



ANNUAL REPORT 2022-23



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Disclaimer
SmartCrete CRC has endeavoured to ensure that the information in this publication is correct. This report has been prepared to align with SmartCrete CRC's Commonwealth Agreement, referencing the outcomes, activities, participants and other matters as at 30 June 2023, unless it is otherwise specified in the document.

HIGHLIGHTS

as at 30 June 2023



\$15 million
of project investment
(cash + in-kind) from
Commonwealth, industry
and universities



3
research programs:
Sustainable Concrete,
Engineered Solutions,
Asset Management



25
research projects



4
completed projects of
which 2 were completed
in FY2022-23



15
new projects
commenced during
the reporting period



68
industry, government
and research partners
across Australia



5
Industry Challenges
hosted to uncover pressing
industry problems and define
research solution pathways



10
PhD and
Masters students

MESSAGE FROM THE CHAIR

SmartCrete CRC was established in June 2020 to link researchers with industry and focus industry-led research and development towards use and commercialisation.

Australia lags its OCED peers in its capacity to take research innovation through the valley of death and to optimise opportunities for industry-led research to remain available for the common good. To advance such capabilities within Australia, SmartCrete CRC has refined existing industry-research relationships, embedding an expectation that, for approval, research projects require robust impact (use and commercialisation) plans. As a not-for-profit organisation, the CRC drives research outcomes that remain available for industry wide use and facilitate commercialisation success into reinvestment in research.

The past three years, including the COVID start-up phase, have been a rich learning journey for SmartCrete CRC and our community as we endeavoured to pivot behaviours and expectations towards use and commercialisation. We thank our forward-leaning industry partners such as Brickworks and MCI whose commercial arrangements with us, upon project success, will provide additional funding for research. We thank our public-spirited partners such as BG&E who have underwritten research that will remain in the public domain. We thank project teams who quietly and effectively strive for research use and/or commercial outcomes. These partners model mutually assured success in value creation for the concrete industry, academe and the broader Australian community.

Australia's concrete challenges remain. Aging infrastructure, the drive to net zero, supply chain fragility and other imperatives highlight the value add of research. However, SmartCrete CRC experience suggests that the concrete ecosystem itself has yet to fully recognise and harness the potential of collaborative research. The Board and management have identified that the concrete sector profile and drivers that underpinned the initial CRC bid have limited value when charting innovation pathways for the future. The influence levers are not those assumed. Over the past year, the SmartCrete CRC team has done a remarkable job in recasting our understanding of the concrete ecosystem.

We look back on a year of progress as well as challenge. We have continued to strengthen our position delivering benefits to industry, research and government through innovation, collaboration and building networks. We look forward to establishing new relationships that align closely with harnessing future possibilities.

The fresh eyes of the CEO Clare Tubolets and her team have been invaluable in establishing SmartCrete CRC as the catalyst for change within Australia's concrete ecosystem.

On a personal note, I wish to express my deep appreciation of the personal integrity and diversity of skills and experience of the Directors. Our robust discussions have limited the influence of status quo innovation blockers and made us brave.

Emeritus Professor Elizabeth Taylor AO FAICD
Independent Chair

In the spirit of reconciliation, SmartCrete CRC acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.



“ On behalf of the Board, I would like to acknowledge our future focused partners, without them change and potential realised is not possible. We just need more of them. ”

SmartCrete CRC is inspired by Australia's traditional owners and their connection to land and sea. As we consider our national trajectory towards a sustainable future, there is a great deal we can learn from their custodianship and harmony with the natural environment.



MESSAGE FROM THE CEO

This year, we extensively engaged with industry, building a strong network across the concrete sector. This has allowed us to establish insights and understanding of the challenges and barriers that Australia's concrete ecosystem is facing in achieving lasting emissions reduction.

Sectoral research programs to date, including SmartCrete CRC, have been heavily focused on technical barriers such as the performance of new sustainable concrete mixes. However, we have heard from industry that two equally challenging issues are market barriers to adoption of new products and processes as well as sectoral knowledge and capacity building. Only by working collaboratively across the sector and harnessing the innovation capacity of our research network can we overcome these technical, market and knowledge barriers.

