

MinEx CRC Annual Report

**1 July 2018 –
30 June 2019**

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2.1 Written Annual Report

2.1.1 Executive Summary

The concept of a new mineral exploration CRC commenced in 2016 and resulted in a wide range of projects and significant industry, METS and research support over the following two years. The formation process culminated the official commencement of MinEx CRC Ltd on 12 April 2018.

The first year has been successful and extremely productive, with the Federal Government requirements for set-up of operations in the first six months met and the involvement of 37 participants. December 2018 also saw the expansion of the board to seven members and a finalised constitution adopted by the Members of the MinEx CRC Ltd.

The activities of MinEx CRC are now being undertaken safely and efficiently by four Full-Time Equivalent (FTE) Employees and some 74 researchers. The research is being conducted in conjunction with our eight research partner facilities and with significant support, cooperation and input from all our 16 Mining, Industry and Geological Survey Participants, as well as the 12 Affiliate organisations.

All nine proposed projects commenced in January 2019, with the 75 signatories of the underlying agreements being compiled by June 2019. The process involved the finalisation of Project structures, staffing and milestones (annual and quarterly) for the 3-year Phase 1 research Projects. Project Review Panels (PRP) are in place to review the projects and achievements and have held their first reviews, with each PRP having an industry Chair in place. All nine projects are reported as tracking satisfactorily and potential risks have been identified and mitigated.

MinEx CRC achieved the single Commonwealth Milestone due in the reporting period and the cumulative progress against all Phase 1 Project milestones is 7% ahead of target. In addition, the financial standing of MinEx is robust.

The MinEx postgraduate and education component has also commenced strongly with nine PhD students enrolled in the first year, and we are on track for our target of 60 postgraduate student commencements during the 10-year life of the CRC. In addition, a strategy and timeline for Vocational Education and Training (VET) activities and engagement with appropriate development and delivery organisations has been developed.

Communications has been strongly emphasised in the first year, with two launch events held, one in Perth and one in Adelaide to reflect our dual-headquartered status. In addition, a board strategy workshop and a cultural workshop were held. Communication is also undertaken via the MinEx website and through LinkedIn and Twitter. A MinEx Corporate Brochure and Postgraduate Booklet and videos and content on a YouTube channel is active.

Research is ongoing and continued support from all our participants and the Federal Government will see MinEx not only achieve but exceed its ambitious programs, including research, education and ultimately commercialisation.

Andrew Bailey
Chief Executive Officer

2.1.1.1 Achievements

The following summarises key achievements of MinEx CRC in the year 1 July 2018 — 30 June 2019.

Governance

- The Commonwealth Agreement for MinEx CRC was signed on 24 September 2018. A variation to this agreement was signed on 3 May 2019.
- The Participants Agreement was signed on 17 December 2018.
- The first Annual General Meeting was held on 10 July 2018.
- An Extraordinary General Meeting was held on 4 December 2018. The members ratified the appointment of RSM Australia Partners as auditors of the Company.
- The Company has 15 members, 12 of these are Participants in the CRC and 3 Directors are members (Andrew Bailey, Chris Pigram and Erica Smyth).
- Initially, three members were appointed to the Board on 12 April 2018. Chris Pigram was appointed as Chair, and Erica Smyth and Andrew Bailey appointed as Directors. The remaining directors, John Emerson, Lindsay Gilligan, Kelly Keates, Linda Kristjanson and Peter Rossdeutscher were appointed on 4 December 2018.
- On 28 March 2019 the company received notification from the Australian Charities and Not-for-profits Commission (ACNC) of its charitable status effective from the date of incorporation. As the company is a charitable institution in terms of subsection 50-5 of the Income Tax Assessment Act 1997, as amended, it is exempt from paying income tax.

Head Office and Staff

- Andrew Bailey was appointed as interim CEO on 12 April 2018; this position was then endorsed as permanent by the Board of Directors effective 1 April 2019.
- MinEx CRC Finance Manager (Part-time) Michael McGilvray was appointed on 23 April 2018.
- MinEx CRC Assistant Finance Manager (Part-time) Denise Worthington was appointed on 7 May 2018.
- MinEx CRC Communications Manager Anna Porter was appointed on 18 July 2018.
- MinEx CRC Executive Assistant (Part-time) Dianne McGilvray was appointed on 4 February 2019.
- The MinEx CRC moved into their WA based Head Office at the Australian Resources Research Centre. A joint facility shared by CSIRO, Curtin University, Natural Resources and Energy Australia, University of WA, National Geosequestrian Laboratory and the Pawsey Supercomputer Centre.
- The SA based headquarters of MinEx CRC is based at the Future Industries Institute, University of South Australia.

Participants and Affiliates

- MinEx CRC currently has 16 Major Mining, Mining Equipment and Technology Services (METS) and Geological Survey Participants.
- MinEx CRC currently has 7 Research Participants and 12 Affiliates.

Education and Training

- Strategies for attraction and support for MinEx CRC postgraduate students have been developed, including a Postgraduate Education Business Plan.
- As of 30 June 2019, MinEx CRC had nine PhD students enrolled and is on track for its target of 60 postgraduate student commencements for 50 completions during the 10-year life of the CRC. All postgraduate Projects are signed off by a MinEx CRC Project Leader, Program Leader, Industry co-supervisor and the Chief Scientific Officer to ensure alignment with MinEx CRC goals.
- A strategy and timeline for VET activities and engagement of appropriate development and delivery organisations has been developed.

Research Management

- There was extensive consultation with MinEx CRC Participants and Affiliates in the second half of 2018 leading to the finalisation of Project structures, staffing and milestones (annual and quarterly) for the 3-year Phase 1 research Projects.
- All Phase 1 research Projects, as outlined in the MinEx CRC Stage 2 bid documents, commenced at 1 January 2019 with the final execution of all Project Agreements by the end-of-financial year 2018-2019. Phase 1 Project agreements cover calendar years 2019-2021 inclusive.
- Projects 8 and 9 in the stage 2 bid document were combined to form Project 8, and Project 10 was re-named Project 9.
- Project commencement meetings were held for all Projects during Quarter 2, 2019.
- Terms of reference were established for the Project Review Panels (Projects 1 – 6), and the NDI Program Review Panel (Projects 7 – 9) and first meetings were scheduled for July 2019.
- Terms of reference were established for the Science Advisory Committee (SAC), and the first meeting of the SAC was scheduled for 13 August 2019.
- MinEx CRC achieved the single Commonwealth Milestone due in the reporting period and 27 of 37 quarterly Project milestones. The ten milestones that were behind schedule at 30 June 2019 were 73% complete on average, with the expectation and plan that these milestones will be completed within the second half of 2019. We were ahead of schedule on 14 milestones. Cumulative progress against all Phase 1 Project milestones was 7% ahead of target.

