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CHERYL BATAGOL Chairman

In FY1617 the CRC for Water Sensitive Cities (CRCWSC) confidently crossed the midpoint of our nine years. From our halfway vantage, we know our planned impact is happening, and we're looking at 'what next'.

Here are some of the highlights from FY1617:

- We supported policy reform, contributing to water sensitive city transition strategy development in Western Australia, South Australia, Queensland and Victoria.
- We maintained our support for capacity building, facilitating a national network of water sensitive city capacity building organisations. We are harmonising CRCWSC communications collateral for the network's state based agencies to use in their water sensitive city capacity building programs.

- Together with industry partners, we prepared synthesis reports that incorporate CRCWSC research into key development and city planning activities. Examples include Ideas for Norman Creek (collaborating with Brisbane City Council and GHD to identify flood resilience ideas), Ideas for St Lucia (collaborating with the University of Queensland and Bligh Tanner to identify ideas for the master plan for the St Lucia campus) and Ideas for Victorian Planning Controls (collaborating with the Victorian Department of Environment, Land, Water and Planning to identify pathways to improve planning controls for urban stormwater).
- We won the CRC Association award for Excellence in Innovation, recognising the many years of engagement between the CRCWSC and the City of Kunshan in Jiangsu Province in China. Working with the CRCWSC. Kunshan has successfully implemented over 30 water sensitive projects in just three years, making it China's leading example of urban water innovation. We facilitated the execution of a Memorandum of Understanding between the Victorian Government and the Jiangsu Provincial Government to engage with two more cities in Jiangsu. By doing so, we are creating pathways to market for our small to medium enterprises (SME) Participants, and supporting the Victorian Government's goal to be a global leader in integrated water management.
- We are part of the Monash University-led Revitalisation of Informal Settlements and their Environments (RISE) project, which is adapting and applying water sensitive principles and practices in developing countries.

Our impact in FY1617 had two drivers:

- completing the CRCWSC's first tranche of research projects (T1)
- developing the second tranche (T2) of research and adoption activities reaching to 2020/21.

In both areas, we continued working with industry and researchers, to ensure knowledge generated translates into genuine benefits for industry Participants and their communities. From this perspective, we were proud to finalise the proposed T2 activities in February 2017:

- Leading up to T2, we spent 18 months engaging with Participants and stakeholders.
- T2 builds on T1 outputs and continues to commit to high quality research (with investment of \$8M over the next four years) but focuses more on priority areas identified by Participants.
- T2 includes a much stronger focus on adoption and communication activities (with investment of \$7M over the next four years).

While remaining focused on delivering T2, we began to look to our future — we planned for laying the foundation (and testing the viability) of 'an ambitious research-to-practice enterprise to deliver water sensitive cities globally'. The Board and the Essential Participants Reference Group endorsed this thinking.

For now, we're investigating opportunities and partnerships to ensure our vital work continues beyond 2020/21 (when our funding ends). The Board is exploring two scenarios:

Scenario 1—'wind down', whereby the CRCWSC ceases operation in June 2021. Over the next four years, the CRCWSC would focus on successfully completing T2 activities, and then collating and packaging collaterals so they are accessible post-CRCWSC.

Scenario 2—'prepare to launch', whereby the CRCWSC successfully completes T2 activities, and then establishes a new social enterprise that bridges research and practice in urban water management. This enterprise would be world leading.

The CRCWSC's longer term budgets and planning provide for both scenarios, and we're working to ensure the final decision is well informed and delivers maximum value to Participants.

In the meantime, we continue to aim for local impact together with global recognition of our research excellence and innovative practices. We want the vital work of CRCWSC researchers and Participants to take on a life and momentum beyond 2021.







**PROFESSOR TONY WONG**Chief Executive Officer

FY1617 was another very successful year for the CRCWSC. Starting our second tranche of work (T2), we adjusted our long term objectives and ramped up adoption activities. We also established mechanisms for turning T2 plans into action, gearing up for a possible third tranche (T3) after 2021.

