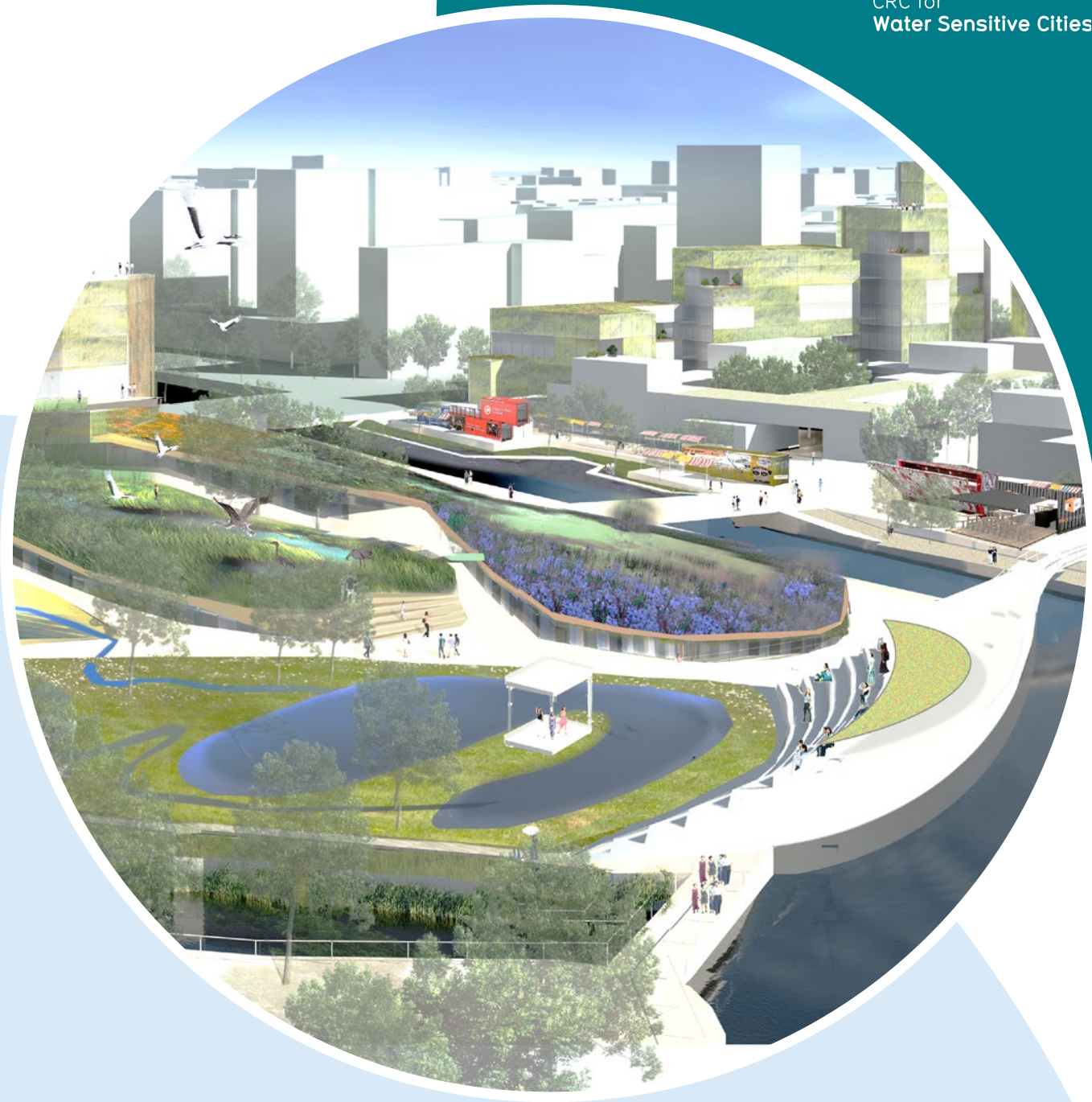
CRC for
Water Sensitive Cities



Stakeholder Annual Report

FY1819

Australian Government
Department of Industry, Innovation and Science

Business Cooperative Research Centres Programme

CRC for Water Sensitive Cities
Stakeholder Annual Report FY1819

Publisher

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Date of publication: December 2019

An appropriate citation for this document is:

CRC for Water Sensitive Cities. 2018. Stakeholder annual report FY1819. Melbourne, Australia: Cooperative Research Centre for Water Sensitive Cities

Impact

We're exceeding expectations

Since 2012, we have invested over $44 million in research and adoption activities—and we know this effort is delivering value for our Participants.