As we close FY2022-23 and move into the new financial year, we have approximately \$8 million in Commonwealth funding remaining to invest in collaborative research projects to drive concrete towards a sustainable future. Critically, co-investing these funds requires engagement with new industry participants. It requires collaboration with businesses, associations, state and local governments that accept accountability for the decarbonisation of construction materials, and those who acknowledge the work required and commit to bold and courageous sustainability investment and action.

We are committed to continuing our work in sectoral engagement through both our "Industry Challenge" workshops and our CRC funding rounds to find and co-invest in impact-driven research. Our multifaceted sectoral decarbonisation roadmap, which has identified eight distinct pathways for concrete innovation, demonstrates that a diverse range of research is required to create a holistic pathway to net-zero. Working with industry, we have already uncovered a range of key research areas that will require a collaborative research approach. These include:

- Accelerated aging test methodologies to rapidly generate data on the performance of new sustainable concrete materials and products.
- Life-cycle carbon assessment models which account for embodied carbon.
- Risk and accountability supply chain models to support sustainability driven procurement decisions.

I encourage the broader concrete ecosystem to engage with SmartCrete CRC if you see opportunities to harness Australia's research network to create the innovations and knowledge we need to achieve our collective sectoral net-zero ambitions.

Clare Tubolets
CEO

ACHIEVEMENTS IN FY2022-23

SmartCrete CRC underwent significant transformation in FY2022-23, attracting and appointing a new leadership team and developing and commencing a revised strategy focusing on industry-led innovation collaboration to drive the transition of concrete for a sustainable Australia.

Appointments

Following Clare Tubolets taking the helm as Chief Executive Officer in May 2022, SmartCrete CRC refocused its operations to better connect, communicate and collaborate with Australia's concrete ecosystem. The following people joined the CRC in FY2022-23:

- Robert Newton, Chief Operations Officer
- Hugh Ong, Portfolio Director
- Jana Kuthe, Marketing and Communications Manager
- Lydia Gunawan, Project Coordinator
- Zachary Forster, Video Producer
(following a successful PACE Internship)

Impact and Collaborations

In FY2022-23, SmartCrete CRC successfully managed a portfolio of 25 research and development (R&D) projects across its three research streams - Sustainable Concrete,

Engineered Solutions and Asset Management. Fifteen industry-led projects commenced during the reporting period, with a net value of \$8.36m (cash) and \$13.28m (in-kind), involving small and medium businesses from across the concrete ecosystem. Safeguarded by SmartCrete CRC's governance and reporting structures, which align industry, research and other supporting partners, most projects demonstrated strong progress without any significant technical or scientific impediments to impact their collaboration. Two projects were successfully completed in FY2022-23.

Stakeholder Engagement and Communications

To better understand the current and future challenges of Australia's concrete industry, SmartCrete CRC has broadened its approach to industry engagement and innovation collaboration. In September 2022, SmartCrete CRC introduced quarterly 'Industry Challenge' workshops, providing representatives from across the concrete value chain a platform to discuss pressing industry problems and collectively define challenges for Australia's research community to solve. Throughout the reporting period, the

CRC hosted five 'Industry Challenges' that resulted in 15 research proposals of which three are being converted into research projects.

SmartCrete CRC has strengthened its position and connections with industry, research, government and the wider concrete ecosystem by immersing itself in industry associations, sustainability initiatives and working groups such as the Concrete Institute of Australia (CIA), Cement, Concrete Aggregates Australia (CCAA) and the Materials and Embodied Carbon Leaders Alliance (MECLA). The CRC led the conversations around innovation collaboration that benefit the entire ecosystem including small and medium enterprises (SMEs).

Capability Development

SmartCrete CRC is committed to identifying, developing and nurturing the capabilities - the hard and soft skills - that are needed for Australia's concrete ecosystem to reach and sustain its full potential. In FY2022-23, SmartCrete welcomed seven PhD and Masters students as part of its research projects and collaborated with the wider community to unlock career opportunities.

IMPACT AND COLLABORATIONS

Concrete is the cornerstone of Australia's built environment. With about 70 million tonnes of premixed concrete produced every year (CCAA, 2022), it is the most widely used building material in the country. Yet, concrete – due to its raw material acquisition, processing, transportation, and recycling – contributes significantly to Australia's CO₂ emissions.