Key to the uptake of T1 research and the delivery of T2 are the Regional Advisory Panels (RAPs), which are made up of Participants and other industry stakeholders who support a water sensitive future. Set up in New South Wales, Victoria, Queensland, Western Australia and South Australia, the RAPs were realigned in FY1617 to T2 priorities. They received additional funding and appointed Regional Managers who can catalyse networks and knowledge sharing in their state.

We envision the RAPs—already an effective engagement mechanism—will become a self-sustaining community of practice. In other words, they will support practical research adoption through on-ground projects, capacity building, advocacy and policy change beyond the life of the CRCWSC.



We worked successfully on other work programs and operations too in FY1617:

- We created commercial momentum for our Participants and partners—for example, we built local and international pathways to market for small to medium enterprises (SMEs).
- We assured our financial strength over the next four years. We exceeded our forecast operating surplus and more than doubled our income from commercial activities (to \$1.3M).
- We kicked off our Integrated Research Project (IRP) program. The Board approved IRP proposals for developing transition plans for Australian cities, and for developing a framework for capturing market and non-market economic values of water sensitive cities transformation.
- We supported research adoption—for example, we developed the Tools and Products program based on T1 outputs.

- We continued to foster the next generation of collaborative researchers and science communicators through the CRCWSC's PhD and education programs.
- We finalised preparations for the 3rd Conference on Water Sensitive Cities, where we showcased some of the tools and experience coming out of the first tranche of research projects.
- Our work and resulting proofs-of-concept have greatly influenced state and local governments' policies, notably the Victorian Government's Water for Victoria Plan.

From here, we commit to keep influencing policy and practice, and to making more valuable contributions to Participants. Having reached halfway so successfully, we're excited about what we can achieve next.

# Catch up on our FY1617 highlights

### **More FY1617 numbers**

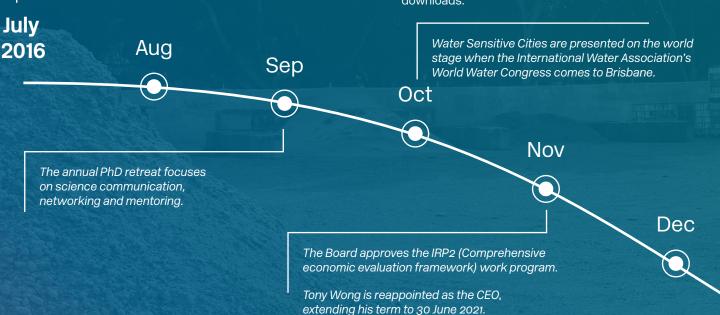
Australian Water Sensitive City Summit takes place in Kunshan, China.

Swamped Exhibition and Masterclass showcases a flood resilient Elwood (in Melbourne).

 CRCWSC researchers participate in 137 workshops and conferences both nationally and internationally, reaching an audience of approximately 13,000 people.

 1417 Participants and end users attend over 60 seminars and workshops aimed at building capacity, enhancing networks and supporting research use.

