



WATER SECURITY CRC

# Water Security CRC

Information Brochure  
2021





# Water Security CRC

## The water security challenge

Australia is the driest inhabited continent on earth and climate change will only further exacerbate our current water security challenge. Growing populations, fluctuating water availability, pandemics and extreme weather events already threaten the resilience of Australia's water service systems and future economic growth. Combined with ageing water service infrastructure and governance structures that were designed in an era with a narrow conceptualisation of water systems and the suite of values they deliver to society means the status quo is no longer sustainable. Infrastructure Australia, the Productivity Commission and the water industry itself have concluded that failure to address water security issues without comprehensive and innovative solutions will lead to higher costs and declining service for urban, regional, rural and remote communities and industries. We need to redesign and reconfigure Australia's water services sector to ensure it meets the evolving needs and to make the system resilient and adaptable to future trends and shocks.

## Why a new water CRC?

The water services sector has identified several key research needs to address the water security challenge faced by cities, regional towns and remote communities across Australia. These include:

- > Improving service delivery by balancing the current legacy and long-lived nature of assets with the need for agility to respond to changes brought about by climate extremes, technological advancements and customer expectations
- > Optimising supply through a re-imagined and integrated urban water cycle where fit-for-purpose supply options make every drop count.
- > Analysing the transition and delivery of circular economy principles, beyond emission targets and recovery-based water services, to unlock new markets with quality products.
- > Improved understanding of customers' needs through tailor-designed service offerings and effective community engagement
- > Providing new models to support a dynamic, high performing and skilled workforce with a strong culture of innovation.



- > Achieving health, environmental and liveability outcomes at optimal cost through implemented and integrated planning and sustained delivery of services.

These water security challenges still persist despite investment in previous research programs (see below), since most have only focused on a single aspect of water security.

The Water Security CRC will build on and add value to these initiatives, taking a holistic whole-of-catchment perspective that recognises that the water footprint of cities and regional communities extends well beyond their boundaries and that water insecurity affects our overall economic, environmental and social well-being.

## Our purpose

The proposed **Water Security Cooperative Research Centre (Water Security CRC)**, aims to address key research and training needs identified by the water sector and, in doing so, support the development of new commercial opportunities for businesses engaged with the water industry.

The CRC will provide a key mechanism and forum where water service providers, peak bodies, SMEs, relevant government agencies and university researchers can come to together to find the innovative solutions for secure, efficient, productive and resilient water systems. All options for securing our water security future will be considered.



## Potential Partners for 2021

*38 partners joined the Water Security CRC bid for the Stage 1 submission in 2020, representing key stakeholders across the sector including water utilities, consulting firms, technology providers, government departments and researchers.*

For the 2021 bid, the Water Security CRC has already secured a strong commitment from many of the partners listed on our website, in addition to new partners in IT, banking, insurance and meteorological sectors.