In 2021, the Cement Industry Federation, Cement Concrete and Aggregates Australia, RACE 2030 CRC and Smartcrete CRC issued the independent 'Decarbonisation Pathways for the Australian Cement and Concrete Sector' report that outlined eight pathways for the industry to lower its CO₂ emissions and decarbonise by 2050. Aligned to the pathways identified in the report, SmartCrete CRC has to date invested \$15m of Commonwealth and partner funding in 25 innovative R&D projects that spur sustainable design, use and management of concrete.

In FY2022-23, 15 new research projects commenced across SmartCrete CRC's three research programs - Sustainable Concrete, Engineered Solutions and Asset Management - generating a net value of \$8.36m (cash) and \$13.28m (in-kind). Integral to the progress was:

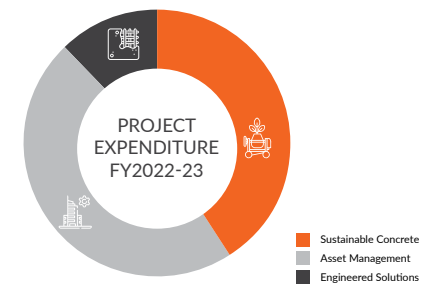
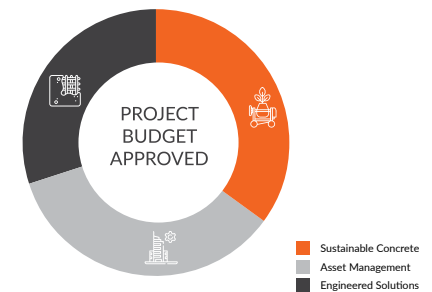
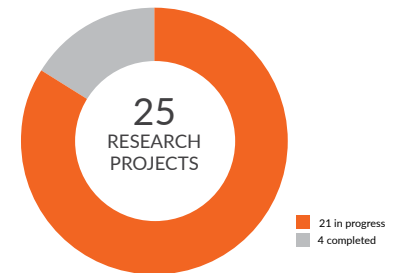
- SmartCrete CRC working closely with industry,

government and research partners to overcome commercial and operational barriers to research collaboration

- SmartCrete CRC streamlining internal processes to accelerate project approvals
- SmartCrete CRC providing new project governance and reporting structures with clear guidelines and deliverables
- SmartCrete CRC deepening its industry engagement by hosting industry-led challenges that discussed and addressed pressing sectoral problems, particularly on the journey to net-zero concrete.

As a result, SmartCrete CRC has now successfully completed four projects, of which two were completed in the reporting period. Also, four additional projects have been approved and are due to commence in FY2023-24.

With most of SmartCrete CRC's projects being at the beginning of their innovation journey, no project IP outputs are yet mature to be utilised or commercialised.



SUSTAINABLE CONCRETE



Designing and developing new, sustainable concrete mixes and products that meet industry standards and requirements.

SmartCrete CRC's Sustainable Concrete program brings together material experts from industry, research and the wider construction sector to design, develop and test sustainable materials – new and recycled – to be used in a wide range of concrete applications.

The program drives research collaborations that:

- Accelerate decarbonisation
- Support the circular economy
- Drive the developments of standards

13

RESEARCH
PROJECTS

\$4.5

MILLION IN
CASH

\$5.8

MILLION
IN-KIND



CASE STUDY

Ground improvement using recycled concrete aggregates as semi-rigid inclusion columns

In the realm of construction and infrastructure development, the consumption of natural aggregates has surged to unprecedented levels. The repercussions of this are manifold, causing depletion of natural resources and a significant impact on the environment. Addressing this problem, a remarkable research initiative - "Ground Improvement using Demolition Wastes as Semi-Rigid Inclusion Columns" is making waves in the Australian concrete sector.

Collaboratively undertaken by Hawks Excavation, Stretford Civil Construction and Swinburne University of Technology, the project started in July 2021 and is set to conclude by September 2023. Evaluating the potential and feasibility of recycled concrete aggregate (RCA) as a sustainable substitute for conventional natural aggregates, predominantly in stone column applications, the collaboration addresses the pressing issues of the over-exploitation of natural aggregates and the massive accumulation of construction and demolition (C&D) waste. The initial findings have been very promising. RCA proved itself as a sustainable alternative, meeting the required



Project partners

Swinburne University of Technology,
Hawks Excavation Pty Ltd,
Stretford Civil Construction



Duration

July 2021 – September 2023



Value (Cash + In-kind)

\$950K



target strength. Geopolymers acted as low-carbon binders, significantly enhancing the load-carrying capacity of ground inclusion columns while substantially reducing permanent strain under cyclic loading. According to project lead Dr Farshid Maghool, Swinburne University of Technology, the secret lies in meticulous mixture design and extensive experimentation. "The outcomes of our efforts showcased the viability of RCA as a sustainable replacement and hinted at substantial cost savings."