We achieve an almost 20-fold increase in website downloads

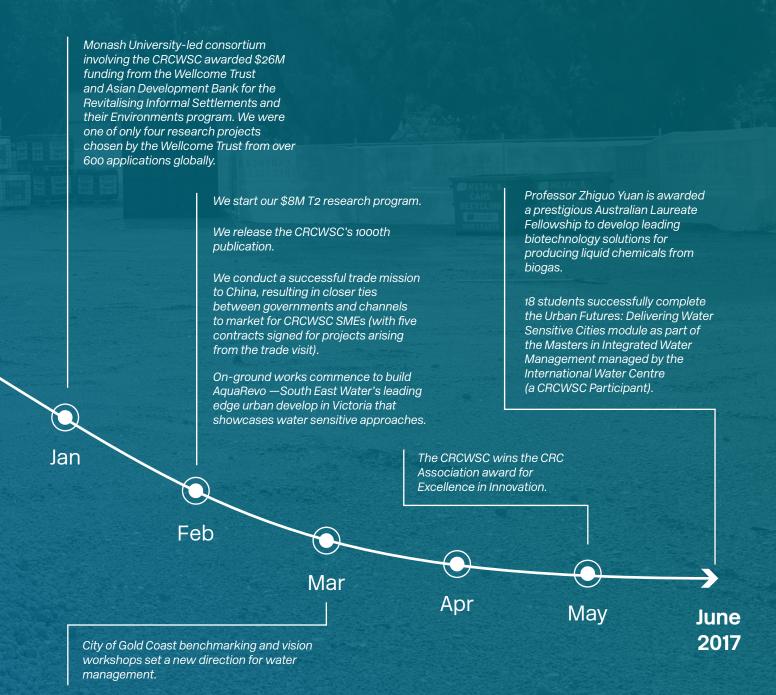


### **CHECK OUT OUR PLAN**

Our new Strategic Plan 2016/17 – 2020/21 reflects our vision of future cities and towns (and their regions) as sustainable, resilient, productive and liveable. Our strategic emphasis is on creating lasting impact, and opens the way to a potential third tranche for the CRCWSC (T3). Capturing the three pillars of Research, Adoption and Commercial, the Strategic Plan highlights our commitment to create an enduring legacy and genuine, ambitious change beyond 2021. We want to ensure:

- Australia continues to lead water sensitive cities (WSC) research, collaboration and application.
- Institutions, tools, industry capacity and culture support the multidisciplinary collective adoption needed for lasting change.
- WSC principles are applied internationally to support local communities, and to return new lessons and capabilities to Australia.

Our mission is to **research** interdisciplinary responses to water problems, **synthesise** diverse research outputs into practical solutions, and **influence** policy, regulation, and practice to promote adoption.

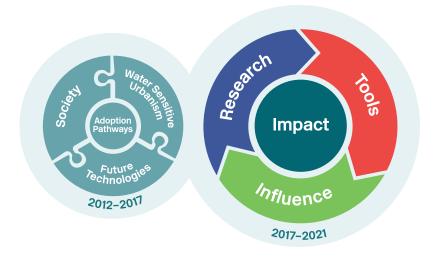






### Continuing our research

The CRCSWC continued a strong research performance in FY1617, with 28 active T1 projects and five Integrated Research Projects (IRPs) starting for T2.



We had some achievements in FY1617 that highlight our research quality:

- We conducted workshops in Adelaide and the Gold Coast, to develop Water Sensitive vision and transition strategies for these cities as part of Integrated Research Project 1 (IRP1). We also conducted two workshops in Perth, that focused on implementing changes to realise Perth's ambition to become a water sensitive city within five years.
- We conducted workshops to clarify the scope and understand issues for three case studies for IRP2 (Comprehensive economic evaluation framework): Greening the pipeline (Melbourne), Subiaco wastewater precinct (Perth), and a residential development with WSUD (Perth). We also reviewed existing benefit cost analysis (BCA) tools currently used by different groups, and established how a BCA tool relevant to water sensitive systems and practices should look and function.



- The Wellcome Trust (a philanthropic UK agency) and the Asian Development Bank awarded \$26M for a joint project to adapt and apply water sensitive principles and practices to address human health challenges in informal settlements in developing countries. This exciting collaboration—now known as Revitalising Informal Settlements and their Environments (RISE)—is led by Monash University and involves the CRCWSC, Melbourne Water and South East Water (two Victorian water businesses), and internationally renowned research institutions (such as Stanford University).
- A prestigious Australian Research Council Laureate Fellowship was awarded to Professor Zhiguo Yuan, CRCWSC Program C Leader at the University of Queensland. His groundbreaking work on novel sewer management approaches is generating significant industry benefits and impacts

 We published 20 academic papers in 10 highly ranked international journals, demonstrating the international relevance of the CRCWSC's research program.

Importantly, we restructured our research in FY1617. From five Needs and Opportunities workshops in FY1516, we identified the key T1 research outputs that we should collate and prepare for industry application, and those outputs that we should develop further in T2 projects. We clarified how to undertake those activities, having split our T2 activities into two umbrella programs (effective FY1718): Research and Research Adoption (see below).

Research contains two sub-programs:

- Integrated Research Projects (IRPs), which integrate T<sub>1</sub> findings to deliver practical outputs for Participants
- Tools and Products (TAPs), which delivers industry-ready products based on T1 outputs and our ongoing research.