When we started in 2012, the benefits of our Tranche 1 research were valued at $165 million over 15 years—a benefit cost ratio of 1.7. Now in 2019, the benefits of our research and adoption activities have been independently valued at over $600 million—a benefit cost ratio of 6.

Two factors are driving this increase in expected impact. First, the probability of delivering outputs is higher, because we have delivered the outputs we said we would. And second, our outputs are having a greater impact than originally expected, with more water practitioners applying our research and tools than forecast in 2012.

'The CRCWSC is delivering significant impact and can lead the next big step towards sustainable, resilient, productive, liveable cities by building on this success while applying expertise across integrated city systems.' EY 2019, *Cooperative Research Centre for Water Sensitive Cities—Impact to date, future potential,* p. 2.

Measuring our impact in FY1819

- Released water sensitive city vision and transition strategies for Townsville, Greater Sydney and Bendigo
- Brought research insights and practical innovation to some of Australia's largest urban redevelopments
- Applied CRCWSC expertise to real world challenges through 19 research synthesis projects nationwide
- Hosted 125 activities for 5,000+ stakeholders, including the 4th Water Sensitive Cities Conference
- Was recognised as a thought leader at national and international conferences and via awards
- Worked with partners to develop and test tools for water sensitive planning, evaluation and delivery
- Increased our international impact in China, India, Indonesia and Fiji

We are still delivering high quality research

Increasingly our research outputs are translating into practice. Our IRP1 tools and frameworks are catalysing change on the ground across the country. Plus, eight accredited WSC Index Tool practitioners delivered 17 benchmarking workshops nationwide.

Our research projects are truly integrated. Working collaboratively with our research and industry partners, we now have several case studies around the country that are applying outputs from across research streams. Project teams are applying new approaches to urban planning and urban developments or new approaches to restoring urban rivers and waterways, for example, and then quantifying and assessing the value of these water sensitive investments.

We are also integrating improved knowledge and capability across industry Participants. We completed 19 research synthesis projects, combining the latest research with local expertise to collaboratively develop practical ideas that address industry challenges. We ramped up our adoption activities, to make CRCWSC outputs part of mainstream use. Our 4th Water Sensitive Cities Conference, and adoption seminars and workshops, showcased how industry is applying CRCWSC knowledge and research, and how information can be synthesised and applied in real life projects of different social-technical dimensions, scales and climatic conditions.

And our international activities are building Australia's reputation abroad and developing new knowledge and experience that enhances application back home. SME and international partners applied Tranche 1 (T1) and Tranche 2 (T2) outputs at scale, by leveraging existing partnerships in China, India and Asia-Pacific. We also strengthened our relationships with the World Bank, the Asian Development Bank, the Australian Water Partnership, and the Department of Foreign Affairs and Trade.

We're securing our legacy

We are committed to creating an enduring legacy and genuine, ambitious change beyond 2021.

We established the Water Sensitive Cities Institute in 2018, a not for profit social enterprise founded on partnership to inspire and accelerate the world's transition to water sensitive cities. It will carry the torch for water sensitive cities beyond 2021, by maintaining, supporting and further developing CRCWSC IP and partnerships.

The Institute has a clear brief to open up new markets and deliver strategic advisory services in partnership with our commercial Participants, SME Associates and university partners.

Recognising our impact

- Professor Tony Wong received the IWA 2018 Global Water Award
- Professor Zhiguo Yuan received a Member of the Order of Australia
- Professor David Pannell, Dr Md Sayed Iftekhar and Dr Maksym Polyakov received awards at the 2019 Australasian Agricultural and Resource Economics Society conference

It is operating right now and already has runs on the board:

- testing CRCWSC knowledge and IP in real world applications here and abroad
- enhancing the CRCWSC's national and international reputation
- building on CRCWSC achievements, further strengthening interdisciplinary collaborative research
- enhancing support for interdisciplinary and cross-sectoral collaboration
- exploring opportunities for transformative city partnerships, projects and funding.