*Dedicated to a better Brisbane*

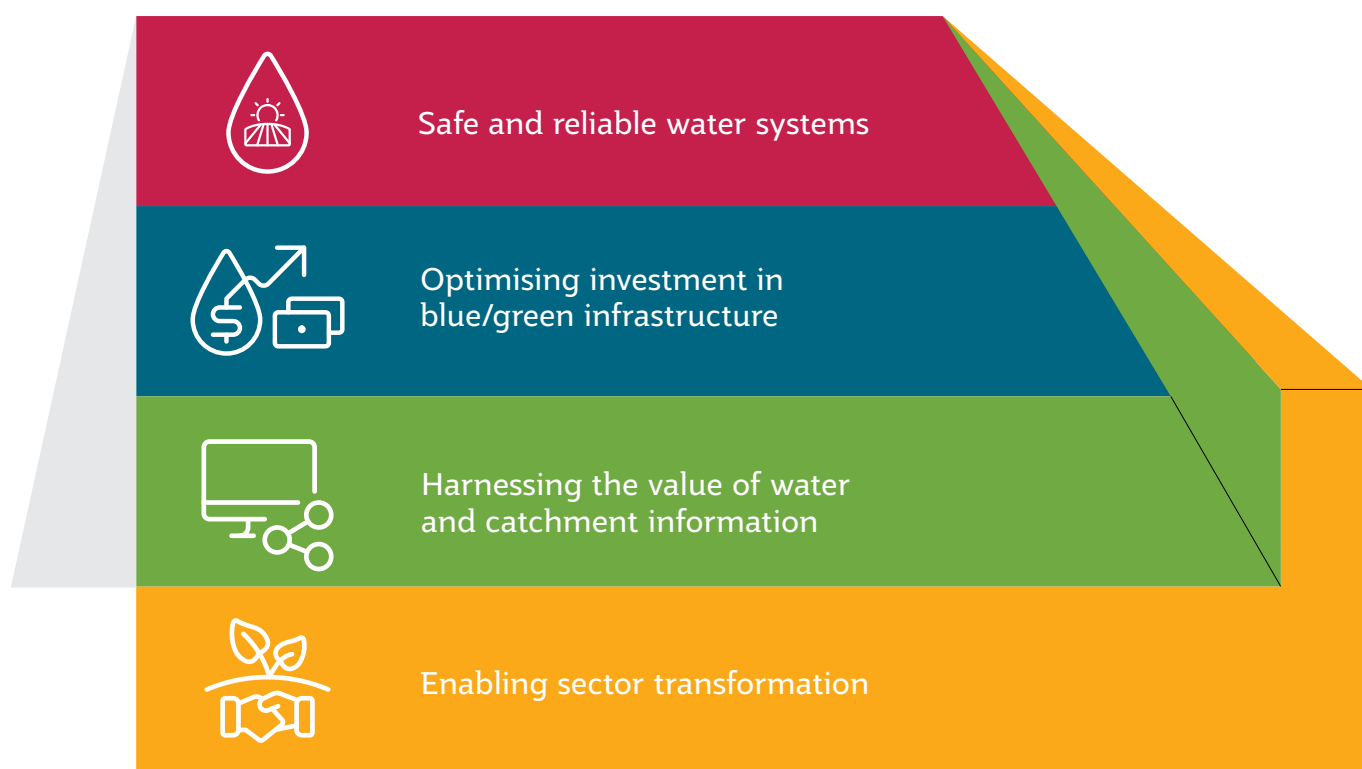


## Proposed research areas

*The CRC bid team has proposed four broad Program areas to coordinate our research activities.*

One will explore innovative solutions for 'Safe and reliable water systems', with a particular focus on challenges for regional centres and remote communities. The second will take a broader catchment perspective to the water security challenge, focused on 'Optimising investments in blue/green infrastructure'.

These will be supported by a cross-cutting IT focused program, which aims to 'Harness the value of water and catchment information', and underpinned by a program aimed at facilitating the pathways to impact by 'Enabling sector transformation'.





## *Safe and reliable water systems*

This program aims to support the ongoing investment by water industry partners to find innovative and integrated water quality and quantity solutions. It aims to assist partners to address future uncertainty and disruption through multi-objective adaptive planning and balancing supply and demand options across natural and built infrastructure.

Potential activities include:

This program, led by industry insights and knowledge, will ensure innovative and integrated water solutions through:

- > Development of remote water supply and treatment options through accessing alternative water sources and low-cost treatment solutions
- > Development of new technologies to demonstrate the value and opportunities for low-energy water recycling and storage options
- > Development and testing new sensors to increase environmental monitoring capability and safeguard against pathogens and emerging other contaminants
- > Data harmonisation to integrate information from autonomous sensors and conventional monitoring programs to support risk assessment and prediction of water quantity and quality.

## *Optimising investment in blue/green infrastructure*

This program will support a transformational shift by partners to informing and de-risking blue, green, and grey infrastructure investment decisions across catchments, employing both spatial planning tools and market-based approaches to effect change. A circular economy approach will be designed to support assessments across areas of water, energy and waste, to ensure multiple benefits and efficiencies for water partners and communities.

Potential activities include:

- > Development of innovative spatial planning tools to identify economically and environmentally optimal configurations of blue, green and grey investments across catchments, to achieve multiple objectives including safe supply, flood risk reduction and reduction of water treatment costs
- > Development of market-based trading approaches and financial tools to support targeted green infrastructure investment
- > Quantifying the human and ecological health outcomes delivered through regenerative integrated water and urban planning and design solutions
- > Robust and responsible decision making and investment processes for blue, green and grey infrastructure based on equitable allotment of costs of depreciation, failure and replacement.



