

CRC for Water Sensitive Cities

Optional Regional Advisory Panel Meeting – WA

11 October 2017 8.00am -10:00am

UWA CBD Office

WA Trustees Building, Level 2, 133 St Georges Terrace, Perth

Board Room

Teleconference: 1800 179 069 Guest: 8450973#

AGENDA

Chair: Greg Claydon (Department of Water and Environmental Regulation)

Minutes:

Item No.	Topic	Whom	ATT#
5 mins	INITIAL PROCEEDINGS		
1.	Welcome and apologies	Greg Claydon	
	ITEMS FOR DISCUSSION		
2.	WRAP Business Plan <ul style="list-style-type: none"> - Update on how the plans fit together - Seeking endorsement for WRAP Business Plan already circulated out of session 	Greg Claydon	Business Plan
3.	Research and Adoption Plan <ul style="list-style-type: none"> - Discussion on if, and how, RAP can fill gaps not covered by Tranche2 	Greg Claydon	slides 5-9
4.	Local government sector strategies <ul style="list-style-type: none"> - Endorsement of Draft Local Government Strategy (2 pager) <ul style="list-style-type: none"> o including “Establish a new CRCWSC participant LGA council group” - Update on LGA value proposition 	Emma	Local government sector strategy
5.	Development sector engagement strategy <ul style="list-style-type: none"> - Seeking endorsement for final Draft Development Sector Engagement Strategy (prioritised) - Endorsement of a process for the FAQs development sector brochure (4 pager) and agreement on the most relevant questions 	Emma	Development sector strategy Development brochure
6.	Regional Managers Workplan <ul style="list-style-type: none"> - Seeking endorsement of allocations for the Regional Managers Workplan 	Emma	Slide 3
7.	WA demonstration projects (Tranche 1 D1.4) <ul style="list-style-type: none"> - Prioritising nominations for WA demo projects 	Shelley/ Antonietta	
	OTHER BUSINESS		
16.	Other Business	Greg Claydon	
17.	Meeting close and next meeting: Wednesday, November 15, 2017	Greg Claydon	



Business Plan 2017

Western Regional Advisory Panel
September 2017

About the Western Regional Advisory Panel

Regional Advisory Panels (RAPs) are a key component of the CRC for Water Sensitive Cities' (CRCWSC) management structure. These Panels enable state-level coordination of end-user priorities and involvement in CRCWSC research activities, as well as tailoring of capacity building activities.

The Western Regional Advisory Panel is composed of officers from government, councils, water utilities, consulting organisations and capacity building organisations who are invested in transforming their city into a water sensitive city. Many of the RAP members are also participants or stakeholders of the CRCWC. The purpose and role of the Panel is outlined in its Terms of Reference [found here](#).

Drivers for this business plan

In 2016/17, the CRCWSC transitioned from its Tranche 1 research program to Tranche 2. This transition reflects the culmination of 40 research projects completed since July 2012, which have generated over 150 research outputs documented in over 1000 publications. At this transition point, Western Australian end-user participants identified the following issues and opportunities:

- A need to improve access to the knowledge generated to date;
- A need to demonstrate end-user value from the investment in research;
- A need to improve pathways for the CRCWSC research to influence 'on-ground' projects.
- Need to improve governance, regulatory, policy and delivery frameworks in WA
- Need to support local scale water supply and servicing

Role of this business plan

The Plan articulates what the partnership between the CRCWSC and its end-user organisations will deliver in WA. It achieves this by providing a set of outcomes (success measures) and outlining high-level actions that will deliver them. This plan will direct the efforts of the Regional Advisory Panel, which in turn provides advice to the CRCWSC on research and adoption.

The plan will be guided by National plans:

- CRCWSC Strategic and Operations Plan (found here).
- (National) Research and Adoption Plan - a national scale, high level plan (found here).

The plan will also provide a high level strategic framework linking other WA planning documents including:

- The WA Research and Adoption Plan is a detailed list of activities and outcomes. Many have been picked up by the Integrated Research Projects and other CRCWSC targeted services (Index and Synthesis workshops) although there are gaps around governance / policy and local scale water supplies. (found here).
- Transition Strategy (found here) and Implementation Plan (yet to be developed)
- Proposed Western Region Capacity Building Work Plan and Activities 2017-2021 (found here). This includes:
 - CRCWSC Communications and Adoption in WA – Local Work Program for New Water Ways 2017/20
 - List of Communications and Adoption Activities
- There are also sector specific Engagement Plans including:
 - Local government (found here);
 - Development sector (found here); and potentially other sectors.

Resources available to deliver the business plan

The proposed activities of the CRCWSC in WA will be delivered through a mix of:

- CRCWSC Tranche 2 activities and services which include integrated research projects, regional projects and the WA Transition Strategy and Implementation Plan;
- A CRCWSC budget for capacity building activities in the Western region;
- CRCWSC staff including the WA Regional Manager;
- Fee-for-service CRCWSC activities (e.g. supporting consulting organisations);
- In-kind contributions and participation from end-user organisations including both participants and non-participants; and
- In-kind contributions through partnerships.

Integrated Research Projects and Regional Projects

The CRCWSC is delivering its 2016 - 2021 research program through 5 Integrated Research Projects and a Tools and Products project. Each project has a steering committee comprised of CRCWSC member organisations. The Projects include a mix of case study projects nominated by the Regional Advisory Panels. The CRCWSC can also deliver additional Regional research projects where there is a region specific research need or opportunity. Although these opportunities are usually supported as a case study under one of the Integrated Research projects, it is also possible to undertake these through industry funding and as such will be developed on a case by case basis.

Transition Strategy and Implementation Plan

The Western Region is developing a Transition Strategy through Integrated Research Project 1. This will outline a shared pathway towards achieving water sensitive city outcomes for the greater Perth region.

The Implementation Plan will detail specific actions to achieve this strategy and will be completed in late 2017.

Capacity Building, Knowledge Brokering and Adoption Budget

The RAP has engaged New WAtEr Ways (NWW) to deliver capacity building and research adoption activities and products. NWW was formed in 2006 and incorporated in 2014 with the aim to build the water sensitive urban design capacity of government and industry. Activities are guided by the Board agencies, who also contribute funding and in-kind resources. In the 2016/2017 Financial Year, the CRCWSC through the WRAP provided \$40,000 to NWW to undertake additional capacity building on its behalf. The activities delivered by NWW on behalf of the CRCWSC are consistent with the *CRCWSC Communications and Adoption in WA – Local Work Program for New WAtEr Ways 2017/20* and endorsed by the WRAP.

