

Overview

This section provides an overview of the Minerals Research Institute of Western Australia (MRIWA or the Institute), our vision and values and the broader MRIWA team who work to deliver on our strategic plan

Highlights

COLLABORATIVE RESEARCH LEADERSHIP

Industry, academic and government relationships activate innovation and research networks attracting investment in high value activities



Partnering with CSIRO and Practera to deliver the Innovate to Grow program to assist METs-focussed SMEs in achieving their low carbon business development ambitions.



Commissioning the development of a Mineral Carbonation Roadmap, aimed at accelerating technological solutions for cost effective, rapid and large-scale carbon sequestration.

IMPACTFUL RESEARCH

Applied research creates capability and delivers economic and social benefit for Western Australia



Expanded project portfolio and joining the Heavy Industry Low-carbon Transition Cooperative Research Centre, enabled by funding from Department of Jobs, Tourism, Science and Innovation.



Expansion of Education Program to include practical professional development workshops focussed on science communication skills.

Highlights (continued)

KNOWLEDGE TRANSFER

MRIWA is well-known and its minerals research outcomes are implemented



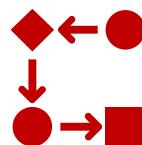
Increased presence and engagement on social media to promote minerals research outcomes.



Hosting MRIWA's inaugural Net Zero Emission Mining Conference.

GOVERNANCE

Robust governance and contemporary fit-for-purpose corporate practices



Development and implementation of new/revised policies and procedures including Business Continuity Plan, Fraud and Corruption Plan, Internal Audit and Reporting Plan and Recordkeeping Plan.



Review of the Institute's KPIs to ensure continued alignment with State Government Outcomes Based Management Framework.



Overview

Message from the Chair

It is my pleasure, on behalf of the board of MRIWA, to present our Annual Report for 2021-2022.

As signalled in last year's report, MRIWA has expanded our approach to *advancing WA through minerals research* by pursuing specific research and thought leadership focus areas, in addition to our conventional grant application process.

Highlights of this approach during the past year included progressing key focus areas of Green Steel and Net Zero Emission Mining and commencing work on new focus areas of Exploration Amplification, Mineral Carbonation and support for the Mining Equipment, Technology and Services (METS) sector.

With respect to Green Steel, MRIWA has commissioned GHD and ACIL Allen to undertake a value chain assessment to inform the viability of sustainably processing Western Australian iron ore to green steel, or the inputs necessary to create green steel. An important piece of work for the state, this report is nearing completion and is likely to be instrumental in informing government policy in this area.

Our Net Zero Emission Mining agenda gained traction during the year, with the inaugural NZEM Conference hosted by MRIWA in October.

Attended by over 150 delegates from industry, research and government, feedback on the event was so positive that we are expanding the conference to two days in 2022.

In July 2021, 16 METS companies commenced participation in MRIWA's Innovate to Grow program, held in conjunction with CSIRO and Practera. Designed to support METS-focussed SMEs deliver on their low carbon business development ambitions, the program culminated in MRIWA contributing grant funds to one of the participant's research applications.

Exploration research has always been a key part of the MRIWA portfolio, to support the discovery pipeline for the industry's long term future.

Late in the reporting period, MRIWA appointed CRU International to undertake a project to identify opportunities to further amplify the existing exploration research and education activities occurring in WA, and consider the knowledge, skills, technology, education and global networks required to deliver future improvements in this area. This will be a major piece of work to be undertaken in the next financial year.

At the other end of the value chain, we have commenced the development of a mineral carbonation roadmap for the state, to further understand the opportunities for WA in advancing the technologies needed to understand and apply this carbon storage opportunity at scale.

This year we bid farewell to long-standing director, Professor Mark Bush, who retired after 15 years of dedicated service to MRIWA, including almost 6 years as a director. We also welcomed Professor Melinda Hodkiewicz as a new director, who brings a wealth of experience from over 35 years in the minerals industry.