## *Harnessing the value of water and catchment information*

This cross-cutting program seeks to unleash the value of water and catchment data to support informed decision-making in real-time. It aims to develop tools and products that bring together, analyze and synthesize conventional sources of data with unconventional, unstructured information sources such as social media data and expert opinion.

Potential activities include:

- > Creating digital twins for optimal water management and improvement of water systems
- > Enabling more accurate decision-making through integrating data sets and the creation of real-time information from IOT, high resolution arial data and AI pattern recognition
- > Developing smart algorithms to retrieve and repurpose water data to fit user needs.

## *Enabling sector transformation*

This enabling research program will support impact pathway realisation across the other three programs, while keeping a strong focus on social and ecological sustainability. It will reinforce the social dimension, empower communities and address the barriers to water security system transformation.

Potential activities include:

- > Enabling cut-through pathways to impact for technological and social innovation in the water sector through identifying institutional barriers to implementation
- > Strengthening best practice water governance and regulatory frameworks
- > Implementing and evaluating models of water stewardship
- > Identifying barriers and enablers for participation by different stakeholders and inform the design and trial of new deliberative processes and tools for water co-planning, co-design and co-governance
- > Developing approaches that acknowledge the importance of water in the lives of Aboriginal and Torres Strait Islander people and address their water needs
- > Developing approaches to work with industry to build capacity in the sector to embrace new technologies and their implementation.





## Education, training and adoption program

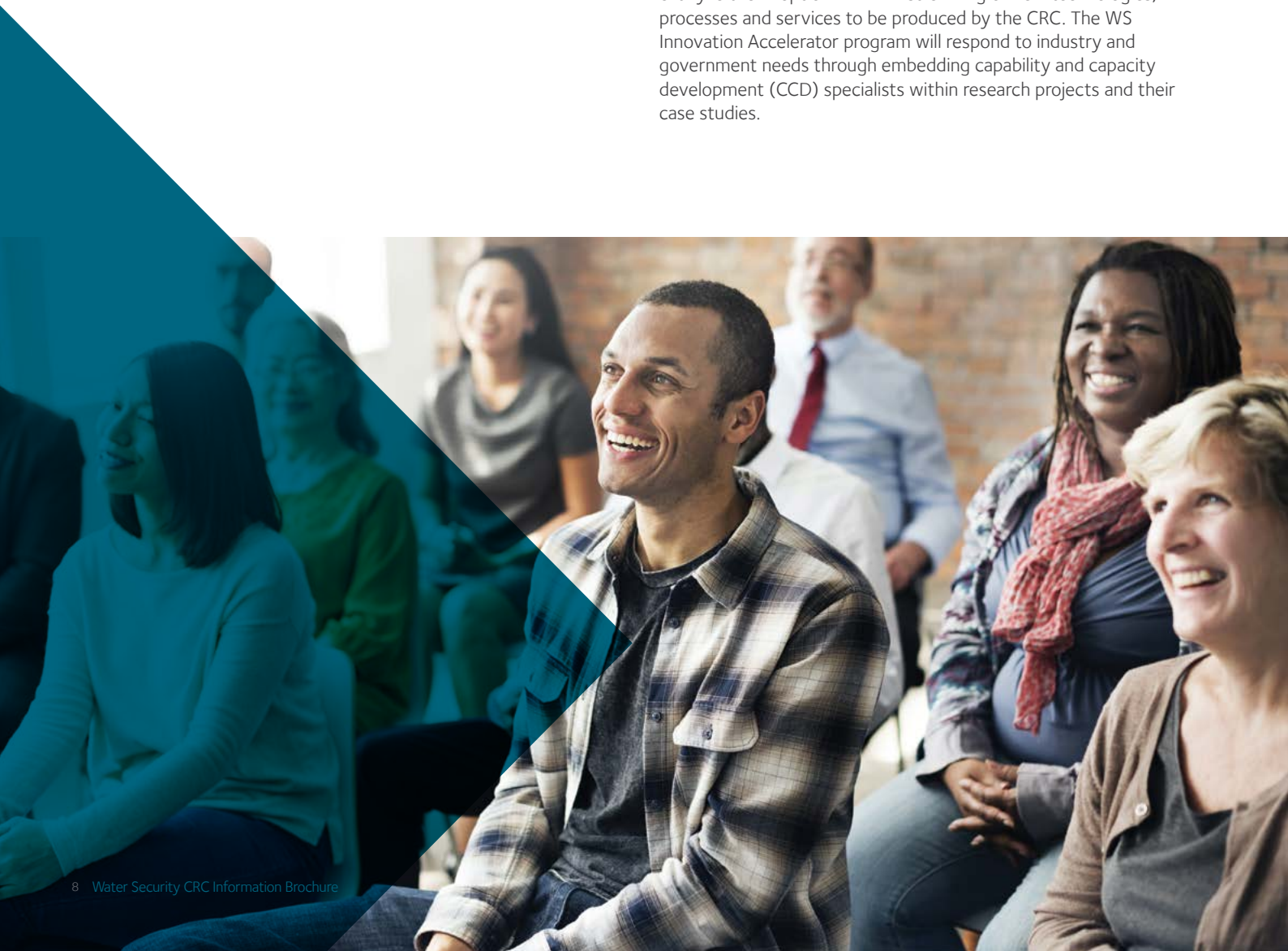
Education and training to equip individuals and organisations with the latest cutting-edge knowledge to tackle the challenges of water security is at the heart of the CRC mission. The CRC will combine university and industry teams to develop the capabilities and capacities needed for successful adoption and mainstreaming of innovative solutions. Our goal is to undertake research that is embedded within industry and to train the next generation of water professionals