Under these programs, individual projects drive the solutions and tools that our Participants need. In other words, they help us develop and apply knowledge, and then use it for impact.



# Getting the research adopted

We're building our Research Adoption program as an integrated platform for supporting the water sensitive transitions of cities and towns, and for mainstreaming the practice of water sensitive urban design. The priority is to curate T1 outputs to facilitate research adoption by national and international stakeholders, including CRCWSC Participants.

Also to encourage research adoption, we facilitated the development of a national alliance of state based capacity building agencies (as noted by our Chairman on page 4). From that alliance, the agencies will be able to access our communication collateral, and share and diversify their skills and expertise.



### **EDUCATION AND TRAINING**

- Around 1417 Participants and end users participated in 60+ seminars and workshops, all aimed at building capacity and engaging with stakeholders to enhance research uptake.
- We held six substantial industry training events. These courses included training on stormwater biofiltration guidelines (delivered by our capacity building partners in both Western Australia and New South Wales) and the Urban Heat module of the Water Sensitive City Toolkit (for Participants in Western Australia, Victoria, New South Wales, Queensland and South Australia).
- We held six research synthesis workshops in Western Australia and Queensland, bringing together the CRCWSC, Participants and T1 research outputs.

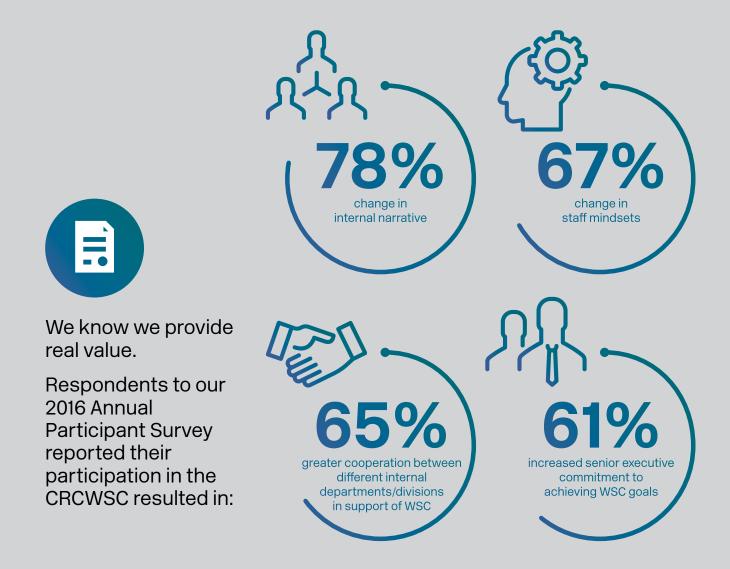
### PHD AND POSTGRADUATE EDUCATION

- In FY1617 the CRCWSC supported 60 candidates, of whom 14 submitted their thesis and/or graduated (and another three have since submitted their thesis).
  Eight of the graduating PhDs have secured positions.
- The CRCWSC established a PhD Placement Program in FY1617, in collaboration with Participant organisations. This program supports our PhD graduates to develop industry workplace skills and networks, and our Participants to implement CRCWSC research outputs.
- A PhD and postgraduate coordinating committee continues to engage with the PhD cohort and CRCWSC Executive. In September 2016 around 40 students attended the annual PhD Retreat. The two-day retreat focused on science communication, and networking and mentoring. Topics included stakeholder communication and engagement

- strategies; PhD specific communication and research dissemination strategies; and presentation skills for industry (written and oral).
- Eighteen students completed the Urban Futures: Delivering Water Sensitive Cities module, as part of the Master in Integrated Water Management (MIWM) course managed by the International Water Centre (a CRCWSC Participant). The students came from diverse sectors: local government, state government, federal government, utilities, consulting firms and NGOs. All were junior to mid-career water professionals involved in the policy, planning and management of stormwater and other urban water services and systems.
- Ten students completed the first Water Sensitive Cities module of the Master course run by UNESCO-IHE in Delft, the Netherlands.