I thank all my fellow directors for their commitment and diligence during the year, and particularly acknowledge Helen Cook as Deputy Chair of the board, and Chair of our Audit & Risk Committee.

As always, I would like to acknowledge the tremendous support from our Minister, the Hon. Bill Johnston MLA, who takes an active interest in MRIWA's focus areas and challenges us to find new and impactful ways of advancing WA through minerals research and thought leadership.

Thank you and congratulations also to our CEO, Nicole Roocke and her dedicated team for delivering a significant and high-quality program of work during the year. It is a delight to work with such a professional team.

Miriam Stanborough
Chairperson of the MRIWA Board



Overview

Responsible Minister

Hon. Bill Johnston MLA, Minister for Mines and Petroleum.

About Us

The Minerals Research Institute of Western Australia (MRIWA or the Institute) is a statutory body established by the Western Australian Government in 2013 under the *Minerals Research Institute of Western Australia Act 2013* (WA) (the MRIWA Act).

Our Work

MRIWA fosters and promotes minerals research for the benefit of the State by:

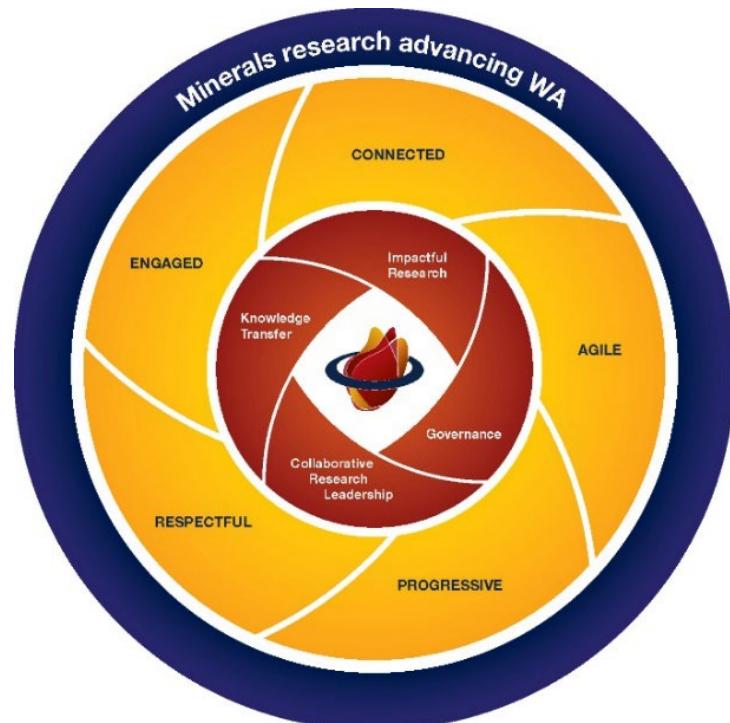
- Undertaking, procuring or managing minerals research projects;
- Fostering academic activities;
- Conferring and collaborating on matters relating to minerals research;
- Maintaining current knowledge of minerals research;
- Promoting awareness of and fostering public interest in matters relating to minerals research; and
- Providing advice to the Minister.

MRIWA may administer and co-invest in research projects undertaken within Western Australia, nationally and internationally. MRIWA collaborates with industry, research institutions and government partners to support research which will deliver tangible economic, environmental or social benefit for Western Australia.

As well as directly supporting minerals research projects, MRIWA funds are available for projects, programs and events that promote public awareness of, and interest in, minerals research.

Through our Education Program, we fund scholarships for PhD and postgraduate candidates where the field of study is relevant to the MRIWA objectives. Tailored professional and communication skills training is provided for postgraduate students accepted into the MRIWA program.

Vision and Values



Overview

Message from the CEO

Over the last financial year, the MRIWA team has grown and have continued to focus on delivering high quality grants administration while also exploring new opportunities.

Key highlights

Ongoing funding has been secured by the Minister for Mines and Petroleum, the Hon. Bill Johnston, MLA for the agency providing for \$5.3 million per annum over the forward estimates.