The Regional Manager

The Regional Manager has been funded by the CRCWSC until the end of 2018. The WA Regional manager has a Work Plan [found here](#) which includes core activities including:

- Provide support to WRAP Chair and WRAP;
- Implementing CRCWSC programs including T2 projects, Synthesis workshops, TAPs, KATs CRCWSC forums;
- Identify additional project opportunities and potential partners;
- Influencing and informing through stakeholder engagement: key sectors are Development, Local Government, and Water Utilities
- Influencing and informing transition and adoption opportunities including:
 - Policies and guidelines
 - Strategic direction for Transition Network
 - Demonstration projects
- Influencing and information:
 - Strategic direction for capacity building program
 - General Public and Community engagement

CRCWSC stakeholder engagement activities

Occasionally the CRCWSC undertakes targeted stakeholder engagement activities to advance the adoption of water sensitive cities. These are supported by CRCWSC staff including the Regional Manager, Adoption Manager, Chief Research Officer and CEO as well as support staff. Examples include:

- workshops with key stakeholder groups communicating the CRCWSC research, products, tools or services;
- preparing submissions on key issues on behalf of member organisations;
- leading round table discussions or workshops; and
- convening working groups on strategic issues.

Targeted services such as the WSC Index, Research Synthesis projects

The CRCWSC offers a range of services to support the implementation of integrated water management. These services are offered to benefit individual organisations (whether CRCWSC members or external organisations) to draw upon the research and adoption activities developed within the CRCWSC. Examples of projects delivered to date include:

- **Benchmarking** - the water sensitivity of cities and municipalities using the WSC Index Tool;
- **Visioning** – creating stakeholder alignment and implementation strategy around the agreed vision from project 4.2;
- **Research Synthesis** projects – co-design, with researchers, of water sensitive city designs and solutions for specific locations;
- **Consulting projects** – for instance facilitating workshops. CRCWSC may be the lead consultant, or a sub-consultant;

Contributions by participants and partners

The Water Sensitive Transition Network is a group of CRCWSC participants and non- CRCWSC participants who support the transition to a water sensitive city in WA. Membership of this group is open to all CRCWSC participants, as well as other engaged stakeholders.

There is a sub group focussing on Communications and community engagement, which was identified as a priority in the Transition Strategy.

CRCWSC participants also support the objectives of this business plan independent of the transition strategy by attending CRCWSC forums (RAP, EPRG, Board, RAP) providing venues and cash contributions. In addition, they continue to implement actions that support a water sensitive city including:

- Department of Water and Environmental Regulation: Developing water policies supporting a transition to a WSC
- Department of Communities (Housing): Undertaking water sensitive developments
- LandCorp: Undertaking exemplar developments incorporating water sensitive principles
- Water Corporation: Supporting a WSC through their Boards strategic objectives and the WaterWise Council Program which supports the WSC framework and LGAs to undertake WSC Index workshops
- Department of Biodiversity, Conservation and Attractions: Funding research into the messaging of the WSC
- EMRC: Providing linkages to CRCWSC activities and services to their members

The WRAP also partners with non-CRCWSC participants who actively support WSC principles, including:

- Department of Planning, Lands and Heritage: Incorporation of WSC principles into policy and strategy, engaging with CRCWSC participants
- Water Corporation and DWER joint WaterWise Councils program: support the WSC framework and support LGAs to undertake WSC Index workshops
- UDIA: Supporting co-branded knowledge sharing of research findings and capacity building to transition towards a water sensitive city
- WALGA and non-participant local governments: Provide access to their network of local governments to facilitate knowledge sharing

Examples of activities delivered in FY1617

- CRCWSC Conference Perth July 2017
- T1 projects:
 - Case study for WGV
 - Hydrology and nutrient transport processes in groundwater/surface water systems
 - Valuation of economic, social and ecological costs and benefits
 - Mapping water sensitive cities scenarios and the vision for Perth
 - Statutory planning for water sensitive cities
 - Resource recovery from wastewater
 - The design of the public realm to enhance urban microclimates
 - Water sensitive cities modelling toolkit.
- Knowledge broker activities undertaken by NWW:
 - Review and summary of key outcomes of T1 relevant to WA
 - Capacity building needs analysis - online survey and phone calls
 - Local work plan for 2017 to 2020
 - Short list of priority policy initiatives
 - WSC workshops including B2.4 research findings; LandCorp Development Managers; City of Armadale local planning poilicy

- Symposium: Roles & responsibilities in the delivery of green infrastructure in WA with Department of Planning and LIAWA
- Connecting communities with water sensitivity – Community Day with AWA, SWA, SERCUL and DPaW
- Speaker series talks: (i) Cost benefit (ii) Groundwater science (iii) WSC Index (iv) Community engagement and messages
- Bus tour to CRC demo project - WGV
- Biofilters and Car park retrofits Industry Notes
- Involvement in partner projects: Montario Quarter, etc.
- Participation in T2 steering committees, workshops and development of project briefs
 - IRP1 workshops to develop the Perth Transition Strategy
 - IRP2 case study at Subiaco Strategic Resource Precinct
 - Planning workshops for IRP3 and 4
 - IRP5 workshops on High groundwater
- Stakeholder engagement and influencing: Water Corporation are taking on the WSC framework to guide their strategic planning
- Collaboration with consulting partners: Urbaqua – NWW; GHD – IRP5 lead, TAPs; Josh Byrne and Associates – WGV tours and Ideas for workshops

Value proposition - what does success look like in 2021?

The CRCWSC will have provided value to its WA participants if it has delivered the following outcomes by July 2021:

For developers	For local government	For consulting organisations
<p>Information: Key research relevant to developers has been translated, synthesized and summarised for use.</p> <p>Policies: Solutions to overcome barriers to WSC have been identified and proposed by the CRCWSC or its research. Developers are able to implement WSUD without fears of delay due to planning approvals</p> <p>Benchmarks: Leading developers, exemplar developments have been showcased to set new benchmarks.</p> <p>Practice: Developers can implement WSUD through access to case studies, examples and tools for small scale, networks of early adopters, on ground projects that are tested and trusted.</p> <p>Leadership: Leading developers are acknowledged amongst their peers and the broader community</p> <p>Outcomes: Developers are creating liveable, resilient, sustainable and productive communities that new home buyers are willing to pay for.</p>	<p>Information: Key research relevant to LGAs has been translated, synthesized and summarised for use.</p> <p>Policies: Local government strategies and policies for water, WSUD and urban planning have been influenced by the CRCWSC and its research.</p> <p>Benchmarks: Exemplar local government best practice has been showcased and councils have used the WSC Index to set new benchmarks.</p> <p>Practice: Local governments can access case studies, examples and tools, networks of early adopters and then implement on ground projects influenced by the CRCWSC.</p> <p>Leadership: Leading local governments and exemplar projects have been showcased and champions are supported.</p> <p>Outcomes: Local governments are creating and supporting liveable, resilient, sustainable and productive communities for their residents</p>	<p>Information: Consulting organisations have had ready access to CRCWSC research, skills and/or market pathways as a market advantage.</p> <p>Policies: policies that don't hinder consulting organisations to achieve innovative water sensitive outcomes for their clients.</p> <p>Benchmarks: Consulting organisations are accredited to deliver WSC benchmarking tools and products (e.g. WSC Index workshop)</p> <p>Practice: Consulting organisations have supported the design and implementation of WSUD.</p> <p>Leadership: Consulting organisations obtain a market advantage in creating liveable, resilient, sustainable and productive communities for their clients.</p> <p>Outcomes: Consulting organisations have generated additional revenue on the basis of CRCWSC research and/or collaboration.</p>

For State Agencies – DWER, DBCA, Planning

Information: Tranche 1 research relevant to water policy makers has been translated, synthesized and summarized for use.

Benchmarks: Benchmarks related to WSC are reflected across a range of policy instruments.

Policies: Policy and regulations support implementation of WSC principles and have been influenced by the CRCWSC and its research.

Practice: Solutions to overcome barriers to WSUD have been identified and proposed by the CRCWSC and its research. CRCWSC has developed tools to implement WSUD that are in mainstream use - tested and trusted by end users.

Case studies have been provided for:

- Best practice WSUD – projects that have succeeded
- Lessons learnt from implementing WSUD
- New tools in practice

Leadership: WA becomes known for its progressive policies that support WSC.

Outcomes: State agencies create liveable, resilient, sustainable and productive communities for the broader community. Perth metro area is highly ranked on the WSC Index.

For Water Utilities

Information: Tranche 1 research relevant to water utilities has been translated, synthesized and summarized for use.

Benchmarks: The WSC benchmarks are used to inform strategy and policy for water utilities

Policies: Policy and regulation relevant for WSC have been informed and influenced, where appropriate.

Practice: Collaboration between the key stakeholders has been fostered and supported. Strategy for Perth as a WSC, and economic evaluation framework have been developed and implemented.

Leadership: All WA utilities are recognized as leading water utilities. The Water Corporation is recognised as the leading water sensitive utility along with Aqwest, Busselton Water and Water West.

Outcomes: Water utilities support the creation of liveable, resilient, sustainable and productive communities for all customers

FY2017/18 focus –development industry

By 2021, the CRCWSC will have:

- A. Created a market amongst new home buyers for water sensitive developments.
- B. Investigated Ways to reduced approval times for Water Sensitive Developments.
- C. Increased the understanding of risk in undertaking Water Sensitive Developments.
- D. Built the profile of best practice in water sensitive cities in private and state developers – exemplars of best practice.
- E. Translated CRCWSC research outcomes into standards designs, policies and guidelines used by professionals.

2017/18 focus

- a) Translated the Tranche 1 research outputs for a development audience including:
 - o Economics
 - o Alternative supply options
 - o Cooling and green infrastructure
 - o WSUD in high groundwater environments
- b) Through the UDIA and other networks, stimulate information sharing and networking. In particular using the UDIA urban water committee to share lessons from WSUD projects and understand the barriers or risks.
- c) Facilitate committee/ round table meetings for developers working in and around Brabham.
- d) Delivery of capacity building and training of developers, their consultants and growth councils in which they work. This includes through NWW, co-branded training with UDIA and potentially Continuing Professional Development undertaken by Industry associations.

2017/18 focus

- e) Deliver CRCWSC adoption activities (e.g. capacity building, training etc) and servicing activities (e.g. ideas for METRONET, TAPs case study for Wungong/ Byford).
- f) Co-design and testing of Water sensitive approaches on IRP5 case study Brabham.
- g) Economic assessment of IRP 2 case study at Bellevue
- h) Greater recognition of Water Sensitive projects and 'early adopter' developers by showcasing and raising the profile of innovative projects.
- i) Support Champions working within development related organisations.
- j) Hold an exemplar development roadshow to showcase water sensitive developments (WGV and Aquarevo).

FY2017/18 focus – local government

What does value look like?

By 2021, the CRCWSC will have:

- A. Translated all the Tranche 1 and 2 research outputs for a local government (LG) audience. Including:
 - Synthesis of reports
 - Tools and Products that help LGAs make informed decisions and plan
 - Industry fact sheets
 - NWW capacity building
 - Information/starter guides to support non-technical people (Elected Members, interdepartment, etc.) in understanding concepts
- B. Influenced LG land use planners to adopt water sensitive principles and practices
- C. Built the profile of LG best practice in water sensitive cities – exemplars of best practice.

2017/18 focus

- a) Translate relevant Tranche 1 research into highlights summaries and synthesis for a LG audience. Including:
 - Economics research
 - Cooling and green infrastructure
 - Alternative supply options
 - WSUD in high groundwater environments
 - Community engagement research.
- b) Find ways to deliver more targeted communications with LGs around CRCWSC activities including articles in waterSENSE and twitter.
- c) Deliver Tools and Products Adoption workshops to provide training and answer questions
- d) Engage directly with participant LGs to provide an overview of information and explore opportunities
- e) Engage indirectly with non-participant LGs to communicate CRCWSC research through partner organisations (WALGA including SONG, WESROC, IPWEA, recognised with Waterwise Council program, EMRC, etc.).

2017/18 focus

- f) Attend WALGA and other partner conferences in 2018.
- g) Inform and provide linkages to other programs that support LGs (including NWW, Waterwise Council program, EnviroDevelopment certification, switch your thinking, etc.).
- h) Stakeholder engagement with land planning professions within state and local government to ensure CRCWSC research is embedded in policy, guidelines and standards.
- i) Engage local LGs to influence the delivery of synthesis, case studies and regional projects including: Subiaco Strategic Resource Precinct, METRONET and METROHUBS, Brabham precinct, Subiaco Oval redevelopment, Canning City centre, Bentley Regeneration, Batavia Coast, Redcliffe Reconnect, Curtin Town Proposal, Bayswater Town Centre, Ashfield, Forrestfield North, Beaconsfield.
- j) Influence the Urban Monitor data project to include not only green infrastructure but also blue infrastructure.