The Water Security CRC will fund PhD scholarships and support a broader training program to build the required capabilities across its research students to lead applied water security research and to operate across the research-practice boundary. This will be delivered through the Water Security Industry Training Program (WS ITP). The CRC will build the capabilities and capacity of industry and government to adopt and mainstream research outputs. The WS ITP will ensure that Research Associates are provided with opportunities to learn from and embed their research in practice.

Industry-shaped and hosted research degrees and training are still relatively rare in Australia but internationally they have been recognized as important for decades. The WS ITP will provide:

- > A common but flexible framework for industry and government shaped and hosted student research and training.
- > A cohort-based experience for Research Associates including an annual conference, a Community of Practice, monthly interactive digital events and industry mentoring.
- > Industry and government internship opportunities to shape research agendas and provide development.
- > Formal, feedback intensive 'on the job' leadership development provided through a student focused leadership program.
- > Access to relevant postgraduate and industry education and training for Research Associates including digitally badged micro-credentials.

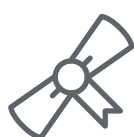
The CRC will also run a **WS Innovation Accelerator** program to catalyze the adoption and mainstreaming of new technologies, processes and services to be produced by the CRC. The WS Innovation Accelerator program will respond to industry and government needs through embedding capability and capacity development (CCD) specialists within research projects and their case studies.





## The Water Security CRC will provide:

Approximately 30 Higher Degree by Research (HDR) candidates (PhDs and research Masters) and 60 coursework Masters graduates.



Customised programs in business, leadership, commercialisation and driving innovation that will generate highly valued and effective workplace candidates

Tertiary programs that provide graduates with the skills, knowledge and aptitude required for incorporating water sustainability in their field of studies