Communications

- MinEx CRC held two launch events: A soft launch was held in Perth, WA on Friday 12 October 2018, the Official Launch by Hon Dan van Holst Pellekaan MP, Minister for Energy and Resources was held on Monday 15 October 2018 in Adelaide.
- A Cultural Workshop facilitated by Adelaide Based 'Think One Team' was held on Wednesday 5 September for all Researchers and Sponsors. The purpose of this workshop was to cover a broad range of issues including the timing of events, nature of activities and working culture.
- A new MinEx CRC website was built and launched in August 2018.
- MinEx CRC social media channels via LinkedIn and Twitter have been established.
- Promotional tools such as the Corporate Brochure and Postgraduate Booklet were created.
- 'What is a CRC?' video produced in conjunction with the CRC Association.
- A YouTube channel has been established and consists of four individual playlists:
 - Corporate (general corporate information)
 - vNews Quarterly Updates (quarterly updates)
 - '60 Seconds With...' (video campaign showcasing researchers and sponsors)
 - NDI Drilling Campaigns (video campaign showcasing NDI drilling Projects)

2.1.1.2 Risks & Impediments

MinEx CRC recognizes that it operates in an uncertain environment in which identification and management of risk and mitigation of impediments are important to our success. Risk management has been built into MinEx CRC structures and reporting requirements from Project to Board level. The Board Audit and Risk Committee provides oversight on risks that may impact MinEx CRC's ability to achieve our vision.

The top 10 areas of risk that may impact on the achievement of outputs or ability to achieve outcomes in MinEx CRC have been identified. The strategies have been adopted to address the risks and take into account the mitigating factors.

2.1.2 Performance Against Activities

2.1.2.1 Research

Performance against activities

MinEx CRC commenced nine research Projects during the financial year 2018-2019. These Projects, and Project management structure, were as outlined in the MinEx CRC Stage 2 proposal submitted in December 2017. Preparation for project commencement, including finalisation of personnel, leadership roles and consultation with Participants to establish quarterly milestones was a significant component of MinEx CRC activity in the second half of 2018. Research activity in all nine Projects commenced on 1 January 2019.

Research

The extent to which the CRC is on target to achieve its research outputs, including strategies in place to address any risks and issues:

Commonwealth Milestones:

There was one Commonwealth milestone due in the reporting period:

RP2.1.1 Due on 30 June 2019: Delivered state-of-the-art review of potential downhole assay techniques and road map for delivering tool within the timeframe of MinEx CRC.

This milestone was achieved with the submission of two internal reports, and available to relevant Participants via download from the MinEx CRC OneDrive SharePoint site. The reports are as follows:

- Tassios, S., Stromberg, J., Uvarova, Y., Francis, N., van der Hoek, B. and Tiddy, C. (2019) Due diligence study – downhole technologies. Interim Technical Report, Project 3: Real-time downhole assay. MinEx CRC Report 2019/001, 22p. (Submitted April 2019).
- Uvarova, Y., Stromberg, J., Tassios, S., Tiddy, C., Francis, N. and van der Hoek, B. (2019) Roadmap – Assay Techniques. Interim Technical Report, Project 3: Real-time downhole assay. MinEx CRC Report 2019/002, 12p. (Submitted June 2019).

Project Milestones:

MinEx CRC achieved 27 of 37 quarterly project milestones due during the reporting period (Table 1). The ten milestones that were behind schedule at 30 June 2019 were 73% complete on average, with the expectation that these milestones will be completed within the second half of 2019. We were ahead of schedule on 14 milestones. Cumulative progress against all Phase 1 project milestones was 7% ahead of target.

Table 1.

PROJECT	MILESTONES DUE	ACHIEVED	BEHIND SCHEDULE	*AV %	AHEAD OF SCHEDULE	^AV %	#PROGRESS
1	5	4	1	60	4	37	122
2	7	7			1	60	109
3	2	2			1	10	105
4	2	1	1	80	3	48	162
5	2	1	1	90	2	30	125
6	4	3	1	75			94
7	2	1	1	85	2	25	117
8	8	5	3	73			90
9	5	3	2	62	1	50	95
TOTAL	37	27	10	73	14	37	107

*Average % completion for milestones behind schedule at 30 June 2019

^Average % completion for milestones ahead of schedule at 30 June 2019

#Progress = Actual progress in all milestones / 30 June 2019 target progress against all milestones

Key research achievements and evidence of the research quality.

Key achievements in the research Projects were largely related to Project commencement and experimental design and are listed below in order of Project number.

Project 1: Drilling Optimisation and Automation

Design of the diamond and RC drill rig recording system (*iDrill*) is complete. This includes identification of the variables, required accuracy and sampling rate for rotary and percussive drilling and selection of sensors and data acquisition systems. The >35 components required to build *iDrill* were ordered in June 2019 in preparation for field trials scheduled for October 2019 in collaboration with MinEx CRC Partner McKay Drilling.

The fluid hydraulic monitoring unit (*iFluid*) was designed, built and commissioned in Q1 2019, and numerous experiments were conducted in Q2. The *iFluid* unit uses an innovative technique to measure drilling fluid hydraulics directly at shear rates up to 6000/s, which is six times larger than indirect and conventional methods. In our first experiments, the unit was connected to flow loop circulating 500 litres of different drilling fluid designs in a BQ annulus geometry at flow rates from 10-60 litre/min. The results indicate that the *iFluid* unit provides consistent and reliable measurement of fluid properties to directly quantify downhole drilling fluid hydraulics. In preparation for field trials, we implemented a new hardware/sensor connection protocol in laboratory experiments with the same specification as future field units. This decision paves the way for the faster transition of *iDrill* and *iFluid* from the laboratory to field trials.

Project 2: Coiled Tube Drilling

We have used 3D printing to fabricate plastic prototypes of the initial design concept for a modular downhole sensing platform for Coiled Tube (CT) drilling. The modular design of the downhole platform allows multiple fit-for-purpose sensors to be added in series to the bottom hole assembly, with connectivity of power supply, communications and drilling fluid flow between modules. The prototypes will allow researchers to experiment and make iterative improvements to internal sensor design, component interactions, connections between modules and integration with the bottom hole assembly prior to manufacturing in the final material. First candidate sensors and circuits for a

downhole positioning tool have been built into the 3D printed prototype, and laboratory testing is underway.

Four technical reports were submitted during the reporting period:

- van der Hoek, B., Fox, S., Soe, S. and Zhang, H.Y. (2019). Sample Integrity to 1000m. Interim Technical Report, Project 2: Coiled Tubing Drilling for the Definition of Mineral Deposits. MinEx CRC Report 2019/003, 40p. (Submitted March 2019).
- van der Hoek, B., Fox, S., Soe, S. and Zhang, H.Y. (2019). Review of sample recovery systems. Interim Technical Report, Project 2: Coiled Tubing Drilling for the Definition of Mineral Deposits. MinEx CRC Report 2019/004, 41p. (Submitted March 2019).
- van der Hoek, B., Fox, S., Addinell, S., Zhang, H.Y. and Soe, S. (2019). Potential techniques to improve sample integrity. Interim Technical Report, Project 2: Coiled Tubing Drilling for the Definition of Mineral Deposits. MinEx CRC Report 2019/005, 29p ppt format. (Submitted June 2019).
- Chen, G., Fox, S., Soe, S., van der Hoek, B. and Addinell, S. (2019). Literature Review – existing Bottom Hole Assembly (BHA) communication and sensing applicable to Coiled Tubing drilling scenarios. Interim Technical Report, Project 2: Coiled Tubing Drilling for the Definition of Mineral Deposits. MinEx CRC Report 2019/006, 50p. (Submitted June 2019).

