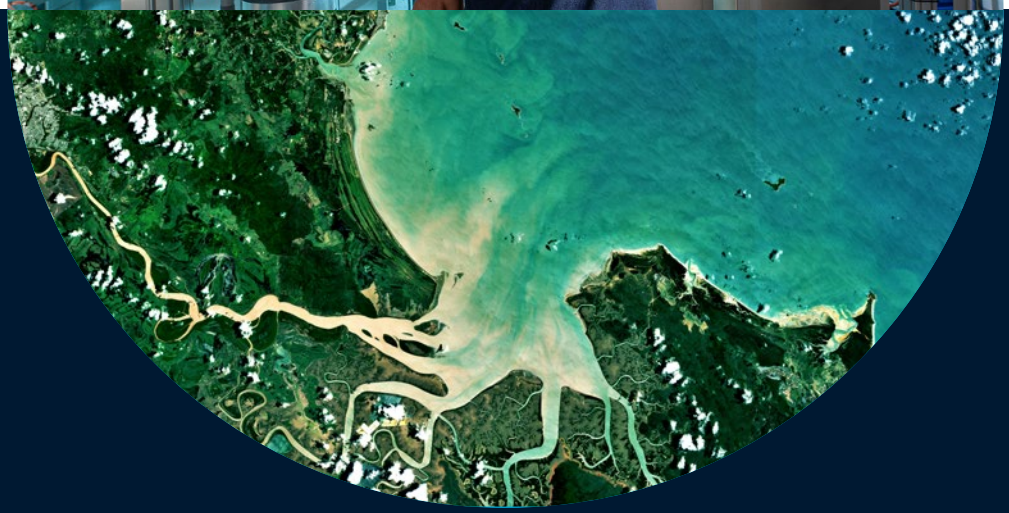
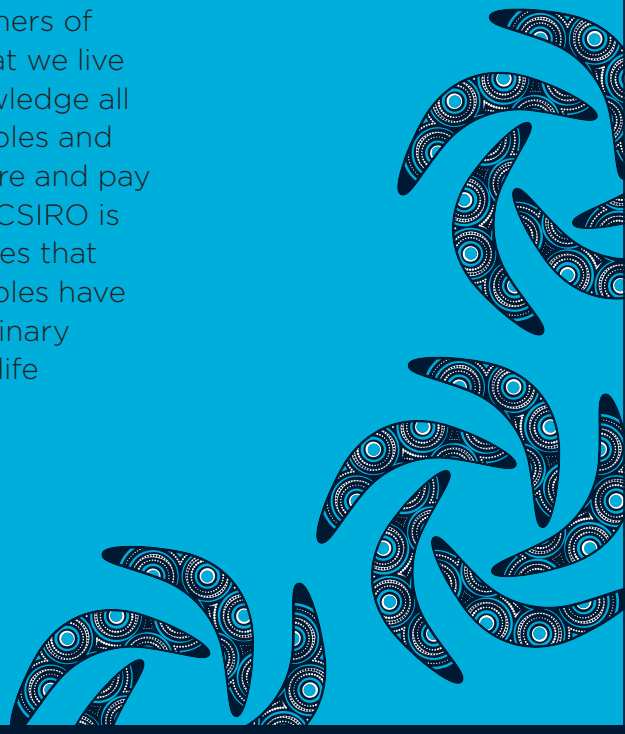
CSIRO

Australia's National
Science Agency



Annual Report 2022–23

CSIRO acknowledges the Traditional Owners of the lands, seas and waters of the area that we live and work on across Australia. We acknowledge all Aboriginal and Torres Strait Islander peoples and their continuing connection to their culture and pay our respects to Elders past and present. CSIRO is committed to reconciliation and recognises that Aboriginal and Torres Strait Islander peoples have made and will continue to make extraordinary contributions to all aspects of Australian life including culture, economy and science.



Cover top: Scientist Philip Hazwinkel with a sample of Fischer-Tropsch wax. Fischer-Tropsch wax is non-flammable and non-toxic and requires minimal hydro processing to be converted into jet fuel. The wax can be stockpiled for decades with minimal upkeep, making it a true standby sustainable aviation fuel. More on our Toward Net Zero Mission on page 27.

Cover bottom: Satellite image from Sentinel Hub showing where our AquaWatch Mission is monitoring sediment flow from the Fitzroy River out towards the Great Barrier Reef. Credit: European Union, contains modified Copernicus Sentinel data 2023, processed with EO Browser. More on our AquaWatch Mission on page 29.