Impact on the Horizon

The impact of this project will be profound, particularly for establishing a more sustainable approach to infrastructure projects. By using recycled materials, costs are reduced, and a substantial dent is made in the carbon emissions traditionally associated with quarry materials.

"We were pleased with the project outcomes and look forward to incorporating recycled products in our future geotechnical and civil engineering projects," said Mohammad Fard, Hawks Excavation.

Following the project's completion, these findings will be

applied in field trials and potentially extended to various applications and then tested and implemented in real-world scenarios. The applications extend beyond stone columns to various geotechnical aspects, promising a future where waste finds a new purpose, supporting the vision of a circular economy. The research team at Swinburne University of Technology is eager to further implement and explore the possibilities presented by this breakthrough.

A Fruitful Collaboration

Central to the success of this project is the collaboration with SmartCrete CRC. The partnership has been seamless, effective, and productive. The expertise and support from CRC partners have played a pivotal role in making this collaboration a success, exemplifying the value of synergy in achieving impactful milestones.

"We had great joy working in this project with the Geotechnical team at Swinburne as well as with other engineering companies and the Smart Crete CRC. We look forward to further collaborations with this team", said Peyman Bahrami of Stretford Civil Construction Pty Ltd.

ENGINEERED SOLUTIONS



Engineering new solutions that improve the durability, longevity and sustainability of concrete buildings and infrastructure.

The Engineered Solutions program taps into Australia's concrete and engineering expertise and invests in industry-research collaboration that improve the cost, durability and applications of concrete.

The program aims to safeguard and future-proof Australia's concrete buildings and infrastructure by:

- Driving sustainable design and construction
- Providing predictive service life modelling
- Optimising supply chains
- Supporting quality control and certification

4

RESEARCH
PROJECTS

\$2.1

MILLION IN
CASH

\$2.8

MILLION
IN-KIND

CASE STUDY

Feasibility study into floating artificial reefs using smart concrete



Project partners
Macquarie University,
Blue Economy CRC



Duration
January 2022 – July 2022



Value (Cash + In-kind)
\$93K



Reefs are common benthic systems throughout Australia's extensive coastline and form an important part of the marine ecosystem, which can be enhanced by artificial reef (AR) systems.

In 2022, SmartCrete CRC supported Macquarie University's research efforts into existing concrete AR developments and possible future projects in Australia, contributing to a broader scoping study into the potential of floating artificial benthic ecosystems to underpin offshore development by the Blue Economy CRC.

Concrete is most commonly used in AR constructions due to its chemical composition - very similar to natural coral limestone - availability and durability. Macquarie University's review found that concrete, in general, is an acceptable material for use in marine environments, supporting a greater abundance of species than other artificial substrates. New eco-friendly concrete alternatives have also shown potential. Yet, the longevity of these concrete structures will depend on the extent to which seawater can permeate the material.

Following the initial material assessment and selection, the research team considered possible AR sites and design options, evaluated the overarching environmental impact and carried out a cost-benefit analysis. This was used to produce a comprehensive roadmap for the development of floating artificial reefs.

In July 2022, the Blue Economy CRC released a project report that concluded:

"While there are many challenges, floating artificial reefs can provide significant benefits in the provision of quality high priced export marine products, the provision of nutrient recycling and carbon sequestrations ecosystem services and buffering services for other offshore developments".



ASSET MANAGEMENT



Developing new technologies and procedures to enhance the use and longevity of concrete assets.

SmartCrete's Asset Management program connects asset owners and managers operating and maintaining concrete infrastructure with experts from different research disciplines to develop innovative, technology-focused solutions to mitigate concrete degradation.

To protect and maintain the health of Australia's infrastructure, the program focuses on:

- Supporting concrete health monitoring and maintenance
- Fast-tracking sensor development and data analytics
- Offering Digital Twin and predictive modelling

8

RESEARCH
PROJECTS

\$5.4

MILLION IN
CASH

\$8.4

MILLION
IN-KIND

CASE STUDY

Development of digital twin model based on physico-chemical and biosensors to estimate end-of-service life of sewers

Sewerage networks are one of the most crucial and valuable urban assets. In regions like greater Sydney, corrosion related repairs and renewals can cost hundreds of million dollars. Thus, accurate estimation of the end-of-service-life (EOSL) for concrete gravity sewers is vital for water utility asset management and planning. Currently, there is no reliable methodology for estimating EOSL in concrete sewers within water utilities.