2017/18 focus

- k) Influence policy processes at participant LGs going through a planning or development process (e.g. Armadale WSUD policy and Melville green infrastructure plan/ street retrofit).
- l) Undertake capacity building activities through NWW targeting land use planners – seminars, tours, discussion forums, training as required.
- m) Find ways to achieve greater LG input into Western Region activities and events.
- n) Encourage and support LGs to undertake WSC Index workshops and use these events to engage more broadly around Water Sensitive Cities
- o) Identify and support champions working in LGs.
- p) Develop case studies, designs or tools for small-scale water sensitive city initiatives and Council best practice in integrated water management.
- q) Support local governments during the approval of innovative developments

FY2017/18 focus - consulting organisations

By 2021, the CRCWSC will have:

- A. Created a market for water sensitive city services/products (e.g. to make the implementation of WSUD easier or better).
- B. Enabled its commercial partners to be market leaders by being early-adopters of new practices and tools to implement WSUD.

2017/18 focus

- a) Support WA consultants to access opportunities through trade missions to China, India etc.
- b) Capacity building and training for consulting staff including accreditation to deliver the WSC Index.
- c) Maintain industry network opportunities (Incl. RAP) to stimulate information sharing and networking, including sharing of lessons from IWM projects.
- d) Provide opportunities for involvement in IRP and TAPs steering committees, project teams and case studies.
- e) Provide opportunities to deliver (or co-deliver) CRCWSC capacity building, IRP leadership, adoption and servicing activities.
- f) Translating CRCWSC research outcomes into tools, guidelines and frameworks for industry use – i.e. operationalising and standardising practice.
- g) Co-design and testing of CRCWSC tools.
- h) Embed CRCWSC experts within consulting project teams.

FY2017/18 focus – State agencies

By 2021, the CRCWSC will have:

- A. Supported in making Perth a Water Sensitive city
- B. Actively influenced the policy and regulatory environment to support WSC.
- C. Identified the barriers to WSUD in the Western Region and propose solutions to these barriers.
- D. Influenced the referencing of water sensitive cities (or similar) in key documents/by both water and non-water sector stakeholders.
- E. Translated the outcomes of Tranche 1 research for policy makers.
- F. Developed tools that make WSUD easier to implement – and these tools are in mainstream use.
- G. Developed water sensitive city case studies demonstrating the successful implementation and benefits of WSC.

2017/18 focus

- a) Engage key stakeholders around METRONET including: Dept. of Transport, Public Transport Authority, Main Roads WA, Metropolitan Redevelopment Authority, Dept. of Planning, Lands and Heritage and Departments of Finance.
- b) Engage policy and industry stakeholders in developing the business case.
- c) Supporting the Water Corporation and DWER through their joint WaterWise Council programs.
- d) Supporting accreditation of WA based CRCWSC participants to become accredited to deliver the WSC Index through the Waterwise Councils.
- e) Facilitate Dept. of Planning, Lands and Heritage input into IRP3 and IRP4
- f) Foster collaboration (learning by doing) of CRCWSC and industry partners in research projects especially targeting IRP1, 2, 3, 4 and 5.

2017/18 focus

- g) Co-design and co-test (using WA case studies) new CRCWSC TAPs to ensure it is applicable to the Swan Coastal Plan context.
- h) Research summaries and synthesis for policy application including:
 - Governance, regulatory and planning best practice
 - Guidance document for High groundwater environments (IRP5)
 - Community engagement and water literacy
- i) Apply water literacy and community engagement strategies

2017/18 focus

- j) Support CRCWSC stakeholder input and influence the development and revision of Planning / Water Policies including:
 - Water Sensitive Transport Plan METRONET and METROHUBS
 - State Planning Policies 2.1, 2.2, 2.1, 2.7, 2.9 and 2.10
 - Liveable Neighbourhoods
 - Design WA
 - Precinct Design policy
 - Urban Canopy Framework for Perth
 - Water Resources Management Bill
 - Review of Better Urban Water Management
 - Perth Peel 1.3 M Water Plan
 - Transform Perth Peel Integrated Water Initiative

FY2017/18 focus – Water Utilities

By 2021, the CRCWSC will have:

- A. Supported utilities to make WA water sensitive, particularly the Water Corporation in making Perth a Water Sensitive city
- B. Actively influenced and informed the relevant policy and regulatory environment to support WSC.
- C. Identified the barriers to WSUD in the Western Region and propose solutions to these barriers.
- D. Influenced the referencing of water sensitive cities (or similar) in key documents/by both water and non-water sector stakeholders.
- E. Translated the outcomes of Tranche 1 research for water utilities.
- F. Developed tools that make WSUD easier to implement – and these tools are in mainstream use.
- G. Developed Strategy for Perth as a WSC and economic valuation framework.
- H. Developed water sensitive city case studies demonstrating the successful implementation and benefits of WSC.

2017/18 focus

- a) Supporting the Water Corporation and DWER through their joint WaterWise Council programs including the accreditation of WA based CRCWSC participants to deliver the Index.
- b) Supporting the Water Corporation through other WaterWise programs, including Development, Business, Office and Schools
- c) Supporting the Water Corporation Board, when requested, with their strategic planning and stakeholder engagement.
- d) Research summaries and synthesis for utility application including:
 - Economic evaluation framework
 - Technologies including smart metering
 - Resource recovery
 - Strategic Resource Precinct workshops

2017/18 focus

- e) Co-design and co-test new CRCWSC TAP1 on the WSC Index and Transition Strategy.
- f) Co-design and co-test (using WA case studies) new CRCWSC TAPs to ensure it is applicable to the Swan Coastal Plan context.
- g) Foster collaboration (learning by doing) of CRCWSC and industry partners in research projects and WA water industry projects targeting:
 - o IRP1 Index and Strategy
 - o Alternative supply options in IRP5
 - o Subiaco Strategic Resource Precinct including Montario Quarter (IRP2).
- b) Engaging with Busselton Water and Aqwest around CRCWSC participation.
- h) Engage policy and industry stakeholders in developing this business case
- i) Provide input into the thinktank on “utility of the future”.

FY2018/17 opportunities

The table below highlights some opportunities to deliver these value outcomes through current industry activities involving CRCWSC.

1. Targeted knowledge adoption services

- WSC Index projects planned through WaterWise Councils
- Research Synthesis projects including METRONET and Subiaco;
- Consulting projects – to embed CRCWSC experts within consulting partners' project teams such as for the Brabham development.

