

2019-2020 YEAR IN REVIEW

KEY NUMBERS

31

end-user Participants and Affiliates (increased from 23 at June 2019), including mining companies, drilling equipment and service providers, exploration service providers and geological survey organisations.

7

research organisation Participants.

40

full time equivalent researchers (increased from 13.6 at June 2019) engaged in.

12

laboratory, workshop and field intensive research projects (increased by 3 from June 2019).

20

Higher Degree by Research students (increased from 9 in June 2019) aligned with research projects and with end-user supervision.

0

reportable WHSE incidents.

8/8

Commonwealth
Milestones achieved.

138/139

Project Milestones achieved.

7% AHEAD

of cumulative research
targets at mid-point of
Phase 1 project
agreements.



RESEARCH FOCUS

MinEx CRC remains focussed on delivering 1) safer, more efficient, environmentally friendly drilling technologies, 2) in-field sensing and data science to enable informed decisions while drilling and 3) pre-competitive geoscience data to de-risk exploration in frontier mineral provinces, delivered by the National Drilling Initiative.

RESEARCH MANAGEMENT

3 New projects commenced;

- Hydraulic Processing System (HPS) for CT drilling,
- Centrifuge Optimisation for fluid management,
- HPS accelerator and fines sampling.

Designed to bring CT drilling to the National Drilling Initiative in 2021.

RESEARCH ENGAGEMENT

4 industry Partners were involved in field trials of MinEx CRC technology including:

- iDrill drill rig recording system trialled on a **McKay Drilling** rig whilst operating in the Pilbara.
- Optic fibre distributed acoustic sensing (DAS) surface and borehole seismic survey conducted at **Anglo-American** coal mine in Queensland.
- Surface DAS seismic survey conducted over hyper-saline lake in WA in collaboration with **HiSeis** and **Matsa Resources**.

4 industry Partners contributed proprietary technology to MinEx CRC research projects:

- A drill rig provided in-kind by **Sandvik** will be a key component of the Curtin University experimental laboratory drilling platform "Arnie", which will be commissioned in early-2021.
- An experimental centrifuge, for inclusion in the Hydraulic Processing System, has been provided at a discounted rate by **Alfa Laval**.
- Designs are complete for a selective interval coring system for CT drilling based on a modified core barrel provided in-kind by **EPIROC**.
- A downhole positioning module provided in-kind by **Wassara** has been integrated into the beta version of the MinEx CRC 'smart' bottom hole assembly for CT drilling.

5 Geological survey organisations contributed **13.9 FTE** in preparation for National Drilling Initiative drilling campaigns, in the Northern Territory (to commence in Q3 2020), Western Australia and South Australia (2021), New South Wales and Victoria (2022).



ADVANCING TECHNOLOGY

3 GB of multi-parameter drilling data recorded by iDrill system over 360m of operational RC drilling in the Pilbara.

Commissioning of Dynamic Loop experimental facility able to simulate complex fluid and cuttings behaviour in boreholes up to **500m** deep.

Engineering calculations and designs for a CT rig with **1000m** reach are complete. Rig refurbishment is due for completion in the second half of 2020.

Downhole laser induced breakdown spectrometer (LIBS) prototype has passed its first "fast fail" trials, where it was able to characterise and differentiate rock types at **< 1 cm** resolution whilst moving past the target at speeds comparable to drilling ROP.

Built and tested a prototype **25 mm** diameter total counts gamma (TCG) logging-while-drilling sensor to fit within specifications of CT bottom hole assembly.

Combined borehole and surface optic fibre DAS seismic survey clearly imaged coal seams at **380m** depth in area where near-surface basalts hamper surface seismic techniques.

Built 3D model of the entire Hamersley Basin by stitching **24** one-degree models built from GSWA surface mapping and constrained by GSWA drilling database.

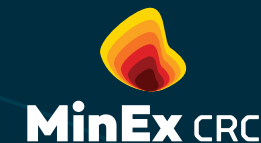
116 continent-scale map layers accessible via the NDI web portal, including borehole data, geology, geochemistry, geophysics, remote sensing, 3D models and inversions, cadastral and tenement information, mineral potential models.

Alteration in the covered East Tennant NDI campaign area constrained to **1850Ma**, comparable to the age of mineralisation in the Tennant Creek Inlier.

New data used to update prospectivity analysis of the East Tennant NDI area and prioritise **10** drill targets for the upcoming NDI campaign.

COMMUNICATIONS

- MinEx CRC's first Annual Conference: 'Frontier Exploration' was held 12-14 November 2019 in Perth, WA.
- 175 delegates attended the conference (66 % from industry/end-user organisations and 34 % from research organisations).
- 85% of Participant organisations and 52% of Affiliate organisations were represented.
- Project Integration Workshop held 29 April 2020 with 66 attendees.
- Eleven videos published on MinEx CRC TV.
- ~6,000 visitors and ~31,000 page views on the MinEx CRC website
- 122 press articles generated.



175

Annual Conference attendees

6K+

website visitors

122

media hits

11

videos on MinEx CRC TV

HEAD OFFICE AND STAFF

- Caroline Tiddy (University of South Australia), Education and Training Program Coordinator was nominated for a Women in Innovation Award, September 2019.
- MinEx CRC has lean management, with 4 full time equivalent head office staff based at two locations, the ARRC in Perth and UniSA in Adelaide.
- Masood Mostofi (Curtin University) Project 1 Leader and the Curtin Drilling Mechanics team were recipients of the Curtin University 2019 Emerging Research Team Award.



Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Programme

REVENUE & EXPENDITURE (\$'000)

Revenue	FY20	FY19
Commonwealth Funding	6,597.0	2,729.5
Participant Contributions	4,811.8	12,067.5
Affiliates Contributions	285.0	150.0
DET CRC Unspent Participant Contributions	-	113.6
Non-financial asset acquired for Nil Consideration	850.0	-
Interest Income	300.5	124.0
Other Income	122.2	30.8
Total Revenue	12,966.5	15,215.4

Expenditure	FY20	FY19
Research Program Expenditure		
- Program 1	2,121.4	486.1
- Program 2	1,524.6	544.8
- Program 3	1,859.8	653.5
- Opportunity Fund & Other Projects	-	-
Total Research Program Expenditure	5,505.8	1,684.4

Education & Training	384.5	200.0
Management Expenses	492.3	503.8
Salaries & Wages (incl Directors Fees)	996.9	1,005.3
Total Expenditure	1,873.7	1,709.1

Restricted Surplus/(Deficit)	5,587.0	11,821.9
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Majors, METS and Survey Participants



Research Participants and Affiliates