The Institute led delivery of innovative commercial projects valued at almost $3 million in FY1819, a 40% increase on the CRCWSC's result for FY1718. And, we expect its activities and partnerships to grow, as it continues our water sensitive mission and fosters the next generation of research, adoption and champions.

CHERYL BATAGOL
Chairman

PROFESSOR TONY WONG
Chief Executive Officer

Fostering the next generation of champions

24 **PhD students supported**

5 **PhDs submitted their thesis** or **graduated**

6 **students completed** the WSC module of the **Masters in Integrated Water Management**, managed by the International Water Centre

39 **participants** took part in **'The Winter School Urban Design Challenge'** at The University of Queensland

Research

Our research activities continued at pace

We collaborated closely with industry and research Participants when initiating our T2 research and adoption programs. We are making sure our T2 outputs will respond to industry priorities and translate into genuine benefits.

In FY1819, we progressed our T2 research program, applying our multidisciplinary multi-agency approach across five integrated research projects (IRPs):

- **Water sensitive city visions and transition strategies (IRP1)**: We delivered vision and transition strategies covering various climatic zones and metropolitan and regional settings.
- **Comprehensive economic evaluation framework (IRP2)**: We further developed tools for assessing the benefits of water sensitive investments. We also progressed work on case studies that apply the tools and on financing models for water sensitive investments.
- **Guiding integrated urban and water planning (IRP3)**: We continued developing a framework for integrating urban and water planning, and establishing case studies for applying the framework.
- **Water sensitive outcomes for infill developments (IRP4)**: We delivered the Infill Typologies Catalogue draft for consultation and the Infill Performance Evaluation Framework draft for consultation.
- **Guiding urban water management in areas that experience high seasonal groundwater (IRP5)**: We finalised the scope of this project, based on the stage 1 scoping report.

We are also combining research and outputs from across projects and applying them in real world situations. As well as delivering research that is practical and has impact, this approach is helping to create a suite of CRCWSC outputs and tools. Used together, they help decision makers navigate complex urban water challenges, ensuring that innovative ideas become great outcomes. Here are a few examples:

- **Urban Heat Island Effect**: Industry-leading modelling is combining biophysical and economic modelling to identify the economic benefits of urban greening in a greenfield residential setting.
- **Bentley Regeneration Project**: Western Australia's largest infill development project is using research outputs from T1 and T2 to inform development policy.
- **Fisherman's Bend**: CRCWSC inputs are influencing developments in policy, science and community aspects of Australia's largest redevelopment project.

Showcasing research outputs

Researchers and Participants presented outputs from all **IRP and TAP** projects at **Ozwater 2019** in Melbourne, which attracted

4,500 delegates

Researchers presented **T1 and T2** research outputs at the **IWA World Water Congress and Exhibition in Japan**, which attracted nearly

10,000 delegates

Researcher Katie Hammer presented to more than

300 attendees

at the National IMPACT7 Science Event in Melbourne

The **IRP2** research team presented **water economics research** at the

2019 Australasian Agricultural and Resource Economics Society Conference in Melbourne

Our tools and products are adding value

The TAP sub-program aims to deliver industry-ready solutions and products based on the outputs of T1 and T2 research activities. It provides an effective interface between research and utilisation, supporting adoption activities and delivery of research utilisation milestones.

Working with our industry and research Participants, we are developing tools and products, including:

- WSC Index Tool, the first CRCWSC tool to be rolled out at scale, with accredited industry providers now operating around Australia, in New Zealand and in the United States
- Transition Dynamics Framework, for understanding and prioritising implementation actions to ensure the formal and informal precursors for city transition are in place
- Investment Framework for Economics of Water Sensitive Cities (INFFEWS) Benefit Cost Analysis Tool, which will provide a consistent basis for evaluating WSC investments
- INFFEWS Value Tool, which will enable a broader range of benefits and costs to be included in investment decisions
- Urban Water Mass Balance Tool, which measures the water performance of residential dwelling designs
- RESTORE Tool, which will support more effective and holistic restoration of urban rivers and waterways
- Scenario Tool, which will help decision makers and stakeholders visualise and assess the impacts and opportunities of new approaches to urban planning and development.