2. Capacity building and adoption activities

- NWW: Vlog, QR codes, speaker series, fact sheet, industry note, bus trip, debate, inter agency workshops,
- LG adoption workshops demonstrating tools
- Consultant adoption workshops demonstrating tools
- Development roadshow
- RAP meetings. Topics will be determined at each RAP meeting;
- Transition Network meetings and communications sub group.
- 2018 Conference – subsidized attendance for CRCWSC partners.

3. Stakeholder and influencing engagement activities

- METRONET – Belmont Station, Brabham Station, planning scale etc.
- Brabham – dialogue with surrounding developments and support exemplar project in high groundwater, limited water for Public Open Space,
- Subiaco Strategic Resource Precinct – water, nutrient and energy reuse

- Hamilton Hill – exemplar infill development
- Bellevue Living Stream –
- Subiaco oval –
- Bush Mead – Cedar woods development which large amounts of Public Open Space
- State Planning Policy 2.1 Peel Harvey Coastal Plain Catchment– forum participation to help ensure WSC outcomes.
- Other planning activities

Summary action plan – what will we do?

To translate T1 research we will:

- Produce an overview of research findings and solutions for Developers with FAQs. In addition, produce a similar overview for LGAs and potentially other participants.
- Conduct 2 interagency workshops with: 1) Metro Redevelopment Authority and 2) either Main Roads, DPIRD, Melville, EMRC urban Heat, Melville, WSC Index workshop
- Disseminate knowledge through NWW program including Vlog, QR codes, speaker series, fact sheet, industry note, bus trip etc.
- Delivered a targeted engagement workshop with participant LGAs
- Partner with other organisations to communicate CRCWSC research and engage with stakeholders to identify opportunities

To engage around T2 research we will:

- Engage CRCWSC participants and stakeholders in IRP case studies (Belleveue, Subiaco, Hamilton Hill, Brabham etc.)
- Provide input and direction into TAPs

To co-develop CRCWSC tools, we will:

- Conduct training workshops and master classes on existing CRCWSC tools with LGAs and consultants.
- Trial CRCWSC tools in stakeholder engagement projects, research synthesis and consulting projects.
- Support the development of TAPs so that it is relevant to the Swan coastal plain context.
- Influence Urban Monitor so that it addresses Blue as well as green infrastructure and in the long term can be integrated into TAPs.

To deliver WSC Index workshops, we will:

- Support WaterWise Councils and other interested councils to undertake WSC Index workshops

- Conduct accreditation training sessions so consultants are able to deliver WSC Index workshops.
- Explore way to promote update of the indicators framework used in the WSC Index through WaterWise Councils.

To assist consulting partners to commercialise their investment in the CRCWSC, we will:

- Provide networking opportunities in the RAP, CRCWSC Conference, IRPs, TAPs etc.
- Invite consulting partners to co-deliver CRCWSC activities such as Index and Research Synthesis workshops.
- Influence future Trade missions to include WA consultants
- Offer CRCWSC experts for consulting project teams.

To influence non-water (e.g. planning, economics) policy and practice we will:

- Promote update of Perth Transition Strategy and Implementation Plan amongst WA stakeholders
- Engage with METRONET stakeholders at multiple levels to obtain support for WSC principles in planning and design
- Increase opportunities for LGAs and Developments to engage with the CRCWSC through RAP, Transition Network and other forums
- Opportunistically provide input into planning policies undertaken by Dept. of Planning, Lands and Heritage based on advice from Ben Harvey
- Engage with DWER, Water Corporation Councils and other stakeholders to influence policies.
- Engage planning professionals and developers in a conversation about the value of water sensitive cities, through UDIA
- Encourage CRCWSC researchers to attend conferences (e.g. WALGA 2018, WSUD 2018 and SWWS 2019)

To demonstrate the successful implementation and benefits of WSC, we will:

- Support LGAs and Developers to minimize perceived risks in undertaking WSC
- Develop evidence based case studies of successful water sensitive city projects.

- Build policy and industry support for this business case.

To showcase best practice in WSC we will:

- Circulate case studies of best practice in different aspects of water sensitive cities.
- Support and facilitate alternate water supply options with the support of Water Corporation at Subiaco WWTP and the Brabham Development
- Give greater recognition to early adopters through awards

To identify and overcome barriers to WSC, we will:

- Through the UDIA water committee engage around a key barrier or risk.
- Use IRP case studies in Brabham, Subiaco, Bellevue, Hamilton Hill, and TAPs case studies (Wungong/ Byford).
- Support Water Corporation and DWER forums by participating, offering advice and services.
- D1.4 Demonstration projects, case studies and Research Synthesis to highlight barriers and apply T1 research to overcome them.

Activities Covered

	Activities	T2?
1	Transition Strategy and Implementation Plan	Yes
7	Knowledge brokering and building capacity	Yes
8	Regional Manager and project management	Yes

Mostly Covered IRPs– Minor gaps

	Activities	T2?
2	IRP2 Improved frameworks for evaluation of costs, risks and performance of water sensitive practices	Mostly
3	IRP3 Responsive urban form	Unknown
4	IRP4 Responsive urban form	Unknown
5	IRP5 High groundwater /WSUD Science in WA	Unknown

Synthesis / “Ideas for.....”

	Activities	T2?
6	Research synthesis and application in WA (not funded)	Partially

- 10 workshops nationally
- 1 for Subiaco strategic resource Precinct
- 1 subsidised workshops
- 1-4 unsubsidised workshops

Not covered

	Activities	T2?
9	Governance, regulatory, policy and delivery frameworks in WA	No
10	Local scale water supply and servicing	No

- Gaps to be filled:
 - Improve implementation of BUWM
 - Streamline drainage governance
 - Inconsistencies between state and local
 - Make it easier for fit for purpose
 - Make it easier for local scale planning and delivery

Summary

	Activities	T2?
1	IRP1 Transition Strategy and Implementation Plan	Yes
2	IRP2 Evaluation of costs	Mostly
3	IRP3 Responsive urban form	Unknown
4	IRP4 Responsive urban form	Unknown
5	IRP5 High groundwater /WSUD Science in WA	Unknown
6	Research synthesis in WA	Partially
7	Knowledge brokering and building capacity	Yes
8	Regional Manager and project management	Yes
9	Governance, regulatory, policy and delivery	No
10	Local scale water supply and servicing	No

Draft Local Government Engagement Strategy Western Region CRCWSC

The uptake of water sensitive design by Local Governments is essential for the transition to water sensitive cities. A list of activities to improve engagement with LGAs has been developed by the CRCWSC western region. The proposed activities are listed below with priority actions highlighted. A list of acronyms is provided at the end.