The increased funding will enable MRIWA to take a more strategic view to support the formation of larger programs of work or collaborations.

Work currently underway in this regard includes:

- Investigation into the iron ore-to-steel value chain and identification of opportunities and barriers for WA to support the global steel industry's green ambitions. The work also considers regional infrastructure needs, market dynamics and policies to ensure the State has a comprehensive understanding of the viability of green steel in Western Australia.
- Initiation of the development of a mineral carbonation research roadmap.
- Development of a strategy to amplify exploration research and education activities.

Significant Issues and Trends

Current and Emerging Issues and Trends

MRIWA's research program is highly regarded and funded through a combination of state government appropriation, federal government research grants and sponsorship from third parties.

Strategic changes in government policy, exposure to variations in economic conditions resulting from COVID-19 and decisions by other research grant bodies all influence the success and efficiency of this model. Maintaining key sponsor relationships is crucial to ensuring the continuity and momentum of key research programs.

Likely Developments & Forecast Results of Operations

A number of new key focus areas have been identified by the Board. In addition to Green Steel, Net Zero Emission Mining and Exploration Amplification, the new focus areas under development are:

- Precision and low impact mining;
- Alternative use of tailings and waste;
- Mining, engineering and technology services (METS) company innovation
- Supply chain risks

The business model of the organisation is in transition away from solely being a grants administration agency to more proactively leading campaigns on the identified focus areas above to stimulate research activities which will deliver benefit to Western Australia.

The team has grown this year to enable us to have the necessary skills to progress the work in our focus areas and enhance communications on not only our own work, but

also promote the extensive research activity here in the state.

I would like to acknowledge the fantastic efforts of the MRIWA team and the way they continue to embrace new opportunities and find avenues to deliver outstanding results with the limited resources we have.

While we have seen several changes in the MRIWA Board, their focus on robust decision-making leads to continuous improvement opportunities for the organisation.

Once again, I thank them for their commitment to MRIWA and the insights and opinions they provide to enable us to be well positioned going forward.

The Minister for Mines and Petroleum, the Hon. Bill Johnston continues to actively promote the capability of our organisation and his staff provide valued advice and support.

While the last twelve months have seen many challenges, the additional funding received by the organisation see us well positioned to advance Western Australia over the coming years through the support of minerals research.

Nicole Roocke

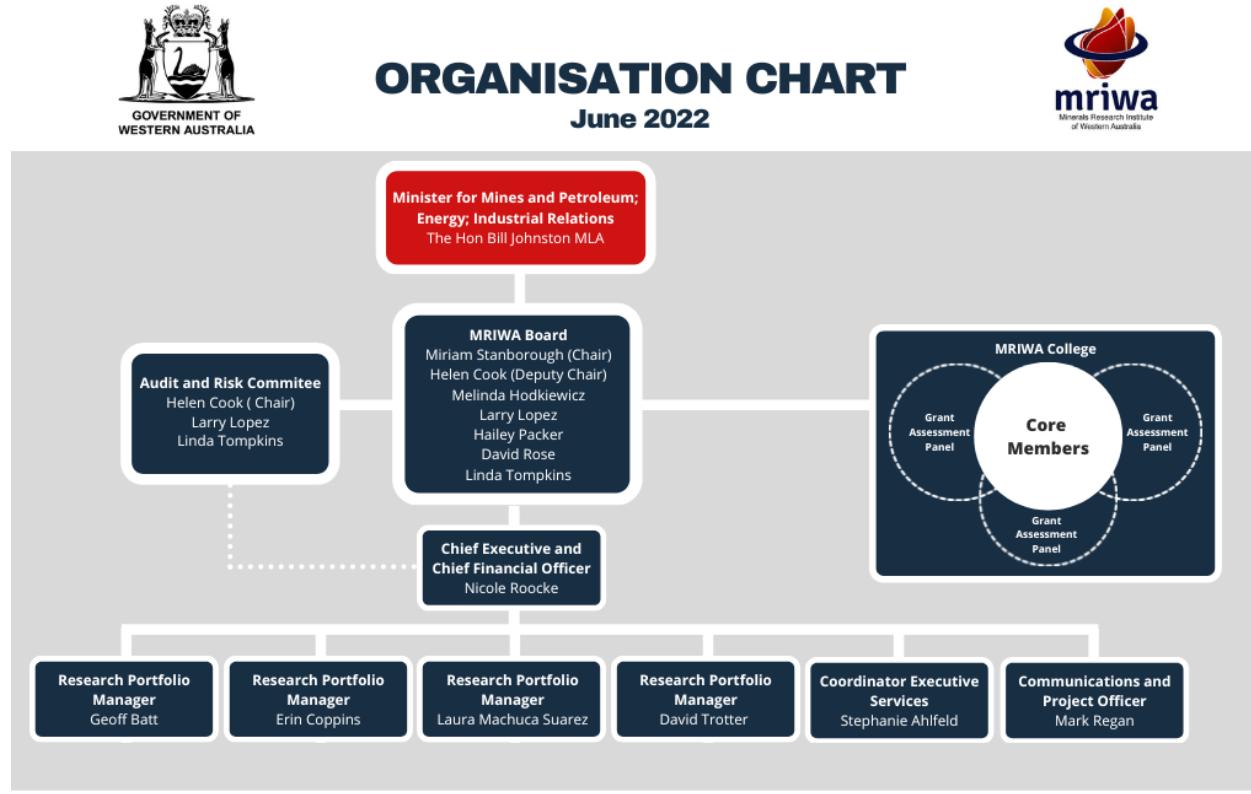
Chief Executive Officer and Chief Financial Officer