Project 3: Real-Time Downhole Assay

Design, build and commissioning of the first proof-of-concept experimental prototype for LIBS analyses on a moving surface is complete. The prototype is housed in a refurbished laser laboratory at CSIRO's facilities in Melbourne (Clayton). It includes; a laser-safety enclosure, laser-safe windows through which analyses can be observed while they are being conducted, an HD camera and an XYZ-stage on which rocks and minerals can be mounted for analysis. First experiments are scheduled for Q3 2019.

Three technical reports were submitted during the reporting period:

- Tassios, S., Stromberg, J., Uvarova, Y., Francis, N., van der Hoek, B. and Tiddy, C. (2019). Due diligence study – downhole technologies. Interim Technical Report, Project 3: Real-time downhole assay. MinEx CRC Report 2019/001, 22p. (Submitted April 2019).
- Uvarova, Y., Stromberg, J., Tassios, S., Tiddy, C., Francis, N. and van der Hoek, B. (2019). Roadmap – Assay Techniques. Interim Technical Report, Project 3: Real-time downhole assay. MinEx CRC Report 2019/002, 12p. (Submitted June 2019).
- van der Hoek, B., Tiddy, C., Uvarova, Y., Tassios, S. and Stromberg, J. (2019). Downhole conditions. Interim Technical Report, Project 3: Real-time downhole assay. MinEx CRC Report 2019/007, 14p. (Submitted June 2019).

Project 4: Petrophysical Logging-While-Drilling

We have completed design of a research prototype downhole powerline communication (PLC) device with a baud rate of >100 KB/sec (roughly equivalent to a dial-up modem) suitable for the types of petrophysical data our sensors will collect. The device will be built and tested in Q3 2019. Design of the front-end appearance and user interface for a logging-while-drilling electromagnetic (EM) tool simulator is complete. The software allows researchers to model the response of the EM tool to the drilling environment and formations – feeding into sensor system development and informing the design of the final user interface.

Project 5: Seismic in The Drilling Workflow

We have tested a number of fibre-optic cable designs (single-mode, multi-mode, helically wound, engineered), in-hole deployment options (free-hanging, cemented) and different seismic sources, both active (vibrators, weight drops, shotgun, electromechanical vibrators and sparkers) and passive (earthquakes, ambient noise and drilling noise) for distributed acoustic sensing (DAS) and compared the seismic response to conventional borehole acquisition techniques. The tests were conducted in the 870m deep National Geosequestration Laboratory (NGL) drill hole at Curtin University. The NGL drill hole is well-characterised in terms of rock-types, physical properties and seismic response and is an ideal location to test and calibrate borehole seismic techniques. Our results show that borehole fibre-optic DAS delivers comparable or better imaging than conventional techniques with a higher signal to noise. Best results are achieved when the fibre-optic cable is cemented into the drill hole or (failing that) when using optical fibres that are engineered to give stronger back-scatter properties.

One technical report was submitted during the reporting period:

- Bona, A., Urosevic, M. and Pevzner, R. (2019). Comparison of different designs of fibre-optics cables for borehole seismic applications. Interim Technical Report, Project 5: Seismic in the Drilling Workflow. MinEx CRC Report 2019/009, 9p. (Submitted June 2019)

Project 6: Automated 3D Geologic Modelling

We have secured access to the Geological Survey of Western Australia drilling database which will provide a training dataset for the research Project – the state-scale, many thousands of drill holes and diversity of data inputs make this an ideal dataset for testing drill hole-constrained geological modelling in greenfields exploration areas. We have also started work on developing data extraction tools for the GSWA dataset. The Project has also made good progress in finalising hiring needs and attracting two new high-quality PhD students who have been awarded scholarships by UWA.

Projects 7-9: National Drilling Initiative

Processing of a broadband magnetotellurics (MT) profile across the National Drilling Initiative (NDI) East Tennant Campaign area has been completed. The data were collected as part of Geoscience Australia's in-kind contribution to the NDI. MT is a passive geophysical technique which uses natural variations in the Earth's electric and magnetic fields to measure electrical resistivity in the subsurface. Broadband MT can provide useful information to depths of >50km, to the base of the crust and into the upper mantle. The East Tennant MT survey was planned to map electrical resistivity across crustal-scale features identified in complementary geophysical datasets. The data provide evidence for multiple, steeply-dipping conductive zones which penetrate to mantle depths and connect to the surface along newly-recognised major structures. Similar features are spatially associated with large ore deposits elsewhere (for example at Olympic Dam) and are thought to be an expression of hydrothermal alteration associated with large metallogenic systems. We are using this data to plan the East Tennant drilling campaign, expected to commence in mid-2020, with drill holes designed to target specific geophysical features, test provisional interpretations and provide detailed information for explorers to undertake more effective exploration in the region.

Issues arising:

A delay in shipment of the Sandvik drilling rig, supplied in-kind by Sandvik to Project 1 and originally due to arrive in Perth in Q1 2019, has resulted in delayed completion of the Project 1 milestone "Complete the design of laboratory drilling for percussive and rotary drilling experiments." Delivery of the rig is now expected in Q4 2019. Completion of the delayed milestone will only be possible once the rig has arrived.

Level of industry involvement and evidence the research is meeting the industry's needs:

Industry involvement during the second half of 2018 was strong and was critical to drafting Project Agreements, setting quarterly and annual milestones and establishing ongoing processes of consultation and reporting. Each MinEx CRC Project manages relationships between research Projects and industry/government Participants through a Project Review Panel (PRP), with a Chair appointed from the industry/government Participants group. Terms of reference, membership and inaugural Chairs of the PRPs were established during Q2 2019, and first formal meetings took place after completion of the quarter (in July 2019).

In parallel and supporting the PRP, industry/government Participants are invited and regularly attend weekly or fortnightly Project meetings, monthly program meetings and ad hoc meetings tied to specific challenges or opportunities. MinEx CRC personnel made visits to South America, North America and Scandinavia to ensure face-to-face engagement with industry Participants outside Australia including:

- CSO (David Giles) visited Participant Geotec Boyles in Santiago in October 2018.
- CEO (Andrew Bailey), CSO, Program 1 Leader (Soren Soe) and Communications Manager (Anna Porter) attended the Prospectors and Developers Association of Canada (PDAC) conference in March 2019. MinEx CRC shared booth space with Participants Geoscience Australia, Geological Survey of New South Wales, Geological Survey of South Australia, Geological Survey of Western Australia and CSIRO and met with Participants Anglo American, BHP, South 32, Barrick, Imdex Limited and Olympus as well as numerous Affiliates.
- CEO and Program 1 Leader visited Participants Sandvik, EPIROC and LKAB Wassara in May-June 2019.