A. Acknowledge the diversity in needs and capacity of LGA stakeholders

B. Develop materials to communicate the following messages to both CRCWSC participant and non-participant LGAs:

- a. **The value of CRCWSC participation:** How participation in the CRCWSC can help LGAs?
- b. **Relevance of CRCWSC research projects for LGAs:** What are the key highlights from Tranche 1 for LGAs? What are the key outputs from the IRPs including how the Transition Strategy and Implementation Plan can link with any local sustainability, water and greenspace planning? Which research outputs can be applied in on-ground projects.
- c. **Benefit of CRCWSC tools and products (TAPs):** What tools are available and how can LGAs use them? What other tools are currently in development and how can LGAs engage with tool development?
- d. **Long term value of WSC:** What is the market and non-market value of WSUD?
- e. **The WSC framework and how to apply it:** What are the principles of a WSC and what is the WSC framework? How can the WSC index enable LGAs to benchmark and progress?
- f. **Other programs supporting WSC:** What are the opportunities presented through other programs that also benefit LGAs (e.g. Waterwise Councils, NWW, Drainage for Liveability etc.)?
- g. **Best practice examples:** How have both CRCWSC and non-CRCWSC case studies and demonstration projects achieved water sensitive principles? How can others follow this path?
- h. **Water Sensitive Cities concepts for beginners:** Provide information for decision makers with low technical knowledge to get them started in a water sensitive direction (e.g. alternative supplies, MAR, shared bore ownership etc.).

C. Establish forums with CRCWSC participant LGAs, to understand needs, deliver tailored messages from “B”, negotiate partnerships and agree to act. Examples of relevant forums/ platforms are:

- a. Establish a **new CRCWSC participant LGA group**
- b. **Regional Advisory Panel** membership to provide fair and equitable access by participant LGAs.
- c. **Adhoc meetings and presentations** between CRCWSC staff / experts and participant LGAs.
- d. **WSC Index workshops** undertaken by participant LGAs.

- e. **CRCWSC research adoption activities including workshops, meetings and events** attended by LGA stakeholders (e.g. Integrated Research Projects, Tools and Products).
 - f. **CRCWSC communications** including IRP and TAPs communications strategies, newsletter, publications, website to target LGAs.
- D. Deliver relevant messages from “B” to target **non- CRCWSC participant LGAs** (and participant LGAs) in partnerships with:
- a. Any subgroups developed as part of the **CRCWSC development sector engagement strategy**
 - b. **NWW** – training, seminar, vlogs etc.
 - c. **WWC** - forum, meetings, lunch time seminars, etc.
 - d. **EMRC** (possibly South West Group) – workshops and other events.
 - e. **IPWEA** - meetings and annual conference.
 - f. **WALGA** – CEO meetings, environews, CEO e-bulletin, “Local government week”, LGA conference, social media, compulsory LGA training.
 - g. **SONG** - online discussion forum.
 - h. **Switch your thinking** – training and other events.
 - i. **ICE WaRM** – national capacity building.
 - j. Other **Industry associations** including AWA, IWA, WSAA, SIA, UDIA, Greywater and Wastewater Industry Group, Stormwater WA.
- E. Engage directly with both **CRCWSC participant (priority) and non-participant LGAs** through a number of opportunistic mechanisms including:
- a. Any LGAs undertaking **WSC Index workshops**.
 - b. **Conferences and other events** attended by non-participant LGAs (WALGA conference, Local Government Professionals WA, Sustainable Integrated Cities International Conference, IPWEA conference, WSUD2018, etc.)
 - c. **Activities that are part of the CRCWSC development sector engagement** which may include activities to facilitate the approval process for developers
 - d. Engaging with LGAs embarking on **projects with potential for WSUD** and providing information and/ or planning support (e.g. any new Metronet station etc.).
 - e. Develop **targeted workshops on key topic** (e.g. individual Index goal area) with LGAs who have either both high impact and high likelihood of change (e.g. development LGAs).
 - f. **Make it more efficient for LGAs to access information in existing e-mail outs** including WSC Index workshops, Integrated Research Projects
 - g. Coordinate and **facilitate funding bids** by LGAs to undertake projects supporting WSUD (e.g. Urban Monitor funding through smart cities program)
- F. **Influence other CRCWSC participants** to update policies or agreements based on Water Sensitive principles and latest CRCWSC research including:
- a. Dept. Water and Environmental Regulation – Stormwater Management Policies

- b. Department of Planning, Lands and Heritage - SPPs; Urban Canopy Framework; Design WA/ Liveable Neighbourhoods.
- c. Water Corporation - Drainage policies
- d. Various Local government policies (e.g. NWW already working with Armadale on WSUD and Melville on green infrastructure/ urban heat)

List of Acronyms

AWA – Australian Water Association

BB – Barry Ball

CRCWSC – Cooperative Research Centre for Water Sensitive Cities

EMRC – Eastern Metropolitan Regional Council

EY – Emma Yuen

GWIG - Greywater and Wastewater Industry Group

IRP – Integrated Research project in Tranche 2

IPWEA – Public Works Engineers Australia

IWA – International Water Association

LGA – Local Government Authority

NWW – New Waterways

SIA - Stormwater Industry Association

SONG – Sustainability Officers Network Group

SPP – State Planning Policy

TAP – Tools and Products

WALGA – Western Australian Local Government Association

WSAA – Water Services Association of Australia

WSC – Water Sensitive Cities

WWC - Waterwise Councils

Final Draft Development Sector Engagement Strategy Western Region CRCWSC

The uptake of water sensitive design by developers and their consultants is essential for the transition to water sensitive cities. A list of activities to improve engagement with the development sector has been developed by the CRCWSC western region. The proposed activities are listed below with priority actions highlighted:

1. Engage with **key development sector stakeholder** groups:
 - a. Develop and implement an engagement strategy in **partnership with industry associations** (UDIA, HIA, etc.) with their stakeholders through:
 - i. CRCWSC presentations at meetings and forums.
 - ii. CRCWSC participation on committees.
 - iii. Cobranded UDIA member activities and training sessions.
 - iv. Multiway partnership across CRCWSC, UDIA, AWA, SIA, NWW, HIA and MBA
 - b. Develop 2-4 **page** “honest sell” glossy brochure demonstrating the economic value and answering key questions (including risks) for developers when deciding to take on a WSUD approach.
 - c. Hold **meetings and or workshops with the major developers** to identify needs and opportunities, and promote demonstration sites.
 - d. Develop and implement an **engagement strategy within private and state developers** (eg Housing, Landcorp) who are participants or otherwise actively involved with the CRCWSC to help Perth transition to a water sensitive city.
 - e. Support the **growth councils** as part of a broader local government engagement strategy
 - f. Develop Industry notes that include “**how to**” **flowcharts** for consultants investigating alternative water supplies for irrigation, MAR, and other topics covered in the glossy brochure. This would include key contacts.
2. Identify ways to **remove barriers and reduce risks** faced by developers wanting to undertake WSUD including through:
 - a. **Supporting local governments** to make appropriate decisions during the approval process as documented in the LGA strategy.
 - b. **Flagship multi agency approval process** that provides accreditation/ fast tracks innovative projects.
3. Influence **standard designs, policies and guidelines** used by professionals (eg IRP5s development in high ground water guidance document, Better Urban Water Management, design WA and Water Corporation Drainage Design Standard) to ensure they are effective and appropriate. This may include the CRCWSC playing the role of independent adjudicator where relevant.
4. Identify and **support champions** in the development sector to promote WSUD to their peers.
5. Promote **greater representation and active participation of consultants and representatives working for developers** on:
 - a. CRCWSC committees and forums.
 - b. Policy forums related to urban water management

- c. WSUD committees within government including the Water innovation projects
- d. IRP5 related to the Brabham development
- 6. Influence **Continuous Professional Development (CPD) undertaken by industry associations** so that knowledge of WSUD is a prerequisite for professional accreditation.
- 7. Avoiding use of **technical and CRCWSC jargon** at all CRCWSC forums so that a range of backgrounds and expertise can engage in the conversation.
- 8. Celebrate and **showcase WSUD projects** through a number of mechanisms
 - a. Establish, or influence the selection criteria for, an urban development **industry planning award** to provide formal recognition to developers that apply water sensitive urban design (WSUD) in their developments.
 - b. Facilitate conference and other **bus tours undertaken by industry associations** to water sensitive developments.
 - c. Upload case studies on the **internet or social media** (eg developer's link on the CRCWSC website, facebook site, UDIA WSUD link) for developers with information and examples of developments that have implemented WSUD in their design.
 - d. Consider ways **sustainable rating schemes** can further support WSUD (eg EnviroDevelopment or green star).
 - e. Explore ways to link with other programs including the **WaterWise Development program** and **Waterwise exemplar**.

Why should Developers choose water sensitive design in their developments?

Questions covered by this brochure are:

1. Are home owners willing to pay for WSUD?
2. Are home owners still willing to pay during an economic downturn?
3. Will trees and vegetation make my developments more liveable and hence desirable to home owners?
4. How can I use trees and vegetation in the landscape to reduce temperatures?
5. If I can't obtain a water licence for groundwater what alternative sources could I use?
6. Where do I store the water?
7. Can I use Biofilters, Detention basins and other WSUD in high groundwater environments?
8. How do I design WSUD elements to improve water quality?
9. How do I design subsoil drains in high groundwater environments?
10. Where do I find long term groundwater data?
11. How big do I have to design my system?
12. How do I gain approval for a catchment scale system that doesn't retain 15mm on lot but achieves a better outcome overall?
13. How do I assess and mitigate risks?

Economic benefits of water sensitive design

Q: Are home owners willing to pay for WSUD?

Research by Metrix on "Water sensitive communities – research to inform messaging and communications) found that 38% of survey respondents would definitely or very likely consider water sensitive urban design principles when buying / building a house. In addition there are strong economic arguments for WSUD including:

- The benefits in terms of improved house sale (around \$18,000) to a typical Perth house outweighed the cost of installation (\$2000 - \$2500) of rainwater tanks (Zhang, Polyakov, Fogarty and Pannell 2015)
- The amenity benefits of rain gardens in an area of Sydney can increase house prices by 2 to 4 per cent, not considering the additional public environmental benefits (Polyakov et al, 2015)
- The median home within 200m of the restoration site (Bannister Creek living stream) increased in value by \$17,000 to \$26,000 above the trend increase in house values in the area
- An assessment of 5606 single family homes sold in 2009 in Perth showed that large verge trees increase property value (+\$14,000). This decreases when on own property or adjacent property near boundary (-\$6,000)
- Research conducted in Bendigo, Victoria, Australia found that households would be willing to pay six times the actual water price for treated grey water during a period of extreme water shortages (Hurlimann 2009).

Q: Are home owners still willing to pay during an economic downturn?

It provides a point of difference when people are looking for value for money.

For developers promoting WSUD developments to potential home owners, the CRCWSC database on messaging and visual images will be useful for marketing WSUD. It can be found [here](#).

Cooling benefits from trees

Q: Will trees and vegetation make my developments more liveable and hence desirable to home owners?

CRCWSC research has proven that trees and biofilters reduce heat through providing shade and or evapotranspiration. For example a 10% increase in vegetation cover provides a 1.2 °C reduction in land surface temperature, meanwhile a 10% increase in irrigated pervious cover lead to a 0.25 °C reduction in daily average temperature.

Commented [EY1]: Be clear irrigated systems, water bodies

Q: How can I use trees and vegetation in the landscape to reduce temperatures?

The principles on managing trees for urban heat are:

1. Maintain healthy existing trees
2. Focus on dense urban developments with highest heat exposure and vulnerable populations (eg bus transfer stations, hospital carparks)
3. Prioritise trees (over biofilters) because they provide cooling via both evapotranspiration and shade
4. Distribute trees throughout the landscape to maximise impact
5. Ensure urban spaces are sensitive to local and regional climatic influences and maintain natural cooling such as ventilation.

These principles should be applied in areas with one or more of the following characteristics, ideally all three:

- High urban temperatures or hotspots with large impervious surfaces
- High population vulnerability with very old or very young people
- High behavioural exposure where people move and gather

Commented [EY2]: Remove the detail

Street scale tree arrangement decisions are documented in the guideline "Trees for a cool city" (Coutts). This shows how optimal placement on the side of the road, groupings of trees, height, and spacing will be influenced by:

1. street width,
2. height of surrounding buildings, and
3. street orientation.

Temperature differences due to changes in tree canopy and other vegetation can be modelled using the [free](#) software "Water Sensitive Cities Modelling Toolkit" <https://watersensitivecities.org.au/content/water-sensitive-cities-modelling-toolkit/>.

Alternative supplies for Public Open space

Q: If I can't obtain a water licence for groundwater what alternative sources could I use?