In late 2022, Sydney Water and Melbourne Water joined forces and partnered with La Trobe University, University of Technology Sydney (UTS) and Macquarie University to address this issue and develop a scientific model for predicting the EOSL of concrete gravity sewers. The three year project intends to set up a digital twin that combines machine learning and real-time sensor data from purpose-designed physico-chemical and biosensors installed in wastewater networks.

Tapping into university expertise

La Trobe University will lead the development of innovative biosensors to understand the conditions promoting the



Project partners

University of Technology Sydney, Macquarie University, La Trobe University, Sydney Water, Melbourne Water



Duration

October 2022 – October 2025



Value (Cash + In-kind)

\$2.4m

microbiological oxidation of H_2S to corrosive H_2SO_4 . Critical factors such as pH, moisture, H_2S and other gases, and microbiology will be monitored in the sewer environment. These biosensors will be prototyped and deployed in the sewer network to monitor and assess biofilm formation, H_2SO_4 conversion, and subsequent concrete corrosion.

The project will utilise Smart Coupons (fibre optic sensors developed by Macquarie University) to measure the chemical reaction between H_2SO_4 and concrete. Deployed across Sydney Water's sewer network, these sensors will measure corrosion depth, crucial for the digital sewer twin's development and assessment. They will also monitor critical environmental factors including humidity, temperature, and dew point. These in-situ measurements will be correlated with synchrotron techniques and surface analysis for materials characterisation, providing insights into chemical processes and dynamics.

UTS will analyse both existing and the newly collected data to improve the existing sewer corrosion prediction model, enabling accurate estimation of EOSL for sewer pipes.



The resulting digital twin model, which is the generation or collection of digital data representing the sewer environment, will help to better understand the corrosion process, predicting the corrosion level and estimating the remaining life for sewer pipes. This will support decision making in sewer pipe maintenance and rehabilitation.

This multi-disciplinary approach, involving novel biosensors, smart coupons, and data analytics, enhances its robustness for sewer corrosion prediction and EOSL estimation. Beyond cost savings, the model is expected to optimise decision making in sewer pipe maintenance and rehabilitation, improving operational efficiency, and reducing associated risks. Additionally, the refined model contributes to the creation of a digital twin for the sewer system, offering a comprehensive understanding of performance, degradation pathways, and risks. Overall, the project holds significance for revolutionising a water utility's sewer infrastructure management, yielding substantial financial savings, operational efficiencies, and risk mitigation.

STAKEHOLDER ENGAGEMENT AND COMMUNICATIONS

Australia's built environment is complex. Effective stakeholder engagement and communications are essential to realise SmartCrete CRC's mission of transitioning concrete for a sustainable Australia.

In FY2022-23, SmartCrete CRC focused its stakeholder engagement and communications activities on positioning the organisation as "a catalyst for change", deepening its industry-led approach to research investment and identifying new innovation collaboration opportunities. This was achieved by:

- Creating an integrated engagement and communications style to demonstrate the impact, value and benefits of cross sector collaboration. Integral to this approach have been the five "Industry Challenge" workshops that brought together representatives from across the concrete value chain to discuss and address pressing industry problems such as the recarbonisation of cement emissions, decarbonised infrastructure and low carbon concrete.
- Partnering with key industry bodies such as the Cement, Concrete Aggregates Australia (CCAA), Cement Industry Federation (CIF) and the Materials and Embodied Carbon Leaders Alliance (MECLA) to broaden

SmartCrete CRC's industry reach and gain valuable insights into the industry's state of play.

- Strengthening SmartCrete CRC brand identity to reflect the organisation's values and purpose of supporting Australia's transition to sustainable concrete.
- Providing regular updates about SmartCrete CRC's research initiatives, organisational and industry news through SmartCrete CRC's newsletter - smartcrete weekly - reaching an audience of 1000+ subscribers.
- Cementing SmartCrete's online and social media presence by delivering innovative news segments like Clinker Chat, Whip Around Wednesday and Innovation Insights that highlight research breakthroughs and general advancements within the cement and concrete industry in Australia and around the world.
- Hosting six SmartCrete Connect breakfast events that brought together over 180 industry and research representatives to discuss innovation and collaboration. Held at research partner facilities in NSW, VIC and WA, the events featured up and coming researchers, including SmartCrete CRC co-funded PhD students, who talked about and showcased their work.

