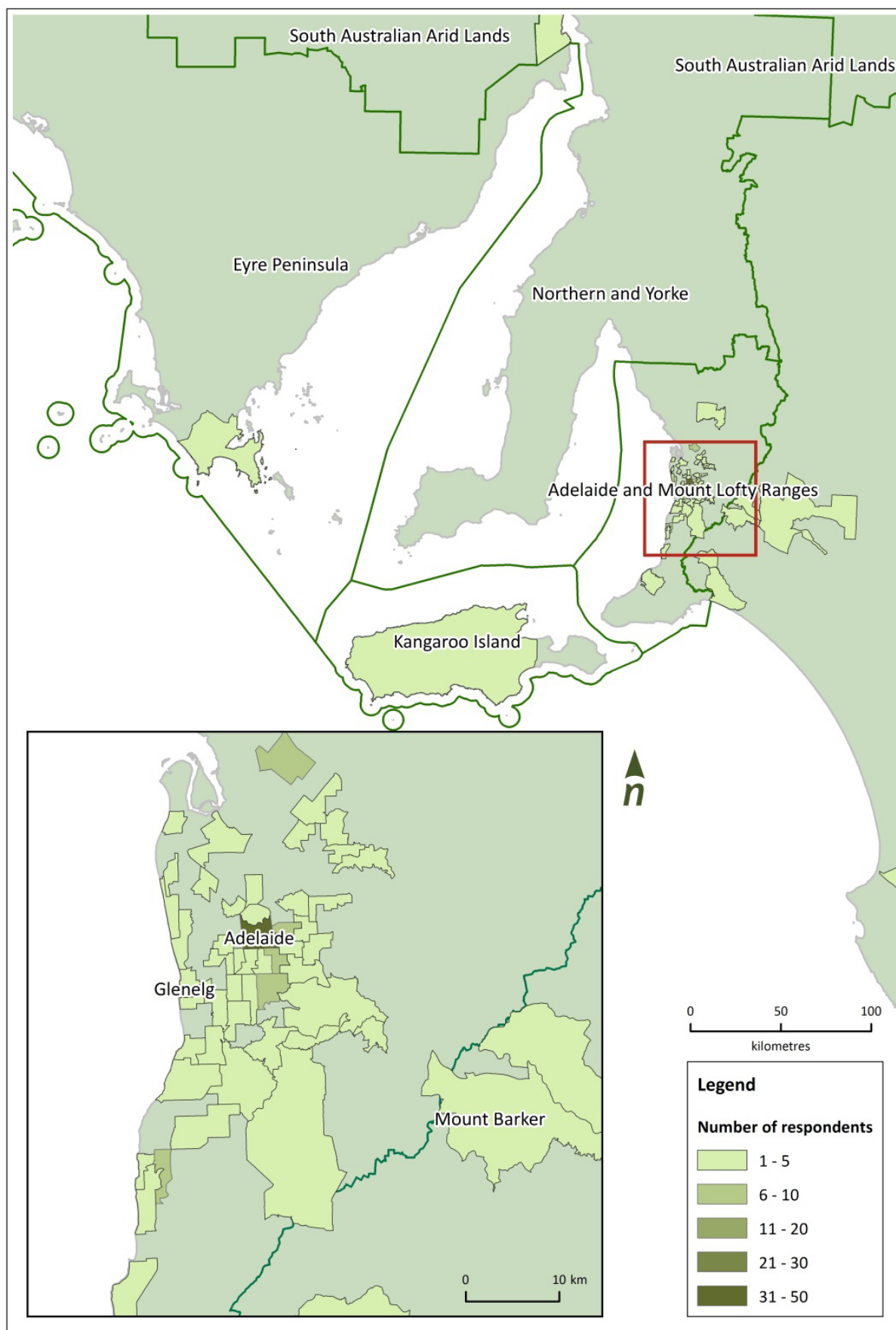


- a. Nothing
- b. Environmental devastation
- c. Increased urbanisation without appropriate water management infrastructure
- d. Increase potable water consumption
- e. Missed opportunities
- f. WSUD remains a niche business
- g. There will be a lack of projects and research
- h. The barriers of perceived complexity and cost will remain within the broader industry
- i. Knowledge transfer remains difficult
- j. Institutional capacity remains a barrier
- k. Irregular/ patchwork implementation

Thanks


- 47. Are there any other comments you would like to add?
- 48. If you are interested, please put your contact email address and we will keep you informed of upcoming events and issues
- 49. Thanks and good bye.