Industry participation in research activities during first half of 2019 included:

- Geological Survey Organisation (GSO) Participants have been highly engaged in Program 3 National Drilling Initiative (NDI), contributing 8 FTE per annum in-kind toward the research effort.
- Significant in-kind research contributions by the GSOs toward the NDI during the reporting period have included:
 - Processing and interpretation of new seismic, airborne EM and gravity data from the Tennant Creek – Mt Isa (TISA) NDI area, Northern Territory and northwest Queensland, by Geoscience Australia.
 - Collection and processing of a regional magnetotelluric survey in the East Tennant NDI campaign area, Northern Territory, by Geoscience Australia.
 - New isotope geochemistry, including U-PB zircon and monazite geochronology, conducted on samples from East Tennant by Geoscience Australia.
 - Detailed planning (drill hole targeting, drill planning) for the East Tennant and South Nicholson drilling campaign areas by Geoscience Australia.
 - Processing and interpretation of the Kidson reflection seismic survey from the Gap NDI area, WA, by Geoscience Australia and the Geological Survey of Western Australia.
 - Synthesis and interpretation of existing drill hole, geophysical and geochemical data from the Gap by the Geological Survey of Western Australia.
 - Synthesis and interpretation of existing drill hole, geophysical and geochemical data from the Cobar North and Cobar South NDI campaign areas by the Geological Survey of New South Wales.
 - Drill hole planning for the Cobar North and Cobar South drilling campaigns by the Geological Survey of New South Wales.
 - Data compilation and assessment of the Delamerian NDI campaign area by the Geological Survey of South Australia.

- Imdex Limited have developed a plan to include technology *MUD AID™* in *iFluid* optimisation system.
- McKay Drilling has finalised technical details and logistics of first *iDrill* field trials, involving instrumentation of a McKay drill rig and acquisition of data during an active drilling program in the Pilbara region of WA. The customised McKay rig will have advanced, and programmable automation controls compatible with the Project 1 sensor systems. The trials are scheduled to take place in October 2019.
- Anglo American have been working with the Project 5 team finalising plans for the first field trial of optical fibre distributed acoustic sensing (DAS) for Project 5, in drill holes at an Anglo American mine site in central Queensland, scheduled for October 2019.

Changes proposed to future research directions and the reasons for the changes:

There were no changes to the planned research direction during the reporting period.

Quality of researcher contributions evidenced by publication in refereed journals:

At end-June 2019 MinEx CRC Projects had only been active for six months. With the usual delays between conduct of research and publication of results there were no papers published with MinEx CRC attribution during the reporting period.

However, MinEx CRC researchers were active publishers during the reporting period, and those publications are a useful indicator of the quality of ongoing work and its relevance to MinEx CRC. A list of publications including papers that; a) were published between July 2018 and June 2019 inclusive, b) are relevant to MinEx CRC in terms of research themes, techniques or geography, and c) have not been attributed to a like research grouping (e.g. another CRC). MinEx CRC researchers are highlighted and underlined in the author lists is included as Appendix A.

2.1.2.2 Commercialisation

Following successful drilling trials in Nevada, Barrick Gold has terminated their Commercialisation Licence Agreement for the RoXplorer® Coil Tube drill rig. The rights to the CT Rig have now reverted to MinEx CRC.

2.1.2.3 Education and Training

The extent to which the CRC is on target to achieve its Education / Training outputs and the strategies in place to address any issues.

MinEx CRC's key education goals are to assist in the training of 200 VET students in specific aspects of drilling and mineral exploration fields and an ambitious target to produce 50 postgraduate completions. MinEx CRC is making significant progress in both areas.

Activity within the space of VET training has been planned by the MinEx CRC Education and Training and Executive Management Committees within this reporting period. A strategy and timeline for engagement of appropriate organisation(s) has been developed. Potential partnering organisations have been identified, including Registered Training Organisations and TAFE.

As of 30 June 2019, MinEx CRC had 9 PhD students enrolled (Student Register attached as Appendix B). The MinEx CRC education goal of 50 completions is recognized as a high target in an environment where there is strong demand from industry for graduates with expertise in mineral exploration. Therefore, there has been considerable planning by the MinEx CRC Education and Training Committee to support and attract postgraduate students. The MinEx CRC Education and Training Committee has developed a Postgraduate Education Business Plan to support postgraduate students (attached as Appendix C). A key component of this plan is the student pipeline, which tracks enrolments towards MinEx CRC's target of 50 completions (refer to Appendix C). A process for supporting university Honours Projects focused on MinEx CRC research has been developed to encourage high-quality students to engage with MinEx CRC Projects as early as possible within the research studies and undergraduate degree with the intention of attracting these students to undertaking postgraduate research within MinEx CRC.

Details of the Education / Training activities conducted during the reporting period.

The following documents were developed to establish MinEx CRC Education and Training strategy and protocol:

- Business Plan
- Budget
- Committee Responsibilities and Initial Membership plan
- Student pipeline
- Postgraduate Project Approval process
- Student Commencement process
- Process and database for student registration
- Honours Project support plan (draft)

A booklet detailing postgraduate Projects across MinEx CRC was developed for use in attracting students to the CRC program. This booklet will be updated on an annual basis and is included as Appendix D.

Nine new MinEx CRC PhD students were registered within the reporting period. New Projects are being developed, and enrolments sought.

An action plan for VET training activities has been developed by the MinEx CRC Education and Training and Executive Management Committees within this reporting period. This plan includes a strategy and timeline for engagement of appropriate organisation(s) that can develop and deliver VET training activities (e.g. Registered Training Organisations, TAFE).

Evidence of the level of student involvement in the CRC's activities.

The approval process for MinEx CRC postgraduate students to be registered as CRC students requires sign off on the Project topic by a MinEx CRC Project Leader, Program Leader, Industry Co-supervisor(s), Education and Training Committee Coordinator and the Chief Scientific Officer. This ensures all Projects are tightly integrated with MinEx CRC's research, which is fundamental in ensuring student involvement with CRC Activities.

Evidence of the level of involvement of end-users in developing and conducting Education / Training activities, including the supervision of postgraduate students.

End-users are directly involved in the development of MinEx CRC postgraduate Projects. All MinEx CRC postgraduate Projects require approval before they can be assigned to a student. This process requires sign off from a MinEx CRC Participant or Affiliate industry representative and with whom the Project aims and objectives have been co-developed with academic supervisors. All MinEx CRC students are required to have a MinEx CRC Participant or Affiliate industry co-supervisor listed as part of their Project prior to being registered as a MinEx CRC student.

Development of the MinEx CRC VET training program is in the early stages. No end-users were directly engaged in this process within the reporting period.

Support structures for postgraduate students, including the opportunities for interaction between students working in different parts of the CRC.

All MinEx CRC postgraduate students receive a \$20,000 per annum bursary for three years from MinEx CRC. The manner that this funding is disbursed is dependent on the needs of individual students and their Projects (e.g. whether the student also holds an external scholarship) and may be applied to scholarship support and/or scholarship top-up and/or Project funding.

Postgraduate students are required to attend the MinEx CRC Annual Conference and will be given the opportunity to present. Workshops targeted at MinEx CRC postgraduate students will be held in conjunction with the Annual Conference. Attendance at the MinEx CRC Annual Conference is financed through the MinEx CRC student postgraduate bursary as well as funding from the Education and Training budget for travelling students so that students are able to attend and interact with other MinEx CRC students.

Students are invited to attend MinEx CRC Program/Project workshops held through the year. In this reporting period, four students attended the TISA and Delamerian workshops held in Adelaide on the 4-5 June.