Flexible micro credentialing courses

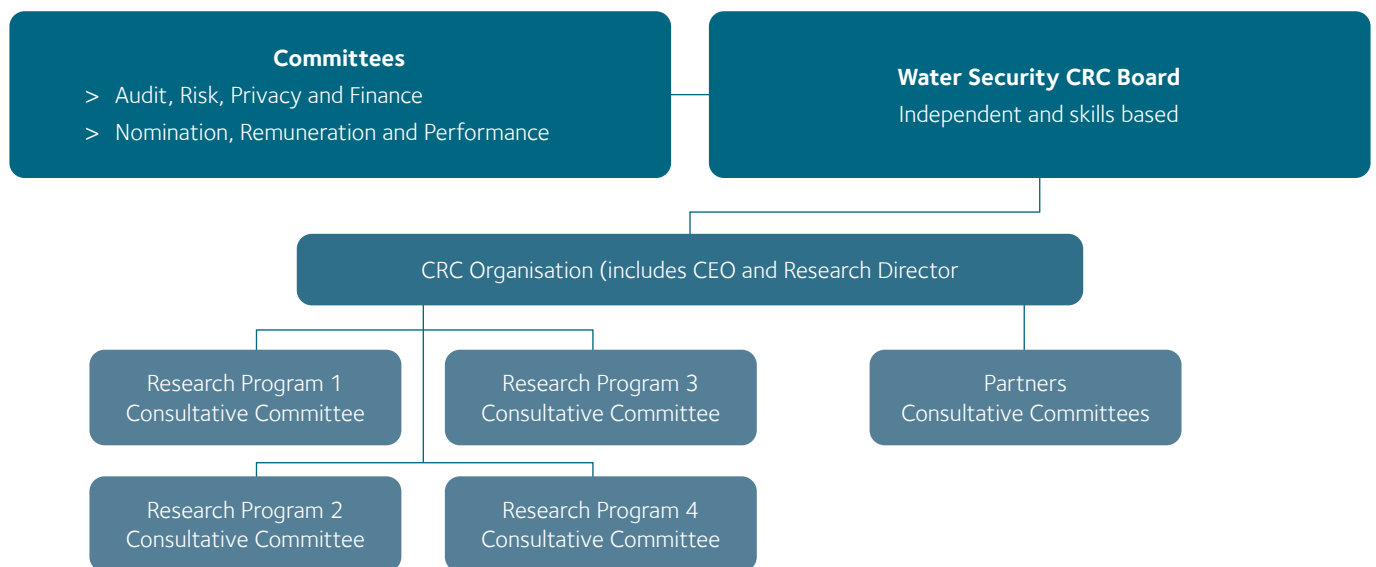
Innovation challenges that foster creativity in the CRC's partners and other SMEs and start-ups, particularly those working in the digital technology space



The means to enable the broader Australian community to be aware of water security and promote local and household measures that can be implemented to support it

## Governance of the Water Security CRC

The Water Security CRC will be governed by an independent skills based Board. Leith Bouilly has accepted the nomination as the interim chair of the Board, with Professor Stuart Bunn accepting the position of interim CEO. The Board of Directors will comprise a Chair and 6 Directors who are independent of the CRC Partners. The recruitment of the Board Directors will be coordinated by the Nominations, Remunerations and Performance Committee. The Board will also establish an Audit, Risk, Privacy and Finance Committee and Consultative Committees for each of the Research Programs and one specifically to represent Partners. These Consultative Committees will be majority represented by industry participants in the Water Security CRC as well as independent experts as appropriate. All appointments to the Board and Committees will be term limited to ensure broad representation from the CRC's partners.



## The Water Security CRC Bid Team



Leith Bouilly (Interim Chair) is an experienced Chair and Company Director having served on more than 30 boards. She is the former Chair of Sunwater and has also served as a National Water Commissioner, and Chair of Healthy Waterways Ltd, the Wide Bay Water Corporation and the Tropical Water Quality Hub.



Professor Stuart Bunn (Interim CEO) is the Director of the Australian Rivers Institute at Griffith University. He is currently a member of the Murray Darling Basin Authority and was recently appointed as an Earth Commissioner under Future Earth. He has previously served as a National Water Commissioner and a Director of Land and Water Australia.



Dr Victor Pantano was most recently Chief Executive Officer of the Digital Health Cooperative Research Centre one of the largest CRCs in Australia. Prior to this, Victor served in various executive positions including Associate Vice President, Innovation and Strategy at the University of Canberra, General Manager at FEI Company (formerly listed on the NASDAQ and now a subsidiary of Thermo Fisher Scientific), Chief Operating Officer at Lithicon AS, Chief Executive Officer at Digitalcore Pty Ltd, Director of Commercialisation at the Australian National University and Investment Director at ANU Connect Ventures.

The Water Security CRC bid team also includes senior research leaders from our University partners, including: Professor Steven Kenway (University of Queensland), Professor Greg Morrison (Curtin University), Professor Pierre Mukheibir (University of Technology Sydney), and Professor Nick Bond (LaTrobe University).