Appendix D – Geographic distribution of responses to online survey




Appendix E – Indicative Cost Breakdown of CBP

Stage	Period	Action	Notes	Cost
Establishment	November 2012 – June 2013	Assign a Bridging Program Manager (0.5 FTE)	Assume in kind contribution	–
Establishment		Establish Steering Committee, with clear Terms of Reference	Cost built into position	–
Establishment		Develop staff position descriptions and contract conditions	Cost built into position	–
Establishment		Formalise hosting arrangement	Cost built into position	–
Establishment		Procure office equipment (including four laptops)	Setup (assumes some functions are covered by hosting organisation)	\$12,000
Establishment		Admin and running costs (office supplies, phones, internet etc.)	Use admin costs of 20% on top of staff costs in start up phase, reduce to 15% over first 18 months	\$3,000
Establishment		Recruit Program Manager (to commence on 1 July 2013)	Cost built into position	–
Establishment		Promote project status with industry groups, keep abreast of relevant policy developments	Cost built into position	–
		Total		\$15,000
Year 1	July 2013 – June 2014	Program Manager	Salary plus on-costs	\$150,000
Year 1		Develop detailed Year 1 Business Plan, including mission, objectives, expected outcomes, and reporting and evaluation framework	Cost built into position	–
Year 1		Establish internal policies, processes and financial systems	Cost built into position	–
Year 1		Recruit staff and establish individual work plans	Assume 1 x \$90K and 1 x \$70K (for 9 months in this year)	\$120,000
Year 1		Admin and running costs (office supplies, phones, internet, etc.)	Use admin costs of 20% on top of staff costs in start up phase, reduce to 15% over first 18 months	\$67,500
Year 1		Establish Steering Committee		–
Year 1		Review and regionalise an initial selection of existing interstate best practice guidelines	Consultancy costs in addition to cost built in to positions	\$10,000
Year 1		Initiate review and practitioner application of WSUD Technical Manual for Greater Adelaide	Consultancy costs	\$15,000
Year 1		Develop communications and marketing plan, including branding and database management	Cost built into positions	–
Year 1		Develop website content (e.g. fact sheets, case studies) and functionality (e.g. forum)	Cost built into positions	–



Stage	Period	Action	Notes	Cost
Year 1		Launch website and initiate communications (e.g. e-newsletter, social media posts)	Website development (consultancy)	\$20,000
Year 1		Develop detailed training and professional development program	Cost built into positions	–
Year 1		Launch initial training program (e.g. seminars, workshops, site visits)	Assume majority cost recovery (small seed funding for course development)	\$10,000
Year 1		Develop detailed Year 2 Business Plan, following evaluation of Year 1 outcomes	Cost built into positions	–
Year 1		Engage with relevant issues and stakeholders in government, research and industry to further inform the program, build support and grow networks	Cost built into positions	–
		Total		\$392,500
Year 2	July 2014 – June 2015	Salaries	3 full time staff	\$310,000
Year 2		Admin and running costs (office supplies, phones, internet, etc.)	15%	\$46,500
Year 2		Promote and deliver training program	Cost recovery (small profits used to develop new courses and offset 20% of one position)	\$10,000
Year 2		Promote and maintain website resources (e.g. checklists, templates, photo library, etc.)	Cost built into positions (small hosting/technical charges)	\$2,000
Year 2		Promote and issue communications (e.g. e-newsletters, social media posts)	Cost built into positions	–
Year 2		Program evaluation	Consultancy costs	\$30,000
Year 2		Engage with relevant issues and stakeholders in government, research and industry	Cost built into positions	–
Year 2		Develop a plan for a Community of Practice (e.g. group workshops, awards, mentorship, etc.)	Cost built into positions	–
Year 2		Launch initial Community of Practice program		\$5,000
Year 2		Develop strategy for diversified future program funding	Cost built into positions	–
Year 2		Develop detailed Year 3 Business Plan, following review of Year 2 outcomes and evaluation	Cost built into positions	–
		Total		\$403,500
Year 3	July 2015 – June 2016	Salaries	3 full time staff	\$310,000
Year 3		Admin and running costs (office supplies, phones, internet, etc.)	15%	\$46,500



Stage	Period	Action	Notes	Cost
Year 3		Promote and deliver training program	Cost recovery (small profits used to develop new courses and offset 20% of one position)	\$10,000
Year 3		Promote and maintain website resources (e.g. checklists, templates, photo library, etc.)	Cost built into positions (small hosting/technical charges)	\$2,000
Year 3		Promote and issue communications (e.g. e-newsletters, social media posts)	Cost built into positions	–
Year 3		Regionalise further interstate best practice guidelines and promote use	Consultancy costs	\$5,000
Year 3		Engage with relevant issues and stakeholders in government, research and industry	Cost built into positions	–
Year 3		Support research and develop program on maintenance and life cycle costs issues		\$25,000
Year 3		Develop a plan for a Community of Practice (e.g. group workshops, awards, mentorship, etc.)	Cost built into positions	–
Year 3		Launch initial Community of Practice program		\$5,000
Year 3		Develop strategy for diversified future program funding	Cost built into positions	–
Year 3		Develop detailed Year 3 Business Plan, following review of Year 2 outcomes and evaluation	Cost built into positions	–
		Total		\$403,500