CSIRO Head Office
Clunies Ross Street, Acton ACT 2601
GPO Box 1700, Canberra ACT 2601 Australia

csiro.au | ABN 41 687 119 230

11 September 2023

The Hon Ed Husic MP
Minister for Industry and Science
Parliament House
Canberra ACT 2600

We have pleasure in submitting to you, for presentation to Parliament, the 75th Annual Report of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) for the year ending 30 June 2023. This report has been prepared in accordance with the requirements of the *Science and Industry Research Act 1949*, section 46 of the *Public Governance, Performance and Accountability Act 2013* and the *Public Governance, Performance and Accountability Rule 2014*.

The report was endorsed at the meeting of the CSIRO Board members on 7 September 2023.

Part 6 of the Report focuses on the operations of the Science and Industry Endowment Fund (the Fund), which was established under the *Science and Industry Endowment Act 1926*. It also includes a report by the Auditor-General on the accounts of the Fund.

The Corporate Commonwealth Annual Reporting Rule requires CSIRO to report any significant activities and changes that affected the organisation or structure. During the reporting period, we have supported government priorities, expanding our focus on climate change initiatives to contribute to Australia's obligations under the Paris Agreement. We have progressed our work on future science and technology to further Australian innovation and industry, in line with priorities in the National Reconstruction Fund. We have also increased our focus on commercialisation activities with the reinvigoration of programs to bridge the gap between research and consumer products. Finally, our energy transition work continues to lead, supporting Australia's efforts to create more value from our natural resources for the benefit of all Australians.

We are proud of CSIRO's achievements this year.

Ms Kathryn Fagg AO
Chair, CSIRO Board

Ms Kirsten Rose
Chief Executive (Acting), CSIRO

CSIRO
Australia's National Science Agency

CSIRO

About us

We are Australia's national science agency, solving the greatest challenges through innovative science and technology.

We are one of the largest and most multidisciplinary mission-driven research organisations in the world, creating a better future for Australia.

We are an Australian Government statutory authority, within the Industry, Science and Resources portfolio and operating under the provisions of the *Science and Industry Research Act 1949* (SIR Act). We align with our Portfolio Budget Statement outcome statement and Ministerial Statement of Expectations to deliver value to Australia.

In 2022, we were named the 'most trusted' Government Service in Roy Morgan's Trusted Brand Awards. We are also a highly connected innovator, working with universities, governments, Australian businesses of all sizes across all major industries, and communities around the country.

We deliver around $10.2 billion of annual benefit to the nation each year as a result of our science, securing our future national prosperity as well as environmental and social benefits.

Our purpose

Solving the greatest challenges through innovative science and technology

Our vision

Create a better future for Australia

Our outcome

Consistent with our legislation, our intended outcome as stated in the 2022–23 Portfolio Budget Statement is to:

Produce innovative scientific and technology solutions to national challenges and opportunities to benefit industry, the environment and the community, through scientific research and capability development, services and advice.

How we deliver

CSIRO has 4 strategic objectives outlined in our Corporate Plan 2022–23 that guide how we will deliver on our purpose.

Deliver impact through innovation

Advance Australia's commercialisation of science and deliver new value from digital innovation.

Purpose-driven science and technology

Deliver impact at scale aligned with the challenges we are solving and the portfolios of research directed to them. Invest in the right future science and technology to solve tomorrow's challenges.

Engage and empower talent

Attract world-class talent and strengthen our nation's STEM pipeline. Build a culture that makes us an employer of choice and operate in an adaptable, resilient and responsive way.

Build collaborative networks

Share our world-class national labs and facilities with industry, universities and government and harness the power of our diverse relationships for better outcomes.

Our annual report

This annual report provides a summary of our activities and performance for the financial year ended 30 June 2023 against the planned objectives and outcomes in our Corporate Plan 2022–23 and Portfolio Budget Statements and aligned with our Ministerial Statement of Expectations and our Statement of Intent.

Read the annual report online at: **csiro.au/annualreport2023**

Our locations

At 30 June 2023, we operated 49 sites across Australia and 2 sites overseas.

Our people also access desks or small areas of land for research purposes in 31 minor locations. We have one international office in Santiago, Chile, and one laboratory in Montpellier, France.

We have accredited science counsellors attached to the Australian embassies in Singapore, Vietnam, Indonesia and the US.

- CSIRO site
- Global precinct
- National centre
- Collaboration hub
- Testing services
- National facility
- National collection

France
- Montpellier

Chile
- Santiago

CSIRO staff work at **sites** throughout Australia and overseas.