Overview

Our Structure

The Organisation Chart is published on the MRIWA website <https://www.mriwa.wa.gov.au/about-us/our-people/>



Overview

Our Team



Ms Nicole Roocke

Chief Executive Officer and Chief Financial Officer

Appointed CEO in November 2018, Nicole joined MRIWA after spending 15 years at the Chamber of Minerals and Energy of Western Australia coordinating industry input on a variety of government regulatory and policy issues and facilitating collaboration within the resources sector.

Nicole holds a Master of Science in Industrial and Organisational Psychology from the University of Western Australia (UWA) and a Master of Risk Management from the University of New South Wales (UNSW).



Ms Stephanie Ahlfeld

Coordinator Executive Services

Stephanie's career in the public service started in a Regional Local Authority and included roles in administration, finance and human resources. She commenced with the Institute at the end of 2015 with a focus on service delivery, compliance, and continuous process improvement.

Stephanie holds a Bachelor of Commerce (Accounting) from Curtin University.



Dr Geoffrey Batt

Research Portfolio Manager

Geoff has been a Research Portfolio Manager providing strategic direction and project management services for MRIWA since 2019. He leads MRIWA's education and scholarship programs and maintains a strong focus on science communication, supporting the accessibility and transferability of research innovation in the applied mining sector.

An experienced research scientist and manager, Geoff came to MRIWA from a private sector consulting role and has spent 20 years as a successful and respected researcher and educator at leading institutions around the globe.

Geoff holds a PhD in Earth Science from the Australian National University (ANU), and an MBA from UWA.



Ms Erin Coppins

Research Portfolio Manager

Erin joined the MRIWA team as a Research Portfolio Manager in May 2021, bringing experience in strategic advice, project and contract management across the public and private sectors. She is leading the MRIWA Challenge on Net Zero Emission Mining and has a strong focus on strategic development and stakeholder engagement.

With a passion for sustainability and a background in clean energy and regional development, Erin came to MRIWA having been involved in the development of State Government renewable energy priorities including COVID-19 recovery projects and the WA Renewable Hydrogen Strategy.

Originally from the United Kingdom, she holds an MSc in International Development and a Bachelors degree in Law from the University of Bristol.



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Mr David Trotter

Research Portfolio Manager

David Trotter is a metallurgist who has over 35 years of experience in the iron ore and steel industry in a variety of technology, logistical, and technical sales and marketing roles and understands full value chain in Mining, Sales Operations, and Technology.