Collaboration

Collaboration remained a driving force

The productive collaboration between research Participants and industry Participants got stronger in FY1819, boosting industry adoption of research outputs.

Collaboration with industry was critical to delivering IRP1, via workshops with many industry stakeholders and local regional advisory panels members. Even though IRP1 is now complete, many of the relationships that developed during the project are continuing and delivering results:

- Perth's Water Sensitive Transition Network is progressing the priority actions outlined in its Implementation Plan.
- The City of Gold Coast has released its transformative Water Strategy after wide and overwhelmingly supportive public consultation.
- Key agencies in Bendigo have signed a Memorandum of Understanding committing to collectively advancing that city's water sensitive transition.

We supported proof-of-concept pilot projects and case studies (for example, 30 short case studies summarising the drivers, innovations and lessons from developing and implementing water sensitive projects).

We undertook early testing of our TAP outputs during FY1819, in collaboration with researchers and Participants. This sort of collaboration is also critical to successfully commercialising CRCWSC IP in a way that ensures demand from an informed and active market and supply by a capable cohort of commercial providers.

Collaboration by state

In **New South Wales**, we helped develop new urban planning principles for the Local Strategic Planning Statements for Inner West Council, Canterbury Bankstown Council and Cooks River Alliance. Each council has adopted the outcomes, and some have started changing their planning regulations. Plus, developers are starting to apply water principles on-ground.

South Australia hosted the CRCWSC's largest ever engagement, when more than 600 people attended the Cooler, Greener Adelaide event. This event explored the issues of heat waves and the opportunity for 'green' and 'blue' technologies to mitigate their effects.

In **Western Australia**, the CRCWSC's research adoption team led a conversation about the crossover between urban water management and public health. This workshop was a partnership with the Water Services Association of Australia. It received positive industry responses and has become a roadshow around Australia.

In **Victoria**, the CRCWSC helped support integrated urban water servicing strategies for the largest urban redevelopment project in Australia at Melbourne's Fishermans Bend. The Aquarevo Estate in Lyndhurst has welcomed its first residents, and we are now helping shape the next tranche of Aquarevo research.

In **Queensland**, we worked with the Weipa Town Authority to make the town more liveable and sustainable, demonstrating WSC knowledge, transition concepts and implementation processes can be used in any urban area.

International collaboration

Our collaborations overseas are expanding our research impact, forging pathways to new markets for Participants, and creating valuable international experience that can be applied to solve Australian challenges. Examples include:

- progressing work in **India** on a $1 million partnership with the Department of Foreign Affairs and Trade, the Australian Water Partnership and the Government of Andhra Pradesh, by completing water sensitive designs for the new capital city of Amaravati and redesigning the existing port city of Vijayawada
- continuing to build on our partnership with the **City of Kunshan in Jiangsu province, China**. During FY1819, we developed the Sponge City Brain, an innovative Internet of Things platform for optimising water management and city planning objectives. Construction of the Sponge City Innovation Park continued in Kunshan. We also supported a high level trade mission to further engagement between Victoria and its two sister states in China: Jiangsu Province and Sichuan Province
- working with the **Revitalising Informal Settlements and their Environments (RISE) project** to complete detailed design and commencing construction at the demonstration site in Indonesia; completing detailed designs for the demonstration site in Fiji; and completing concept designs for four settlements in Indonesia (including a full community co-design consultation process for each)
- collaborating with the **World Bank** to support water sensitive practices in Indonesia, China and Botswana
- progressing the Knowledge Partnership with the **International Water Association** as part of its Water Wise Cities program.

Adoption

Local and international adoption activities ramped up

For our first six years, we had a major focus on research. Now, in our remaining years, we will place greater focus on the application of that research.

We hosted 125 national or regional activities, attracting more than 5,000 stakeholders in total, including:

- training on the INFFEWS Benefit Cost Analysis and Value tools, the Urban Water Mass Balance Tool and draft Infill Typologies Catalogue and Performance Evaluation Framework, and the Transition Dynamics Framework
- site tours of applied examples of water sensitive practice and innovative research, including the Queensland Urban Utilities Innovation Centre and the Southbank Rain Bank
- webinars and online training sessions on the Scenario Tool.

We launched an interactive web platform of 30 short case studies, to start building the body of evidence that can support and encourage the adoption of research outcomes.