Graduate destinations

Not applicable. No graduates during the reporting period.

Evidence that the Education / Training activities are meeting the needs of end-users

MinEx CRC postgraduate students are directly engaged with research Projects that are of industry relevance, as evidenced by each student having an Industry co-supervisor.

2.1.2.4 Intellectual Property (IP) Management

The following principles are applied in MinEx CRC under the guidance of a board sub-committee:

- IP resulting from MinEx CRC research will be legally owned by MinEx CRC and beneficially owned according to Project shares defined in individual Project Agreements for Projects 1 to 5. Project 6 IP is legally and beneficially owned by MinEx CRC due to open-source software being developed.
- IP will be licensed to the existing METS supplier sector.
- IP is to be diffused into the METS supplier sector as rapidly as possible as enhanced technology and/or services to mining companies, with the mining companies who sponsor MinEx CRC having first right of access.
- The METS supplier sponsoring each major Project will have the first right to submit a commercialisation plan regarding IP developed by that Project.

A list of Registered IP (patents, trademarks, designs) held by MinEx CRC is included as Appendix E.

2.1.2.5 Collaboration

A key goal of MinEx CRC is to develop a research community of the size, scale and skills capable of delivering on the MinEx CRC vision. This will require a high level of collaboration between the Participant research institutes, government survey organisations (GSOs), mining companies and METS companies. Specific efforts to facilitate collaboration include the following.

- MinEx CRC management structures emphasize the role of mining, GSO and METS Participants in shaping the research agenda via two mechanisms:
 - The Science Advisory Committee (SAC) makes recommendations to the Board on the allocation of the Opportunity Fund and provides strategic advice to the Chief Scientific Officer (CSO) to realise the long term-goals of MinEx CRC. The latter role will be particularly important as MinEx CRC makes the transition from Phase 1 to Phase 2 Project agreements in 2021 to 2022. The SAC comprises representatives of each Participant, along with one representative from the pool of GSO Affiliates and one representative from the pool of other Affiliates.
 - Research Projects 1 to 6 each have a Project Review Panel (PRP), and the National Drilling Initiative (including research Projects 7 to 9) has a Program Review Panel (PRP). The PRPs provide strategic direction oversight to a Project, enable regular communication between a Projects Participants and research teams, establish quarterly Project milestones in advance of each year, monitor progress against quarterly and end-of-year Project milestones and ensure the research agenda remains relevant to Project Participants' objectives. The PRP provides a venue in which end-users can advise the Project team on the industry context of the research, including the potential and practicalities of utilisation/commercialisation of the research. In addition, the PRP's will be responsible for establishing protocols for external communications from and between the Projects in order to maintain confidentiality and facilitate effective communication within MinEx CRC. Each PRP has a Chair drawn from the industry, GSO or METS Participants.
- All nine Phase 1 Research Project Agreements, include multiple research Participants and multiple mining companies, METS and/or GSO Participants.
- The MinEx CRC budget includes 16.7 FTE per annum staff in-kind and \$49.15M non-staff in-kind contributions provided by mining, METS and GSO Participants and Affiliates. These contributions are written into Project Agreements and ensure a high level of industry involvement in MinEx CRC research activities as reported in Section 2.1.2.1.

- To ensure regular communication between collaborators, there are fortnightly teleconferences for each research Project and monthly teleconferences for each program. Occasional face-to-face workshops are convened by Project Leaders in consultation with PRP Chairs.
- There are frequent visits between research nodes, especially between the larger nodes in Perth and Adelaide.
- All Higher Degree by Research (HDR) students are required to have a co-supervisor from a mining company, METS or GSO.
- MinEx CRC provides the opportunity for smaller mining companies, METS companies and GSOs to participate via its Affiliate program. Affiliates can be directly involved in research Projects, either as active researchers, contributors of in-kind resources or through utilisation of the outputs, at a lower financial commitment than Participants.
- The National Drilling Initiative (NDI) will provide the opportunity for technology developed within Projects 1 to 6, with the intention of commercialization by MinEx CRC Participants and Affiliates, to be tested in the field. The NDI drill sites will be important venues facilitating collaboration between all MinEx CRC stakeholders.
- Face-to-face meetings between the large and geographically dispersed NDI research team have been essential to establishing the framework for ongoing research, including:
 - NDI Geological Surveys Meeting, Geoscience Australia, Canberra, 20 June 2018
 - NDI Project Planning Meeting, GSSA Core Yard, Adelaide, 6-7 August 2018
 - Program 3 (NDI) Kick-off Meeting, CSIRO and GSWA, Perth, 20-21 February 2019
 - The NDI Data Workshop held at Geoscience Australia, Canberra, on 4-5 April 2019
 - Tenant Creek – Mt Isa (TISER) NDI Meeting, Adelaide, 4 June 2019
 - Delamerian NDI Meeting, Adelaide, 5 June 2019
- MinEx CRC held a Culture Workshop and Dinner on 5 December 2018 in the lead up to the commencement of research Projects in January 2019. The purpose of the workshop to establish a culture of trust and collaboration between Participants.

2.1.2.6 SME Engagement

MinEx CRC's Affiliate program has been designed to maximise engagement with SME's. Technologies and services developed by MinEx CRC will add to the value and export income of Australia's world-leading METS sector by creating new drilling and sensing technologies, determining how the technologies should be best applied and providing training to ensure most effective uptake of the technology and services. The Australian METS sector comprises ~2500 companies, over three-quarters of which are small to medium enterprises (SMEs). The Australian mineral exploration industry is currently ~1/8th of the global market. The remaining ~7/8ths of that market presents a significant growth opportunity for METS sector SMEs offering cheaper and more efficient products and services.

Affiliates, at the cost of \$10K pa, may be:

- METS Suppliers of any size, junior explorers/miners (market capitalization < \$AUD 500 M).
- Geological surveys which are not participants.
- The contribution may qualify for a tax offset under the Australian Government's R&D Tax Incentive Scheme. New Participants may apply to join MinEx CRC but with limitations on the number of METS suppliers per Project.

As of 30 June 2019 MinEx CRC has 12 Affiliate members. A full list can be found in section 2.1.2.8.

2.1.2.7 Communications

The below table below summarises MinEx CRC communications activities. Additional comment on key activities in the table follows.