- Speaking at over 20 industry events including Engineers Australia's Thought Leaders Series: Digital Enablement of Carbon Management in Design and Construction and the Concrete Institute of Australia's National 'Sustainability' Roadshow, engaging with over 1000 concrete experts, designers, engineers and builders, and driving the conversation about sustainability.



Image Source: SmartCrete CRC

Pathways to Sustainable Concrete

SmartCrete CRC hosted five 'Industry Challenges' to identify and set common innovations priorities that support the rapid decarbonisation of the concrete ecosystem.



The 'Industry Challenge' approach

01

Theme Selection

Identify themes together with industry that are critical to accelerating the transition to net zero concrete

02

Challenge Design

Facilitate industry workshops - bringing together representatives from across the concrete ecosystem - to define key challenges and set common innovation priorities within the chosen theme

03

Industry Review

Review project proposals to determine their suitability for co-investment, research collaboration and commercialisation before seeking industry commitment

04

Reverse Pitch

Pitch the identified challenges to SmartCrete CRC's research community and call for expressions of interest for projects to solve the challenge

05

Agile Delivery

Apply agile project delivery principles, supported by governance structures that encourage collaboration and ensure that agreed research and commercial objectives are met and deliver wider impact

CAPABILITY DEVELOPMENT

SmartCrete CRC fosters a wide range of capability building activities to help the current and next generation of concrete experts to prepare and respond to economic, socio-demographic and environmental changes that impact Australia's built environment.

FY2022-23 served as a learning opportunity for SmartCrete CRC and its partners. With the impact of COVID still being felt, especially in terms of attracting and onboarding new student talent, SmartCrete CRC continued to advance conversations and deliver opportunities for knowledge exchange and collaboration.

- SmartCrete successfully integrated seven new PhD students into its research projects, expanding its student cohort to ten PhD and master's students across nine universities. These emerging scholars are poised to revolutionise the concrete industry, infusing it with fresh perspectives and ground-breaking innovations.
- SmartCrete CRC embarked on two collaborative projects with Ducere Global Business School, culminating in the creation of two reports. "Building Pathways to Gender Equity within the Australian Concrete Industry," concluded in October 2022, and "The Global Concrete Sustainability Roadmap," was completed in February

2023. Both reports have been instrumental in reinforcing SmartCrete CRC's commitment to Diversity, Equity, and Inclusion (DEI) as well as Sustainability.

- SmartCrete Connect - SmartCrete CRC's networking breakfast - has provided a platform for 20 PhD students and early career researchers to present their research findings and receive direct feedback from industry. The six breakfast events hosted in FY2022-23 attracted more than 180 attendees from industry and research, stimulating great discussions about the long-term viability of concrete in Australia.
- Aligned with its three research streams - Sustainable Concrete, Engineered Solutions and Asset Management - SmartCrete CRC has developed a Community of Practice framework to be launched in July 2023. The team secured industry experts from Cement Australia, BG&E and Sydney Water to chair the three planned Communities.
- SmartCrete CRC has discussed partnership opportunities with education providers such as TAFE NSW to help develop industry training and engagement programs to transfer knowledge and disseminate research outputs across the cement and concrete ecosystem.

- SmartCrete CRC regularly engages with project partners to scout for knowledge transfer opportunities. In FY2022-23, for instance, SmartCrete CRC approached Swinburne University of Technology as part of the "Development of design guides for advanced fastenings into innovative concrete products" to consider developing a nation-wide training program on concrete fasteners. Actively involved in the Australian Engineered Fasteners and Anchors Council (AEFAC), Swinburne University is well positioned to expand its existing training programs to address the suitability/functionality of fasteners using new concrete types.
- To shine a spotlight on emerging talent and outstanding contributors within both research and industry, SmartCrete CRC launched "Innovation Insights". This social media initiative celebrates every week a diverse spectrum of professionals in the education sector, ranging from esteemed lecturers to dedicated students and inspirational mentors. In FY2022-23, the initiative generated close to 30,000 views.