Where groundwater licences are unavailable or limited, WSUD can be used to provide trees and vegetation without the need for irrigation. The CRCWSC has conducted research into alternative sources that could help irrigation and other water demands including:

- Rainwater reuse (eg rainwater tanks)
- Stormwater harvesting (eg Mawson Lakes)
- Greywater reuse (eg Josh's House)
- Wastewater reuse (eg McGilvray reserve)
- Potentially, drainage water from developments in high groundwater areas.

Q: Where do I store the water?

In WA, the best option is to use the existing aquifers for storage. Managed Aquifer Recharge (MAR), Groundwater Replenishment Trial (GWRT) and Aquifer Storage and Recovery (ASR) share many similarities as they store water in the natural aquifer systems under the ground. Examples in Western Australia are

- MAR of stormwater (Eg Hartfield Park in Shire of Kalamunda, Nambeelup trial in Shire of Murray)
- MAR wastewater (GWRT at Beenyup)

This water can then be used directly or as a way to recharge the aquifer, enabling extraction elsewhere in the system.

Other options used in other states include underground or above ground large storage tanks, wetlands and other water bodies.

Designing WSUD in high groundwater environments

Q: Can I use Biofilters, Detention basins and other WSUD in high groundwater environments?

Biofilters, Detention basins and other WSUD can be effective in reducing peak flows and removal of contaminants from stormwater. However if these systems intersect groundwater, these systems also need to manage groundwater. The research shows "Performance of two urban stormwater biofilters in an area with seasonally high groundwater" that while groundwater interactions can make systems less efficient in nutrient removal, they are still effective at reducing peak flows and removing contaminants from stormwater and groundwater.

Q: How do I design WSUD elements to improve water quality?

For these systems to be effective, the following needs to be considered:

Commented [EY3]: Check with Caroline Oldham

1. See it as a sequence/ distributed system through the whole catchment not as an independent element (eg if high groundwater then convey stormwater to another location nearby)
2. Allow both surface and subsurface flows (eg treatment train) as different pollutant are removed through different processes
3. Lengthen the residence times (in subsurface flow)
4. Opportunities or subsurface flow transition
5. Limit subsoil drainage
6. Understand the water balance
7. Design for easy monitoring

Q: How do I design subsoil drains in high groundwater environments?

The CRCWSC (Davies) has provided guidance on fill requirements/ separation distances? for infrastructure protection.

<https://watersensitivecities.org.au/content/groundwater-control-and-supply-for-sustainable-urban-development/>

This study also found that the volume of drained shallow groundwater was most likely sufficient for reuse (eg Public Open Space irrigation) via MAR (or storage tanks, waterbodies) provided treatment is provided prior to injection

Q: Where do I find long term groundwater data?

Currently there is no formal system for accessing groundwater information for a particular area. DWER receives a copy of groundwater monitoring data from.... It is not able to be verified so that it can be shared. Some consultants have access to their own data if they have undertaken groundwater monitoring projects in the local area.

The CRCWSC is investigation better ways to share this data. {options include????Map and contact names of data across perth, peer sharing platform????}

Hydrological design

Q: How big do I have to design my system?

???Research has found that there tends to be an underestimation of recharge especially from impermeable surfaces where runoff is as low as ?76???. While more research is needed to clearly define catchment coefficients, the consequence of this are that drainage systems may be overdesigned on the swan coastal plains.???

Q: How do I gain approval for a catchment scale system that doesn't retain 15mm on lot but achieves a better outcome overall?

Commented [EY4]: Carolyn or carlos to check

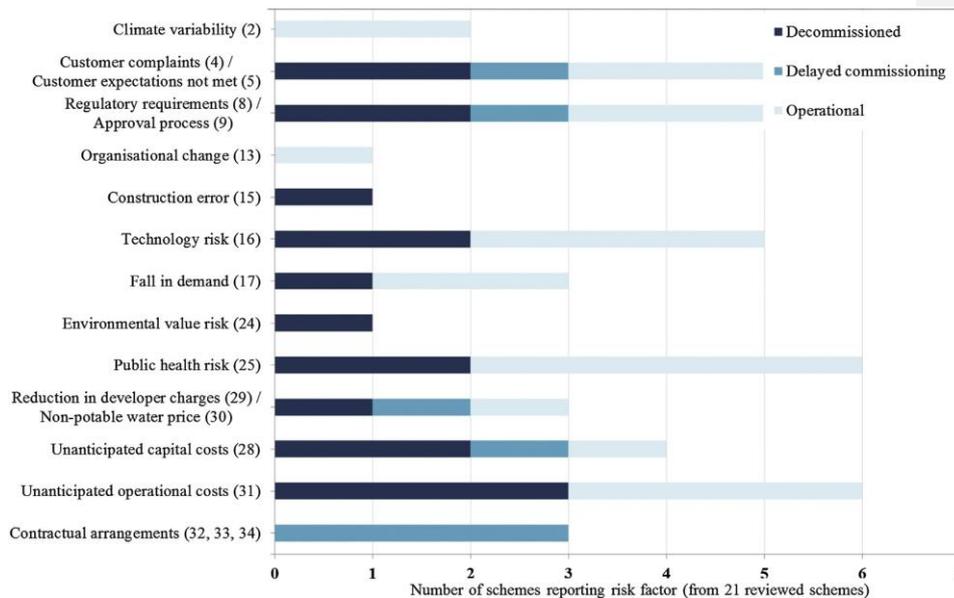
??A case can be made to DWER where it can be shown that better stormwater outcomes are achieved. The CRCWSC is exploring this approach at the Brabham site.??

Mitigating risks

Q: How do I assess and mitigate risks?

The CRCWSC have undertaken a review of risks associated with the implementation and maintenance of WSUD.

In the area of non-potable reuse schemes, these are documented in the paper "Risks to the long-term viability of residential non-potable water schemes: a review". Before embarking on a non-potable reuse system it is important to undertake a risk assessment and mitigate key risks. The two most commonly reported risks were unanticipated operational or capital costs and issues during construction that had the potential to lead to public health risks (although none of the case studies actually breached water quality standards). Other risks included lengthy approval processes, technology not delivering to the specification and systems not meeting customers expectations, particularly around pricing. These are illustrated in the table below.



Workplan Priorities

	Activities	% FTE
1	Implementing CRCWSC programs <ul style="list-style-type: none">• IRPs• TAP/ KAT• CRC forums	50
2	Influencing and informing through Stakeholder engagement	10
3	Influencing and informing LGA, development sector, Water Utilities and other participant sectors	20
4	Influencing and informing transition and adoption opportunities	20