INTERNAL COMMUNICATIONS	EXTERNAL COMMUNICATIONS
MinEx CRC Soft Launch October 2018 (Perth, WA)	MinEx CRC Soft Launch October 2018 (Perth, WA)
MinEx CRC Official Launch October 2018 (Adelaide, SA)	MinEx CRC Official Launch October 2018 (Adelaide, SA)
Social Media: Twitter	Social Media: Twitter
Social Media: LinkedIn	Social Media: LinkedIn
MinEx CRC Corporate Brochure	MinEx CRC Corporate Brochure
MinEx CRC Postgraduate Booklet	MinEx CRC Postgraduate Booklet
MinEx CRC Postgraduate Flyer	MinEx CRC Postgraduate Flyer
YouTube	YouTube
'What is a CRC?' video	'What is a CRC?' video
Website	Website
Quarterly vNews	Quarterly vNews
Press Releases	Press Releases
Media and Trade Press Articles	Media and Trade Press Articles
Project Summaries	Project Summaries
Board Dinners	Board Dinners
MinEx CRC Pull Up Banners	MinEx CRC Pull Up Banners
Annual Conference	Annual Conference Open Day
Directors' Liaison with Participant Representatives	MinEx CRC Value Proposition Flyer
Chairman's Board Meeting Summaries	Direct Contacts to Potential New Participants
Directors' Liaison with Participant Representatives	External Conference Presentations
OneDrive reporting system	Direct Contacts to Potential New Participants
Internal Technical Reports	
Science Advisory Committee Meetings	

Executive Committee Monthly Teleconferences	
Monthly Teleconferences for Each Program	
Mid-Year Face-to-face Meeting	
Executive Committee Monthly Teleconferences	
Monthly Teleconferences for Each Program	

MinEx CRC held two launch events. A soft launch was held in Perth, WA on Friday 12 October 2018. Speakers included Chris Pigram (MinEx CRC Chairman), Stephen Price, MLC (Member for Forrestfield), Michelle Carey (General Manager - Product Development, IMDEX) and Tony Peacock (CEO CRC Association). The Official MinEx CRC Launch was held in conjunction with the Australian Geoscience Council Convention on Monday 15 October 2018 in Adelaide, SA. The Centre was officially launched by Hon Dan van Holst Pellekaan MP, Minister for Energy and Resources. Additional speakers included Michelle Carey (General Manager - Product Development, IMDEX) and James Johnson (Chief Executive Officer, Geoscience Australia). The official press release for the Official Launch is included as Appendix F. A video of the Official Launch can be viewed via [MinEx CRC's YouTube Channel](#).

On Wednesday 5 December 2018 MinEx CRC facilitated a Cultural Workshop in Adelaide, SA, attended by 75 people. The purpose of the workshop was to cover a broad range of issues including the timing of events, nature of activities and working culture. All researchers, Participants and Affiliates were invited to attend. Workshop activities were facilitated by Adelaide based consulting group 'Think One Team'.

On Thursday 6 December 2018 senior MinEx CRC leadership met with Adelaide based brand and communications agency FULLER for a communication strategy workshop. Attendees included Andrew Bailey (MinEx CRC CEO), Chris Pigram (MinEx CRC Chairman), Erica Smyth (MinEx CRC Board Member), David Giles (MinEx CRC Chief Scientific Officer) and Anna Porter (MinEx CRC Communication Manager). After this workshop, a Communication Strategy was formulated, including KPI's which are monitored. The MinEx CRC Board of Directors endorsed this strategy at their June 2019 meeting.

A MinEx CRC corporate brochure was created titled 'MinEx CRC: A new frontier in mineral exploration' was created and is included as Appendix G.

A MinEx CRC Postgraduate Education booklet was created and is included as Appendix D.

The MinEx CRC website was built and launched in August 2018 and can be found at <https://minexcrc.com.au/>.

Social media channels via LinkedIn and Twitter as follows:

- <https://www.linkedin.com/company/17923289>
- <https://twitter.com/CrcMinex>

A YouTube channel has been established and consists of four individual playlists:

- Corporate (general corporate information);
- vNews Quarterly Updates (quarterly updates);
- '60 Seconds With...' (video campaign showcasing researchers and sponsors); and
- NDI Drilling Campaigns (video campaign showcasing NDI drilling Projects).

In conjunction with the CRC Association, MinEx CRC has released a video titled 'What is a CRC?'. This video is an overview of the CRC Program and has been distributed to fellow CRC's and the Department of Industry, Innovation and Science.

The Board has taken on key responsibilities concerning communications, and dinners precede board meetings with MinEx CRC stakeholders. The first of these Stakeholders Dinners was held in Perth (February 2019). Directors have also each taken on the responsibility of liaising with one or more participant representatives to ensure the lines of communication are kept open with key Industry Participants. The chairman circulates a summary of Board Meetings to participant representatives, Program Leaders and Project Leaders.

The web-based 'OneDrive' system is being used for Project reporting, and all Projects report quarterly into OneDrive against internal quarterly milestones. Quarterly reports are written by Project Leaders and checked and commented upon sequentially by:

- Program Leader;
- Chair of the Project Review Panel (end-user); and
- CEO.

Key external written communications in newspapers and trade press regarding the CRC overall during the reporting period were:

- Australian Resources and Investment Magazine (September 2018);
- Adelaide Advertiser, (October 2018);
- Australian Mining Review (October 2018);
- www.miningmonthly.com (October 2018);
- www.miningnews.net (October 2018);
- National Resources Review (October 2018); and
- Paydirt (May 2019).

Project summaries (1-2 pages) have been prepared and provide condensed, public domain information for each Project.

Key external oral communications at conferences regarding the CRC overall (as opposed to technical conference papers on specific research outcomes) were made at the following conferences during the reporting period:

- AGCC, Adelaide (October 2018);
- Mining and Exploration, Chile (October 2018);
- UN NTBTO, Vienna (December 2018);
- Future of Mining Conference, Sydney, (February 2019);
- Science in the Surveys, Maitland NSW (February 2019);
- PDAC, Toronto (March 2019);
- Collaborate, Innovate (May 2019); and
- Copper to the World, Adelaide (June 2019).

MinEx CRC exhibited at the PDAC Convention in Toronto (March 2019). PDAC is the world's premier mining and mineral exploration conference and exhibition, attended by over 30,000 delegates. Andrew Bailey (MinEx CRC CEO) presented at the Australian Minerals Showcase and spoke at the Australian Pavilion Cocktail Event. The MinEx CRC booth attracted a stream of visitors and provided an opportunity to meet with many other current and potential future Participants and Affiliates.

2.1.2.8 Participants and Third Parties

List of Participants during the reporting period

PARTICIPANT'S NAME	ABN OR ACN	ORGANISATION TYPE
Anglo American Services (UK) Limited	N/A (International)	Industry
Australian National University	52 234 063 906	Research
Barrick Gold Corporation	N/A (International)	Industry
BHP Billiton Iron Ore Pty Ltd	46 008 700 981	Industry
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	41 687 119 230	Research
Curtin University	99 143 842 569	Research
Epiroc Rock Drills AB	N/A (International)	Industry
Geological Survey of New South Wales	38 755 709 681	Government Body
Geological Survey of South Australia	83 768 683 934	Government Body
Geological Survey of Western Australia	69 410 335 356	Government Body
Geoscience Australia	80 091 799 039	Government Body
Geotec Boyles Bros SA	N/A (International)	Industry
HiSeis Pty Ltd	83 136 507 429	Industry
Imdex Ltd	78 008 947 813	Industry
LKAB Wassara AB	N/A (International)	Industry
McKay Drilling Pty Ltd	21 009 392 625	Industry
Micromine Pty Ltd	52 000 047 745	Industry
Minerals Research Institute of Western Australia	86 779 457 072	Government Body
Olympus Scientific Solutions Americas Corps	N/A (International)	Industry
Sandvik Mining and Construction Oy	N/A (International)	Industry
South32 Ltd	74 601 343 202	Industry
The University of Adelaide	61 249 878 937	Research
University of Newcastle	52 234 063 906	Research
University of South Australia	37 191 313 308	Research
University of Western Australia	37 882 817 280	Research