Opening doors

Through SmartCrete Connect, Clinker Chat and Innovation Insights SmartCrete CRC created numerous opportunities for industry, research and government to connect.



Image Source: SmartCrete CRC

ABOUT SMARTCRETE CRC

We are a catalyst for change

Smartcrete is an independent, for-impact Cooperative Research Centre (CRC) that empowers innovation collaborations to transition concrete for a sustainable Australia.

Working with manufacturers, architects, engineers, developers, asset owners and government, we invest \$21m of Commonwealth funding in university-delivered R&D projects that spur sustainable design, use and management of concrete.

Our strength lies in connecting Australia's concrete ecosystem, creating research opportunities and setting up mutually beneficial partnerships that accelerate material change, develop new technologies and promote best practice to decarbonise concrete and achieve net zero by 2050.

\$21

MILLION IN
COMMONWEALTH
FUNDING

68

INDUSTRY AND
RESEARCH
PARTNERS

25

RESEARCH
PROJECTS

We believe in concrete innovation

Open Communication

We are unapologetically bold. We are open, honest and transparent. By doing so, we remove barriers, build trust and create an environment for research collaboration. And, we are not afraid of hard conversations along the way.

Collaboration

We embrace diversity, equality and inclusivity and treat everyone with respect. We know that we are at our best when we work together, leveraging the “collective genius” of our stakeholders and the wider community.

Integrity

We do what we say we will. We are industry-led, act from a well-informed position and embrace sustainable business practices to achieve outcomes that propel Australia’s concrete ecosystem forward. We don’t lose sight of what’s right for our innovation collaboration.

True to Purpose

Everything we do drives outcomes for community benefits – whether it’s new technology or a different approach to producing, using and/or re-using concrete. We are looking for innovative, sustainable ideas that help transform Australia’s built environment. Incremental won’t cut it.

Smart Thinking

We are inquisitive, question the status quo and bring together smart people, who use their skills and expertise to make a difference and bring about change for a better, sustainable Australia.

The Team behind the SmartCrete CRC

Through open, honest and transparent conversations, SmartCrete CRC's management team and staff connect and collaborate with industry, research and government and the wider concrete ecosystem.



Clare Tubolets
Chief Executive Officer



Robert Newton
Chief Operating Officer



Hugh Ong
Portfolio Director



Professor Vute Sirivivatnanon
Research Director



Zachary Forster
Video Producer



Estelle Clapham
Special Projects and
Content Manager



Lydia Gunawan
Project Coordinator



Jana Kuthe
Marketing and
Communications Manager



Dr Sorn Vimonsatit
Education and Outreach
Manager

Board of Directors

SmartCrete CRC is a not-for-profit company limited by guarantee. It was established under the Commonwealth's Government's CRC Program in 2020 and is governed by an independent Board of Directors that oversees the organisation's research portfolio and work to drive the transition of concrete for a sustainable Australia. The Board represents a broad range of industry, research and government expertise.



Emeritus Professor Elizabeth Taylor (AO)

Independent Director,
Chair of the Board, appointed
on 16 June 2020

Skills and Experience
Governance, Strategy Risk,
Education, Technology



Elizabeth Whitelaw

Independent Director, Chair
of the Audit, Risk, Privacy and
Finance Committee, appointed
on 12 November 2020

Skills and Experience
Governance, Risk and
Compliance, Financial,
Performance, Intellectual
Property, Commercialisation



Dr Gunilla Burrowes

Independent Director,
Chair of the Culture and People
Committee, appointed on
12 November 2020,

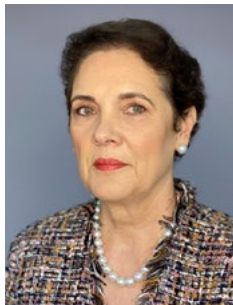
Skills and Experience
Entrepreneurship,
Commercialisation, Technology
Innovation, Business Strategy,
Governance



Peter Williamson

Independent Director, Chair
of the Investment and Impact
Committee, appointed on
12 November 2020

Skills and Experience
Risk and Compliance, Financial,
Performance, Intellectual
Property, Commercialisation



Catherine Ferrari

Independent Director, Chair of the Partners and Stakeholders Committee, appointed on 12 November 2020

Skills and Experience

Governance, Stakeholder Engagement, Communications, Strategic Planning, Business Management



Stephen Harmer

Independent Director, appointed on 16 June 2020

Skills and Experience

Construction, Concrete, Marketing, Business Development, Government relations, Governance, Sustainability, Senior Management

Committees

Four advisory committees have been established to assist the Board in the execution of its duties:

Audit, Risk, Privacy and Finance Committee

to offer guidance in terms of corporate governance pertaining to Audit, Risk, Privacy, and Financial matters. It also addresses cyber security and compliance matters.