We applied our flagship research synthesis process to 19 real life challenges in FY1819 including:

- Ideas for catalysing flood resilient design
- Ideas for Fishermans Bend—permissible building uses in flood prone areas
- Ideas for the Liverpool Collaboration Area.

We maintained resourcing for regional advisory panels (RAPs) and regional managers in New South Wales, Victoria, Queensland, South Australia and Western Australia. RAPs and regional managers:

- coordinate and encourage adoption of CRCWSC research outputs and recommendations
- work with the National Capacity Building Network to identify national priority capacity building areas
- deliver collaborative industry seminars and events aligning CRCWSC research with existing activities, such as the Cooler Greener Adelaide community event.

Providing resources to support industry adoption

20,000+ — The number of times users downloaded publications from our website

Our top 10 most downloaded publications:

1.

Adoption Guidelines for Stormwater Biofiltration Systems

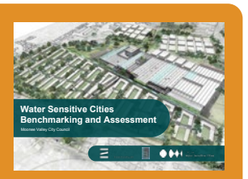
2.

Community engagement in the water sector

3.

Trees for a Cool City: Guidelines for optimised tree placement

4.



Water Sensitive Cities Benchmarking and Assessment Moonee Valley City Council

5.

Performance assessment of Wharf Street Constructed Wetland 2009–2014

6.

Utilities of the Future

7.

Vision and Transition Strategy for a Water Sensitive Greater Sydney

8.

Blueprint 2013

9.

Fact Sheet: How does stormwater biofiltration work?

10.

Towards a water sensitive Elwood

Engagement

We're spreading the water sensitive cities message

Nationally and internationally, over 13,000 practitioners and end users were exposed to CRCWSC research outputs in FY1819, via close to 200 seminars and workshops, conferences, site tours, and other activities.

The CRCWSC's 4th Water Sensitive Cities Conference was an important opportunity for Participants to hear from industry about how CRCWSC research is being applied. Presentation of case studies, beta versions of models and decision support tools arising from the CRCWSC's TAP sub-program, and applications by SME Associates of the WSC Index Tool, were included in the conference program.

Delivering value to our Participants

- Annual participant survey responses indicated we:
  - provided 'good' to 'excellent' value for money to the sector as a whole (77%)
  - met the needs of the sector to a 'good' to 'excellent' degree (75%)
- Most respondents were 'very satisfied' or 'somewhat satisfied' with the accessibility (77%), format (87%), quality (87%), relevance (85%) and clarity (82%) of our resources
- 79% of respondents 'agreed' or 'strongly agreed' waterSENSE contains relevant information
- 66% of respondents were 'very satisfied' with the 4th Water Sensitive Cities Conference

Connecting with our Participants

Prepared and released **224 publications** bringing the **total** to around **1,500**

Prepared **93 WaterSENSE articles and news items** throughout the year

Recorded **enewsletter** open rate and click to open rate **well above industry standards**

Grew the CRCWSC's social media following on **LinkedIn** (by **53.9%**) and **Twitter** (by **14.5%**)

We attracted new SME Associates

We have 23 SME Associates, well above our original target of 15. This strong result reflects ongoing engagement with industry as part of T2 projects, and the continued involvement of regional managers in communicating with industry. Regional managers also worked with SME Associates to identify skills and capacity within each organisation, to facilitate further collaboration on CRCWSC commercial projects.

During FY1819, we partnered with SME Associates to deliver:

- two research synthesis projects (Ideas for Sydenham to Bankstown with REALMstudios and Ideas for the Liverpool Collaboration Area with SEED)
- eight national commercial projects (such as Water Sensitive Hornsby Strategy with Alluvium, City of Perth Transition Strategy with Josh Byrne and Associates, and Greening Melbourne Strategy with HARC)
- international commercial projects (for example Kunshan (China) with E2Designlab, REALMstudios and Water Technology, and Vijayawada (India) with E2Designlab, REALMstudios and Morphum Consulting).

SME Associates are also well represented on all RAPs and IRP Project steering committees.

Five SME Associates—Foundry Associates, E2Designlab, Alluvium Consulting, Urbaqua, and Josh Byrne and Associates—completed 17 WSC Index Tool benchmarking projects for local governments and water utilities in FY1819. A second round of accreditation in FY1920 will increase the number of accredited practitioners to over 20, including three overseas (two in New Zealand and one in the United States).