List of Affiliates during the reporting period

AFFILIATE'S NAME	ABN OR ACN	ORGANISATION TYPE
Datacode	N/A (International)	Industry
Geological Survey of Queensland	59 020 847 551	Government Body
Geological Survey of Victoria	83 295 188 244	Government Body
Major Drilling Pty Ltd	46 001 393 139	Industry
Minalyze AB	N/A (International)	Industry
Mineral Resources Tasmania	36 388 980 563	Government Body
Minotaur Exploration Ltd	35 108 483 601	Industry
Northern Territory Geological Survey	84 085 734 992	Government Body
Snowden Mining Industry Consultants Pty Ltd	99 085 319 562	Industry
Strategic Energy Resources Ltd	14 051 212 429	Industry
Southern Geoscience Consultants Pty Ltd	69 067 552 461	Industry
University of New South Wales	57 195 873 179	Research

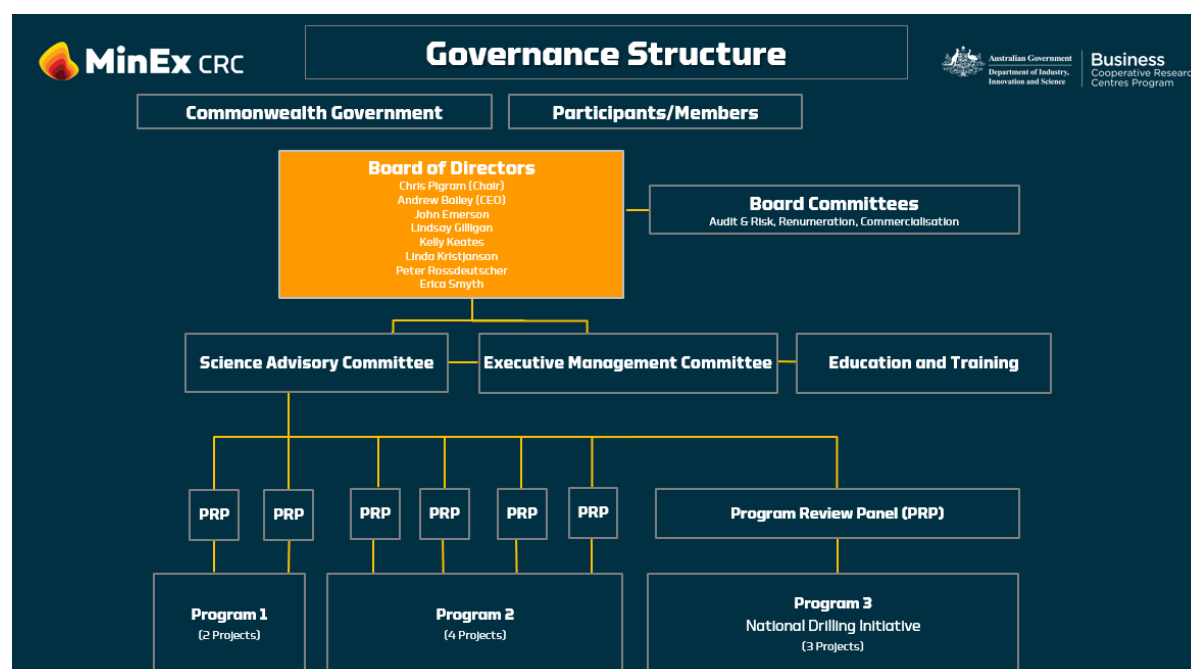
2.1.2.9 Governance – Board, Committees and Key Staff

MinEx CRC Ltd was incorporated in April 2018 to carry out the activities of the Mineral Exploration Cooperative Research Centre. MinEx CRC is a company limited by guarantee, with Participants in the CRC eligible to become company members.

MinEx CRC Ltd is a registered charity and operates under The Australian Charities and Not-for-profits Commission (ACNC) regulatory regime and is governed by an independent skills-based Board and Chair. The Board are accountable to a number of stakeholders, including the Australian Government through the Commonwealth Agreement, our participants through the respective Participants Agreement and Affiliates Agreements, and our Members through the Constitution. In addition to monitoring the performance of the MinEx CRC, the Board plays an important role in the approval and regular review of MinEx CRC funded Projects to ensure that research is aligned with its objectives.

The roles, responsibilities, delegations and authorities of the Board, the respective committees of the Board and of Management are defined in the MinEx CRC Corporate Governance Manual, which is a key corporate governance reference of the Company. A key component of the governance structure are Board Committees, all of which are directed by their own Committee Charters/Terms of Reference. These Board Committees are the Risk and Audit Committee, Remuneration and Nomination Committee (R&NC) and the Commercialisation Committee whose representatives are elected by the Board. The R&NC has been established to identify suitable candidates for nomination and appointment as Directors as the need arises.

The MinEx CRC's governance framework has been set up to ensure transparent accountability to all Stakeholders.



The governance structure of MinEx CRC.

MinEx CRC Directors



Andrew Bailey



Chris Pigram



Erica Smyth



John Emerson
(Deceased)



Kelly Keates



Lindsay Gilligan



Linda Kristjanson



Peter Rossdeutscher

Board Members as at 30 June 2019

NAME	ROLE	KEY SKILLS	INDEPENDENT/ ORGANISATION	ELIGIBLE	ATTENDED
Chris Pigram	Chairman	Geology & Research, Governance	Independent	5	5
John Emerson	Director	Mining & Exploration	Independent	3	3
Kelly Keates	Director	Geophysics & SMEs	Independent	3	3
Lindsay Gilligan	Director	Government Agencies	Independent	3	3
Linda Kristjanson	Director	Research, Education & Training, Governance	Independent	3	3
Peter Rossdeutscher	Director	Commercialisation, Governance	Independent	3	2
Erica Smyth	Director	Mining & Exploration, Governance	Independent	5	5
Andrew Bailey	CEO	Geology, Exploration, Research	MinEx CRC	5	5

Board Meetings held during 2018-2019:

- 10 July 2018, Melbourne
- 21 August 2018, Perth
- 4 December 2018, Adelaide
- 13 February 2019, Canberra, and
- 12 June 2019, Perth.

Committee Members as at 30 June 2019

COMMITTEE NAME	RISK AND AUDIT COMMITTEE		
NAME	ROLE	KEY SKILLS	INDEPENDENT/ ORGANISATION
Linda Kristjanson	Chair	Research, Education & Training	Independent
Lindsay Gilligan	Member	Government Agencies	Independent
Erica Smyth	Member	Mining & Exploration	Independent

Risk and Audit Committee Meetings held during 2018-2019:

- 11 June 2019, Perth.

COMMITTEE NAME			
REMUNERATION AND NOMINATION COMMITTEE			
NAME	ROLE	KEY SKILLS	INDEPENDENT/ ORGANISATION
Chris Pigram	Chair	Geology & Research	Independent
Lindsay Gilligan	Member	Government Agencies	Independent
Kelly Keates	Member	Geophysics & SMEs	Independent

Remuneration and Nomination Committee Meetings held during 2018-2019:

- 29th March 2019.