Before joining MRIWA, David was providing advice on Green Steelmaking Technologies including the use of hydrogen in steelmaking, Transport, and Handling of HBI and DRI. His previous roles include Regional Manager Iron Ore for Rio Tinto Commercial Singapore, Global Iron Ore, and Pellet Feed Consultant, and Head of Global Sales and Trading, Anglo American Singapore. David also has experience in the PGM's and manganese sectors.



Dr Laura Machuca Suarez

Research Portfolio Manager

Dr Laura Machuca Suarez joined the MRIWA team in 2022 as a Research Portfolio Manager to lead the work on precision and low impact mining, alternative use of tailings and waste, and the Expand the Mining Envelope and Remediation and Mine Closure Program areas.

Laura came to MRIWA from Curtin University where she was an Associate Professor in the WA School of Mines and has led research collaborations with industry and Government. Prior to her 10+ year academic career in Australia, Laura worked in the oil and gas industry in South America for several years.

Laura holds a PhD in Chemistry from Curtin University. Her expertise encompasses materials and corrosion, metals and alloys, environmental microbiology, biotechnology, and bioremediation.

Laura is passionate about gender equity in STEMM, education, mentoring, and collaborative research leadership.



Mr Mark Regan

Communications and Projects Officer

Mark Regan is a digital content creator who commenced working at MRIWA in November 2021.

Between 2006 and 2021, Mark taught communications and digital media studies to a wide range of students at Murdoch Institute of Technology on Murdoch University's Campus. He has spent 20 years within the media industry as an award-winning filmmaker, digital content creator and podcaster.

Mark holds a Bachelor of Communications in Media and Film Studies from Edith Cowan University, a Post Graduate Diploma in Education (English, Media and IT) from University of Western Australia, and a Post Graduate Certificate in Business Management from Edith Cowan University.



Overview

Our Board Members



Ms Miriam Stanborough became Chair of MRIWA in January 2020.

Miriam is a chemical engineer with more than 20 years' experience in the minerals processing industry, across commodities including copper, uranium, gold, silver, alumina, lithium and mineral sands.

Miriam has held roles in technical development, production management, project management, business improvement, HR & diversity strategy, and sales and marketing.

She holds additional degrees in Arts and Mineral Economics, is a member of the Australasian Institute of Mining and Metallurgy and is a graduate of the Australian Institute of Company Directors.

Miriam's other current board roles include Non-Executive Director of Pilbara Minerals and BCI Minerals, Director of ChemCentre, and Deputy Chair of the Northern Agricultural Catchments Council and Scouts WA. With her husband, she runs a beef cattle operation in the south-west of WA.



Ms Helen Cook has longstanding board experience across various sectors and has been Deputy Chair of the MRIWA Board since 2017 and Chairman of the Audit and Risk Committee since 2014.

The National Partner in charge of KPMG's Energy and Natural Resources Group until 2014, she then commenced Non-Executive Directorship roles with a number of commercial, government and not for profit organisations. She currently serves on Central Desert Native Title Services Board, UWA Mining Energy and Natural Resources Law Advisory Board, Juniper Aged Care Board, Finance and Governance Panel for the Australia Council, and is a Councillor of the National Gallery of Australia, WA Councillor of the Australian Institute of Company Directors, and a member of Chief Executive Women.

Helen's past board roles include Director at RAC Holdings, RAC Finance, RAC Insurance, Deputy Chair of Fremantle Ports, Chair of the Art Gallery of WA, Director of the Perth Theatre Trust, Chair of the Chamber of Arts and Culture and various other governance roles in the resources and commercial sectors.



Prof Melinda Hodkiewicz has worked in the mining sector for over 35 years in operations, maintenance and academic roles. She is a Chartered Engineer with expertise in maintenance, asset management and safety and is currently developing artificial intelligence techniques to textual data in these application areas.

She completed her undergraduate degree in Metallurgy at Oxford University and PhD in Machine Condition Monitoring at the University of Western Australia.