Science-policy translation activities increased in FY1617. A great example is the collaboration among key Victorian Participants to develop and implement the Victorian Government's new water policy, Water for Victoria. This policy captures innovative and whole-of-government thinking in urban water management to achieve sustainability, resilience and liveability outcomes.





# Commercialising solutions for water sensitive cities

FY1617 marked a shift in the CRCWSC's commercial activities. We used Participant input and an independent review of intellectual property to inform and expand our commercial portfolio. The portfolio is designed to expand practical tests of innovations, enrich our capacity to support our partners, and foster the promotion of water sensitive cities in Australia and internationally.

So far, our commercial work has focused on practically applying T1 research through our Australian and international synthesis projects. Designed with government and private industry stakeholders, our research synthesis projects draw from multiple disciplines to spark practical collaboration and address industry-specific challenges. Australian synthesis projects have delivered direct benefits to Participants and, on a fee-for-service basis, to non-participants too. Examples include projects in Brisbane, Melbourne and the Gold Coast:

- We worked with business owners in Brisbane's South Bank, to scope new sustainability initiatives that considered options for water and energy. We collaborated with the CRC for Low Carbon Living and E2Designlab, to prepare Ideas for South Bank.
- We completed scenario planning guidelines for Melbourne Water, translating and applying B1.2 research—Catchment scale landscape planning for water sensitive cityregions in an age of climate change.

 We worked with the City of Gold Coast to apply the CRCWSC index and transition tools and then deliver a transition strategy. This was the first major commercial (feefor-service) application of this tool.

We are also fostering collaborations between research Participants and end user Participants. In FY1617, this collaborative work resulted in water sensitive innovations in projects such as the redevelopment strategy for Bentley Towers (by the Housing Authority of WA), integrated urban water servicing strategies for Brisbane's South Bank precinct and Melbourne's Fishermans Bend, and the Aquarevo Estate (currently under construction).

CRCWSC research is also having a commercial impact via our collaboration with national and international non-participant organisations—including the Australian Department of Foreign Affairs and Trade, the Asian Development Bank, the Australian Water Partnership, the Water Services Association of Australia, and the World Bank—and with philanthropic organisations such as the Wellcome Trust (UK).

Internationally, the projects have generated income, enhanced the CRCWSC's reputation, and applied and scaled research driven innovation. And they have brought that experience back to Australia for application by the CRCWSC and our partners.

We expect to increase our commercial activities, so developing this portfolio is a key pillar in our Strategic Plan. In FY1617 we examined and clarified over 700 CRCWSC intellectual property assets, being guided on a commercialisation process by the Board's Commercialisation Committee. While all current Participants have royalty free access to all CRCWSC products, we are working to define market pathways for future financial strength.

### TRADE MISSION TO CHINA

In FY1617 we arranged a highly successful trade mission to China, resulting in closer ties between governments (including a Memorandum of Understanding between the Victorian and Jiangsu governments). The purpose of the trade mission was to form business collaboration with Chinese companies pre-selected by the City of Kunshan to deliver an ambitious sponge city capital works program over the next three years.

The collaboration will include joint projects between key organisations from Victoria (and Australia) and Jiangsu Province to deliver water sensitive city initiatives in Kunshan and a further two cities (yet to be decided). The projects will include new and retrofitted urban development, pipeline upgrading, flood infrastructure, roads, parkland development and waterway restoration. This work has founded channels to market for CRCWSC SMEs, with five contracts signed for projects arising out of the trade visit.

The CRCWSC's work in China led to our first award as an organisation: the CRC Association's 2017 Excellence in Innovation award. Seven CRCWSC Participant organisations (including two SMEs) were recognised for their collaborative efforts: City of Kunshan; Kunshan Bureau of Planning; Kunshan City Construction, Investment and Development Company; E2DesignLab; Monash University; REALMstudios; and Southeast University.

### **OPPORTUNITIES IN INDIA**

The CRCWSC worked closely with Australia's Department of Foreign Affairs and Trade (DFAT), the Australian Water Partnership and senior officials from the Indian state of Andhra Pradesh

to explore the Andhra Pradesh Australia Water Sensitive Cities Partnership Project. Under a proposed project budget of A\$1M (jointly funded by DFAT and the State of Andhra Pradesh), the CRCWSC will lead activities that:

- build best practice water sensitivity into developing the new capital city of Amaravati
- enable pilot retrofitting projects in a district in the port city of Vijayawada, to achieve more sustainable urban water management.