COMMITTEE NAME			
Education and Training Committee			
NAME	ROLE	KEY SKILLS	INDEPENDENT/ ORGANISATION
Caroline Tiddy	Chair	Geology, Research & Education	University of SA
Stijn Glorie	Member	Geology, thermochronology	University of Adelaide
Alistair Hack	Member	Mineral systems science	Newcastle University
Masood Mostofi	Member	Drilling Engineering	Curtin University
Mark Jessell	Member	Project 6 Leader	University of WA
David Giles	Member	Chief Scientific Officer	MinEx CRC
Soren Soe	Member	Program 1 Leader	University of SA
Yulia Uvarova	Member	Program 2 Leader	CSIRO
Anthony Budd	Member	Program 3 Leader	Geoscience Australia

Education and Training Committee Meetings held during 2018-2019:

- 8 February 2019, Telecon, and
- 10 May 2019, Telecon.

COMMITTEE NAME			
Executive Management Committee			
NAME	ROLE	KEY SKILLS	INDEPENDENT/ ORGANISATION
Andrew Bailey	Chair	MinEx CRC CEO	MinEx CRC
Michael McGilvray	Member	MinEx CRC Finance Manager	MinEx CRC
David Giles	Member	Chief Scientific Officer	MinEX CRC
Soren Soe	Member	Program 1 Leader, Engineering	University of SA
Yulia Uvarova	Member	Program 2 Leader	CSIRO
Anthony Budd	Member	Program 3 Leader	Geoscience Australia
Caroline Tiddy	Member	Geology, Research & Education	University of SA
Anna Porter	Member	Communications Manager	MinEX CRC

Executive Management Committee Meetings held during 2018-2019:

- 25 January 2019, Telecon
- 25 February 2019, Telecon
- 21 March 2019, Telecon
- 29 April 2019, Telecon
- 27 May 2019, Telecon, and
- 21 June 2019, Telecon.

Key Staff

NAME	ORGANISATION	CRC POSITION/ROLE	TIME COMMITTED
Andrew Bailey	MinEx CRC	CEO	100%
Anna Porter	MinEX CRC	Communications Manager	100%
Michael McGilvray	MinEx CRC	Finance Manager, Company Sec.	50%
Denise Worthington	MinEx CRC	Asst Finance Manager	60%
Dianne McGilvray	MinEx CRC	Executive Assistant	50%
David Giles	University of SA	Chief Scientific Officer	60%
Soren Soe	University of SA	Program 1 Leader	100%
Yulia Uvarova	CSIRO	Program 2 Leader	100%
Anthony Budd	Geoscience Australia	Program 3 Leader	100%

2.1.2.10 Financial Management

MinEx CRC commenced operations on 12 April 2018. The financial tables provided below are based on the financial performance from this date to 30 June 2019.

Table 1	Revenue and Expenditure
Table 2	Statement of Financial Position
Table 3	Cash Report, including comparison to Commonwealth Agreement budget.

The following key points provide an overview of the financial performance of the CRC during this period.

Cash Balance and Surplus

The CRC has a retained restricted surplus at 30 June 2019 of \$11.8M and a cash balance of \$13.7M. All of these funds are committed to future research programs, drilling campaigns, education and training activities and operational management activities.

Participant Contributions

Total participant contributions of \$12.0M in FY19 exceeded the Commonwealth Agreement Budget (CAB) amount of \$10.2M by \$1.8M. The amount of \$255K of unpaid participant contributions at 30 June 19 have since been received by the company.

Research Projects

Research projects commenced in January 2019. Payment to researchers is made quarterly in arrears based on actual expenditure. Trade payables and accruals include \$1.7M relating to research Project payments. These amounts were paid in the September 19 quarter.

Interest Income

Cash balances are being invested in a mixture of short- and medium-term cash deposits appropriate for cash flow requirements. No interest income was included in the original budget.

CRC Contributions

Cash payments from the Commonwealth were \$2.7M in the period, with an amount of \$1.6M received in July 2019 for the June 2019 quarter. Payments from the Commonwealth are paid quarterly in arrears, following completion of the quarterly CRC Report.

National Drilling Initiative (NDI) Campaigns

The NDI drilling campaigns are expected to commence in April 2020.

Table 1 - Revenue & Expenditure (\$'000)	FY19
Revenue	
Commonwealth Funding	2,729.5
Participant Contributions	12,067.5
Affiliates Contributions	150.0
DET CRC Unspent Participant Contributions	113.6
Interest/Other Income	154.8
Total Revenue	15,215.4
Expenditure	
Research Program Expenditure	
- Program 1	486.1
- Program 2	544.8
- Program 3	653.5
- Opportunity Fund & Other Projects	-
Total Research Program Expenditure	1,684.4
Education & Training	200.0
Management Expenses	503.8
Salaries & Wages (incl Directors Fees)	1,005.3
Total Expenditure	1,709.1
Restricted Surplus/(Deficit)	11,821.9

Table 2 - Statement of Financial Position (\$'000)	30-Jun-19
Assets	
Cash at Bank	13,688.1
Trade Receivables	255.0
Other Receivables	166.4
Prepayments & Accrued Income	100.4
Equipment	9.2
Total Assets	14,219.1
Liabilities	
Trade Payables & Accruals	2,366.2
Employee Provisions	21.3
Lease Liability - Premises	9.7
Total Liabilities	2,397.2
Net Assets	11,821.9
Retained Restricted Surplus	11,821.9

Table 3 - Annual Cash Report (\$'000)			
	ACTUAL	PER AGREEMENT	VARIANCE
Cash Carried Forward	0	0	0
Receipts			
CRC Program Funds for the period	2,729.5	4,306.0	(1,576.5)
Participant Contributions	11,957.5	10,230.0	1,727.5
Other Firm Cash/Third Party Cash	139.7	-	139.7
GST Received	1,404.3	-	1,404.3
Interest	74.5	-	74.5
Total Receipts	16,305.5	14,536.0	1,769.5
Expenditure			
GST Paid	1,061.6	-	1,061.6
Capital Expenses	-	-	0.0
Employee Expenses	1,035.1	2,956.0	(1,920.9)
Supplier Expenses	520.7	1,176.0	(655.3)
Other Expenses	-	-	0.0
Total Expenditure	2,617.4	4,132.0	(1,514.6)
CASH BALANCE CLOSING	13,688.1	10,404.0	3,284.1

2.1.3.1 CRC Future Plans and Transition Arrangements

Not applicable to MinEx CRC.

2.1.3.2 Monitoring and Review Activity Update

Not applicable to MinEx CRC.

2.1.3.3 Activities not covered by the funding agreement

MinEx CRC has entered into agreements for procuring consulting and/or contracting services with the following:

- RSM (audit and tax consulting services)
- CSIRO (office space)
- FAL (legal services)
- Phillips Ormonde Fitzpatrick (patent attorney services)
- Omni GeoX (Geological and field services)
- Entrepreneurs in Residence (commercialisation consulting services)
- Elementia (technical consulting services)
- Brian Evans (technical consulting services)
- MinEx is a member of the CRC Association.



Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Programme

08 6244 5270

Australian Resources
Research Centre,
26 Dick Perry Avenue,
Kensington WA, 6151

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