Melinda's other roles include a Fellowship from BHP, Advisory Board member for Australia's National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), and the leadership team for the \$8.8M Australian Government and industry co-funded Training Centre for Transforming Maintenance through Data Science.

In 2016 Melinda was awarded the MESA Medal – a Lifetime Achievement Award for services to the Asset Management community in Australia and in 2019 was made a Fellow of the Australian Academy of Technology and Engineering.



Mr Larry Lopez is a Partner at Perth-based Australian Venture Consultants. Larry has over 35 years of experience financing innovative projects and companies. He has held numerous executive roles in government agencies, and private and public companies that enable the commercialisation of research outputs and intellectual property.

Larry is the Chair of Fulbright Australia and a non-executive director of several private companies. He also sits on a number of not-for-profit boards including the Centre for Entrepreneurial Research and Innovation. He has been a director or partner in four venture capital funds, including funds investing in technology that enables the mining sector. Larry is currently a General Partner at AC Ventures, a venture capital fund focussed on investing in and growing early-stage Australian Companies.

Larry obtained a BSc from Menlo College, School of Business Administration and is a graduate of the Pacific Coast Banking School at the University of Washington.



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Ms Hailey Packer has considerable public policy experience having worked across a number of portfolios within Western Australia's public service.

She has worked within the mining and petroleum portfolio since 2013. Currently in the role of General Manager Title Compliance, Hailey is well recognised for her leadership, strategic thinking and policy development.

Hailey is also the Managing Director of Pacmentality Consulting, a digital business support agency and brings a unique blend of experience in technology, business, organisation development and government relations.

Outside of the workplace, Hailey represents Western Australia in lawn bowls and actively gives back to her sport through her involvement as a member of the BowlsWA Board's Club Development committee.



Mr David Rose is a Director in mining consulting with KPMG, with 35 years of diverse experience in the mining industry across gold, base metals, coal, diamonds and iron ore, in both open pit and underground operations.

David's most recent executive roles were Chief Operating Officer, St Barbara Ltd, and Managing Director, Rio Tinto (Argyle Diamonds and Rio Tinto Iron Ore).

His consulting engagements have included expert panel reviews, operational improvement projects and management systems upgrade projects for mature operating mines. He has also undertaken operational readiness and systems design engagements for pre-start-up and transitional mines, in Australia and overseas.

David is a past Deputy Chairman and now Honorary Fellow of Leadership WA, a Fellow of the AusIMM, a Graduate of the AICD, President of Rowing WA and the Deputy Chair of St Catherine's College (UWA).



Dr Linda Tompkins has over 35 years of global experience in the resource sector through professional roles as a research and exploration geologist, technical director of an ASX- and AIM- (London) listed exploration company, corporate and resource lawyer, and group general counsel and company secretary of an ASX-listed company with overseas mining interests.

She has on-site experience in Australia, Brazil, China, and Africa in exploration, development, and mining operations for diamonds, lead-zinc, nickel and gold.

Linda has a PhD (Geology) and LLB (Hons) from The University of Western Australia (UWA) and is a member of the Energy & Resources Law Association (formerly AMPLA).

She is also a director of the Munda Biddi Foundation. Her past board roles include director of the AMPLA national board, member of the advisory board of the UWA Geoscience Foundation, and other roles in the resources sector.



Overview

MRIWA Board

MRIWA Board members are appointed by the Minister for Mines and Petroleum, in accordance with Section 27(1) of the MRIWA Act and are remunerated by an annual fee set by the Public Sector Commissioner. The fee has not been varied since first established on 20 December 2013.