Investment and Impact Committee

to provide strategic advice on pertaining the selection of innovative research projects and the acquisition, maintenance, and exploitation of related IP to facilitate industry impact consistent with SmartCrete CRC's objectives.

Culture and People Committee

to advise on matters relating to Smartcrete CRC Culture and People.

Partners and Stakeholders Committee

to provide governance and advice related to the management of Smartcrete CRC partners and the wider community of stakeholder.

SmartCrete CRC governance is aligned with the structures set out in the Constitution, Commonwealth and Participants Agreements,.

The CRC has income tax-exempt status, and endorsement from Australian Charities and Not-for-profit Commission (ACNC) and ATO as an advancing education charity. As a not-for-profit company limited by guarantee, SmartCrete CRC is governed by ACNC rules and regulations and the Corporations Act. There have been no changes to the structure during this financial year.

Finance

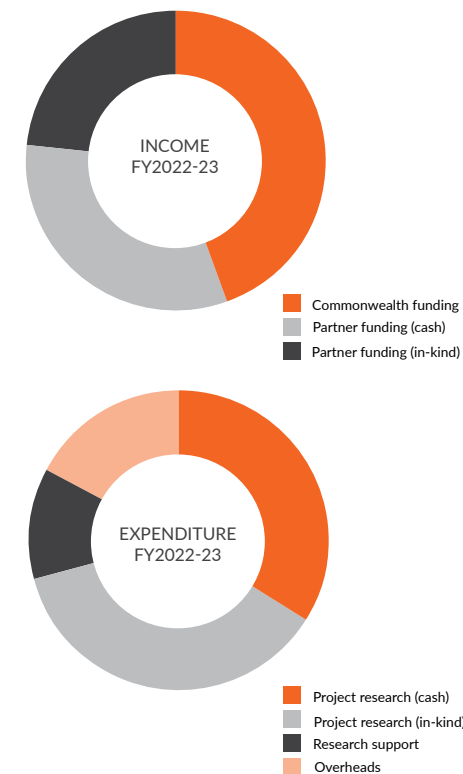
SmartCrete CRC completed its third financial year of operations in a healthy financial position, with \$11.91m cash at bank (compared with FY2021-22 at \$7.78m) sufficient to fund current projects, administration obligations and the CRC's activities.

The Commonwealth contributed \$4.20m in cash to SmartCrete CRC this reporting period (FY2021-22 \$3.15m). Due to delayed project activities, this resulted in SmartCrete CRC carrying a higher cash balance at the end of the financial year. As of 30 June 2023, since its establishment SmartCrete CRC has received a total \$11.50m of Commonwealth cash contributions. The SmartCrete CRC cash balance will reduce over the lifespan of the CRC as current and future research projects reach maturity.

During the reporting period 15 new projects commenced, which led to an increase in project activities and a boost in In-kind and Project Participant contributions. To date SmartCrete CRC's total in-kind contributions sit 33% below the Commonwealth Agreement target.

Total expenditure (accrual basis) for the financial year is reported at \$5.98m (compared to FY2021-22 at \$6.08m). Research expenditure increased in FY2022-23 due to the increased projects activities during the reporting period, whilst overhead expenditure has reduced significantly.

Contributions from the Commonwealth and Participants have been recognised in the Statement of Profit or Loss in accordance with the Commonwealth Agreement and applicable Australian Accounting Standards. Appointed external auditors, LBW conducted the end of financial year audit of the accounts in line with Australian Accounting Standards, International Financial Reporting Standards and Interpretations and Commonwealth Guidelines where applicable. At the conclusion of the audit process, no audit issues were found, and no adjustments were required.



Partners

SmartCrete CRC connects industry, research and government partners to collaborate, share knowledge and resources and transition concrete for a sustainable Australia. In FY2022-23, SmartCrete CRC's partners (core and affiliated) included:

Core



Industry and Government





Research



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