Governance and finance

We have strong leadership

The CRCWSC is governed by a board of directors and managed by a small Executive team. The Board and Executive team are guiding our present while planning our future, to secure the CRCWSC's legacy beyond June 2021.

Our Board

Cheryl Batagol (Chairman)

Professor Rob Skinner (Deputy Chairman)

Nicholas Apostolidis

Terri Benson

Peter Betson

Professor Simon Biggs

Greg Claydon

Paul Grimes

Allison Hailes

Dr Mike Mouritz

Kerry Stubbs

Greg Cash

Our Executive team

Professor Tony Wong (Chief Executive Officer)

Ben Furmage (Chief Operating and Finance Officer)

Barry Ball (Research Adoption Executive)

Dr Briony Rogers (Chief Research Officer)

Farewells in FY1819

We farewelled some important members of our CRCWSC leadership team during FY1819, and thank them for their valuable contributions:

Professor Jurg Keller stood down as Chief Research Officer (CRO) in March 2019.

Dr Mike Mouritz resigned from the Board in August 2018, after two years as a director.

Allison Hailes also resigned from the Board in August 2018, after a year as a director.

We remain financially sound

Another better than expected operating surplus ensures we will be able to deliver value for Participants over the final two years of the CRCWSC's term.

Significantly, the Water Sensitive Cities Institute led delivery of innovative commercial projects valued at almost $3 million in its first year—a 40% increase on the CRCWSC's consulting revenue in FY1718.

$8.06 million
income and expenditure for year ended 30 June 2019

$1.07 million
equity at year end

Funds applied to six major activities:

- Research **$2.00 million**
- Research adoption and translation **$1.24 million**
- Consulting **$2.47 million**
- Communication and events **$0.43 million**
- General administration **$1.58 million**
- New CRC bid expenses **$0.31 million**

Thank you to our 80+ Participants

Essential Participants

Other Participants

- Adelaide and Mount Lofty Ranges Natural Resources Management Board
- Blacktown City Council
- Brisbane City Council
- ChemCentre
- City of Boroondara
- City of Canning
- Fairfield City Council
- City of Greater Bendigo
- City of Joondalup
- City of Kingston
- City of Mandurah
- Inner West Council
- City of Melbourne
- City of Melville
- City of Newcastle
- City of Port Phillip
- City of Subiaco
- The Council of the City of Sydney
- City West Water
- Technical University of Denmark (DTU)
- e2DesignLab
- Eastern Metropolitan Regional Council
- eWater Limited
- GHD
- Griffith University
- Hornsby Shire Council
- International WaterCentre
- Knox City Council
- Ku-ring-gai Council
- DevelopmentWA (previously LandCorp)
- Maddocks
- Manningham City Council
- Moonee Valley City Council
- National University of Singapore
- Public Utilities Board (PUB)
- SA Water Corporation
- The University of Adelaide
- IHE Delft Institute for Water Education
- University of Innsbruck
- Water Corporation WA
- Yarra Valley Water
- Bligh Tanner Consulting Engineers
- DesignFlow
- Kunshan City Bureau of Planning
- Kunshan City Construction Investment & Development Group
- City of Nedlands
- Urbaqua
- Healthy Land and Water
- Southeast University
- REALMstudios
- Townsville City Council
- City of Gold Coast
- Water Technology
- ZiPu Environmental Planning and Design (Shanghai) Ltd
- Cooks River Alliance (City of Canterbury-Bankstown)
- Integrated Planning and Design (Shanghai)
- Citygreen Systems
- Alluvium Consulting
- Southwest Jiaotong University
- Ross Allen Consulting
- Envirostream Solutions Pty Ltd
- Josh Byrne & Associates
- Coliban Water
- RM Consulting Group (RMCG)
- Edge Environment
- Department of Biodiversity, Conservation and Attractions
- Coolth.Inc
- ICE WaRM
- Morphum Environmental Ltd
- Wave Consulting Australia
- City of Salisbury
- Create Develop
- Tract Consultants Pty Ltd
- Sustainable Living Products
- Hydrology and Risk Consulting
- Victorian Planning Authority
- Villawood Properties

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