Andhra Pradesh is a sister state of Western Australia, and the CRCWSC is exploring more opportunities through this connection.

### WORK TO IMPROVE LIFE IN ASIA PACIFIC SLUMS

In January 2017 the Hon. Josh Frydenberg MP, Federal Minister for the Environment and Energy, announced that an award of A\$14M from the Wellcome Trust (UK), plus \$12M provided by the Asian Development Bank, would be used to apply water sensitive principles to improve water infrastructure, management and sanitation in urban slums in the Asia Pacific. Building on CRCWSC work done under the Asian Development Bank's Future Cities Program, Monash University will lead an international consortium to provide the first empirical evidence that water sensitive city principles can successfully improve the health of some of the world's poorest people.

The project's long term success will rely on the input of many disciplines, including public health experts, biologists, economists, architects, sociologists and engineers from Monash University and its main academic partners (Melbourne University, together with Stanford and Emory Universities in the United States). The project will also draw from the on-ground experience of CRCWSC partners E2DesignLab, Melbourne Water and South East Water.





conducted Tools and Products roadshows, focusing on consulting organisations and

We started to review communication

Communications and Events Teams' delivery systems and processes.

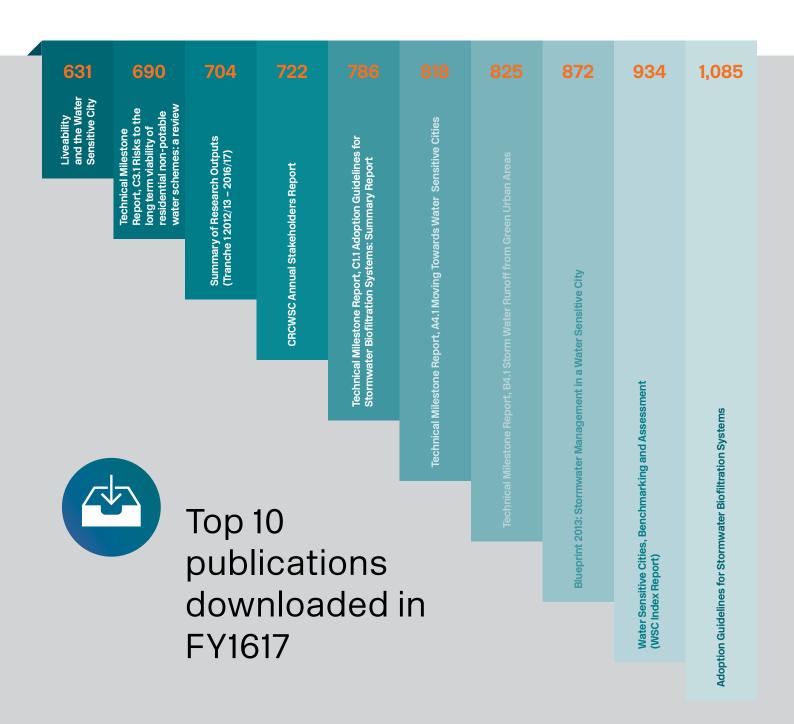
priorities in FY1718, and our

end users.

In terms of publications, we reached an important milestone in FY1617: the release of our 1000th publication. In total, the CRCWSC and our research Participants released 156 publications (up from 115 in FY1516), including two book chapters, 47 articles in scholarly journals, 16 refereed publications in conference proceedings, and 91 end user focused reports. We also started to publish case studies, to make the value of onground demonstrations more accessible for our end users.

CRCWSC publications available on the CRCWSC website were downloaded 55,981 times—an almost 20-fold increase from FY1516. This outstanding increase reflected the better quantity and increase resolution of online CRCWSC

In response to your feedback on our website, we redeveloped the home page and improved the search function. You'll find the new interface is more user friendly, and it's much easier to access our research and materials.





# Delivering effective governance

The CRCWSC is governed by a Board of directors, and managed by a small Executive team that is responsible for managing day-to-day operations.