## Senior Advisory Group

The Water Security CRC bid is being guided by a group of senior industry leaders in the water sector.

### **Leith Bouilly**

Interim Chair  
Former National Water Commissioner and former Chair of SunWater

### **Jason Mingo**

Manager Environment and Technology Research, Water Services Association of Australia

### **Andrew Kingsford**

General Manager, WaterStart Australia

### **Kirsten Shelly**

General Manager Waterways and Land at Melbourne Water

### **Karlene Maywald**

Former Chair of the National Water Commission,  
Former Chair of the International Centre of Excellence in Water Resources Management and Peter Cullen Trust, and former Director of SA Water

### **Phil Duncan**

Chair of the Basin Community Committee, Murray Darling Basin Authority

### **Susan Worley**

Former Director of Water and Ecosystem Planning. West Australian Department of Water and Environmental Regulation

### **Warren Traves**

Chief Risk Officer of GHD

### **John Cotter**

Managing Director, Bowen River Utilities and CEO of Initiative Capital



## The Benefits of joining the Water Security CRC

Becoming a partner in the Water Security CRC will provide significant business benefits, influencing and leveraging opportunities. It will link your organisation directly with world class researchers across some of Australia's best universities and provide you access to a vast network of research and industry professionals across Australia and internationally all striving to address the water security challenge.

The CRC will provide an independent forum for all participants in the water sector to come together to tackle challenges in an integrated manner.

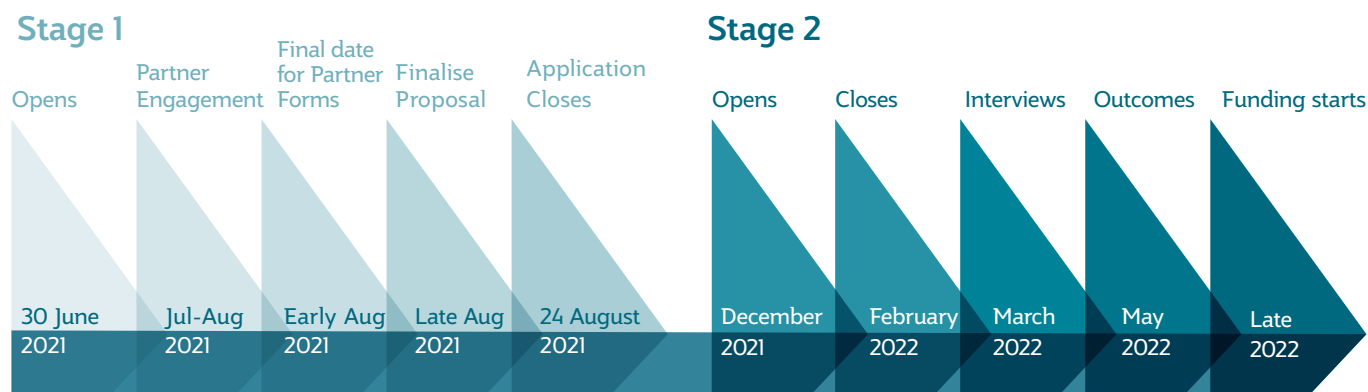
Core members of the CRC will play a critical role in establishing the board of the CRC and the shaping of the research program.

Membership of the CRC can also qualify partners for R&D tax concessions (Please refer to [business.gov.au](http://business.gov.au) and the Australian Tax Office).

CRC's are also vehicles to leverage your funding into projects across our 4 Research Programs. This leverage increases as more Partners join projects which of course is the underlying basis of a CRC – to cooperate with a diversity of Partners all with shared interests.

## Next Steps

We are very interested in engaging with you now to ascertain your research and innovation priorities and to ensure that you and your organisation have input into the development of the Water Security CRC program and the Stage 1 bid.



## Want to know more or join the Water Security CRC bid?

**There is still time to join.** There is the opportunity for more organisations to join our CRC prior to the Stage 1 deadline, which we anticipate will be August/September this year. Joining the bid at this time provides an opportunity to assist the team in shaping the innovative research and training programs, and access to the leveraged funding from the Commonwealth CRC program.

If you are interested in learning more about our CRC and becoming a partner, please contact:

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