Membership as at 30 June 2021	Initial Appointment	Term Expiry	No. of Meetings Attended	Sitting fees (\$)
Miriam Stanborough (Chair)	1 Oct 2017	31 Dec 2022	5 of 5	22,691 ^(a)
Helen Cook (Deputy Chair and Chair, Audit and Risk Committee) ^(b)	28 Jan 2014	31 Jan 2023	4 of 5	13,614
Hailey Packer	1 Feb 2020	31 Jan 2023	3 of 5	0 ^(c)
Mark Bush ^{(b)(f)}	1 Feb 2016	31 Dec 2021	5 of 5	11,405 ^(a)
Melinda Hodkiewicz	1 Jan 2022	31 Dec 2024	2 of 2	5,702 ^(e)
Larry Lopez ^(b)	1 Jan 2016	31 Dec 2024	4 of 5	11,405 ^(d)
David Rose	1 Jun 2018	31 Apr 2024	5 of 5	11,405 ^(d)
Linda Tompkins ^{(b)(g)}	1 Mar 2020	28 Feb 2023	4 of 5	11,405

- (a) Forewent a portion of remuneration and donated back to the MRIWA Directors' Scholarship.
- (b) Audit and Risk Committee Member - the Committee assists the MRIWA Board by providing an objective review of the effectiveness of the financial management and reporting, risk management, audit and compliance framework. The Chief Financial Officer and Deloitte attend ex-officio.
- (c) Ineligible for remuneration in accordance with Premier's Circular 2019/07 State Government Boards and Committees.
- (d) Forewent all remuneration and donated back to the MRIWA Directors' Scholarship.
- (e) Forewent all remuneration and donated back to the MRIWA Education Program.
- (f) Member of Audit and Risk Committee until the cessation of Board term.
- (g) Member of Audit and Risk Committee from 1 July 2021.



Overview

Legislation

Enabling and Administered Legislation

MRIWA was established as an agency in February 2014, under the *Minerals Research Institute of Western Australia Act 2013* (WA).

The Institute administers only the *Minerals Research Institute of Western Australia Act 2013* (WA).

Other Key Legislation Impacting on our Activities

In the performance of its functions, the Institute complies with other relevant written laws including the following Western Australian legislation:

- *Auditor General Act 2006*
- *Disability Services Act 1993*
- *Electoral Act 1907*
- *Equal Opportunity Act 1984*
- *Financial Management Act 2006*
- *Freedom of Information Act 1992*
- *Government Employees Superannuation Act 1987*
- *Industrial Relations Act 1979*
- *Interpretation Act 1984*
- *Library Board of Western Australia Act 1951*
- *Limitation Act 1935*
- *Minimum Conditions of Employment Act 1993*
- *Procurement Act 2020*
- *Public Interest Disclosure Act 2003*
- *Public Sector Management Act 1994*
- *Salaries and Allowances Act 1975*
- *State Records Act 2000*
- *Work Health and Safety Act 2020*
- *Workers' Compensation and Injury Management Act 1981*



Overview

Report on Operations

Actual Results versus Budget Targets

	2022 Target \$	2022 Actual \$	Variation \$
Total cost of services	16,020,872	6,999,846	(9,021,026)
Net cost of services	8,933,577	4,511,043	(4,422,534)
Total equity	9,044,556	12,383,576	3,339,020
Net increase / (decrease) in cash held	(1,964,312)	1,103,055	3,067,367
Approved salary expense level	793,415	851,099	57,684

For detailed information on MRIWA's financial performance, refer to the *Financial Statement and Notes* section of this report.



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Summary of Key Performance Indicators

Key Effectiveness Indicator	2021-22 Target	2021-22 Actual
Ratio of total cash value of research projects to total MRIWA cash investments in those research projects	≥ 4	5.20

Key Efficiency Indicator	2021-22 Target	2021-22 Actual
Total administration cost for the year as a percentage of the total cash value of research projects and scholarships under management during the year.	≤ 2.5%	1.44%

MRIWA's Outcome Based Management Framework changed during 2021-22.

The Key Effectiveness Indicator remains a measure of financial leverage and the Key Efficiency Indicator a measure of administrative efficiency. However, the methodology to calculate these has varied.

For detailed information on MRIWA's Key Performance Indicators, including results for prior years back cast for comparative purposes using the new methodology, refer to the *Our Performance* section of this report.



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