Our FY1617 Board comprised the Chairman and nine directors:



**Cheryl Batagol**Chairman



**Professor Rob Skinner**Deputy Chairman



**Greg Claydon** 



**Kerry Stubbs** 



Professor Simon Biggs



Dr Mike Mouritz



Nicholas Apostolidis



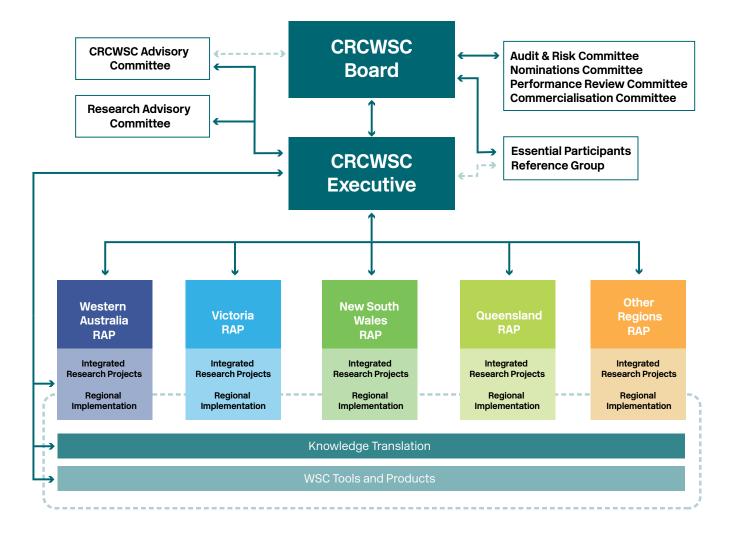
**Peter Benson** 



**Leith Boully** 



Dominic Dolan



The Board reappointed Greg Claydon and Nick Apostolidis as directors in August 2016. The Board also approved two new appointments: Professor Simon Biggs and Dr Mike Mouritz.

Professor John Dell and Steve Frost, both retired from the Board when their appointments expired in August 2016. Leith Boully also resigned as a director in FY1617. We thank John, Steve and Leith for the part they played in the CRCWSC's continued success, and wish them well.

There were also some important developments in our small executive team during FY1617:

- The Board extended the Professor Tony Wong's contract as CEO, to 30 June 2021. Tony has a clear vision to the end of the CRCWSC's Commonwealth funding in June 2021, and plans for what happens next.
- Robyn McLachlan (Chief Operating Officer and Company Secretary) retired in early 2017. Robyn was instrumental in establishing and refining the CRCWSC's administration, and we thank her for her significant efforts.
- Ben Furmage joined the CRCWSC Executive team as interim COO in mid-January 2017, initially on a four month secondment from Melbourne Water. He was appointed as Chief Operations and Finance Officer (COFO) in June 2017. He joins Tony, Barry Ball (Research Adoption Executive) and Jurg Keller (Chief Research Officer) in successfully delivering the CRCWSC's Strategic Plan and operational plans.

### Maintaining financial strength

After completing a fifth full year of operational activities, the CRCWSC is financially sound and well positioned. We are proud to report for FY1617 that we exceeded our forecast operating surplus and more than doubled our income from commercial activities (to \$1.3M). No significant financial issues arose in FY1617.

For FY1718, our management is focusing on maintaining this financial security and strength as the CRCWSC increases consulting, adoption and commercialisation activities, and as we move closer to the end of the Commonwealth grant in FY1920. That is, we want to be in a financial position to successfully enter the 'prepare to launch' scenario explained by our Chairman (page 4).

\$\frac{1}{2}\$\$ Income and expenditure for year ended 30 June

Equity at year end (for fifth consecutive year)

CRCWSC investment in research Participants

(towards cumulative investment of almost \$34M over five years)

## Get to know our partners

NGO or NFP organisations

Research organisations or universities

10

State government departments or agencies

16

Community groups

Water utilities or corporations

Private companies

Local governments

### **Essential Participants**

















### Other participants



### **SME** associate partners







































**Cooperative Research Centre for Water Sensitive Cities** 