Our **global precincts** bring together partners to support research and development of global standing and scale. Our **national centres** are research centres of national standing and scale.

We host Australia's national **research facilities** and scientific **collections** that are available to Australian and international users.

Our **collaboration hubs** are spaces dedicated to translating research outcomes to industry.

Our **testing service centres** provide testing and certification services for industry.

Global precincts

Canberra – National Agricultural and Environmental Sciences Precinct

Brisbane – Ecosciences Precinct

Perth – National Resource Sciences Precinct

Clayton – Australian Manufacturing and Materials Precinct

National centres

Sydney – Digital Services

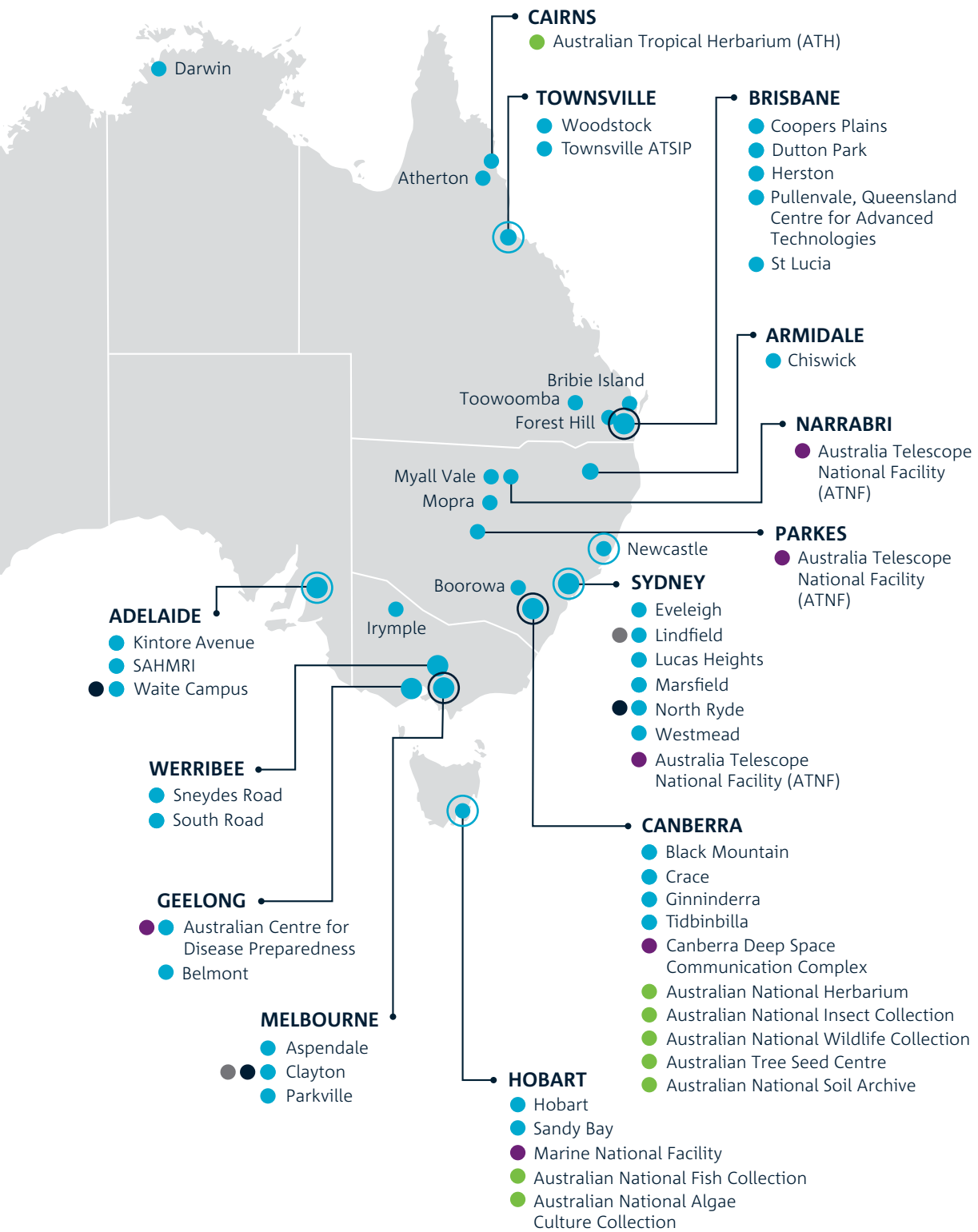
Hobart – Marine and Atmospheric Sciences

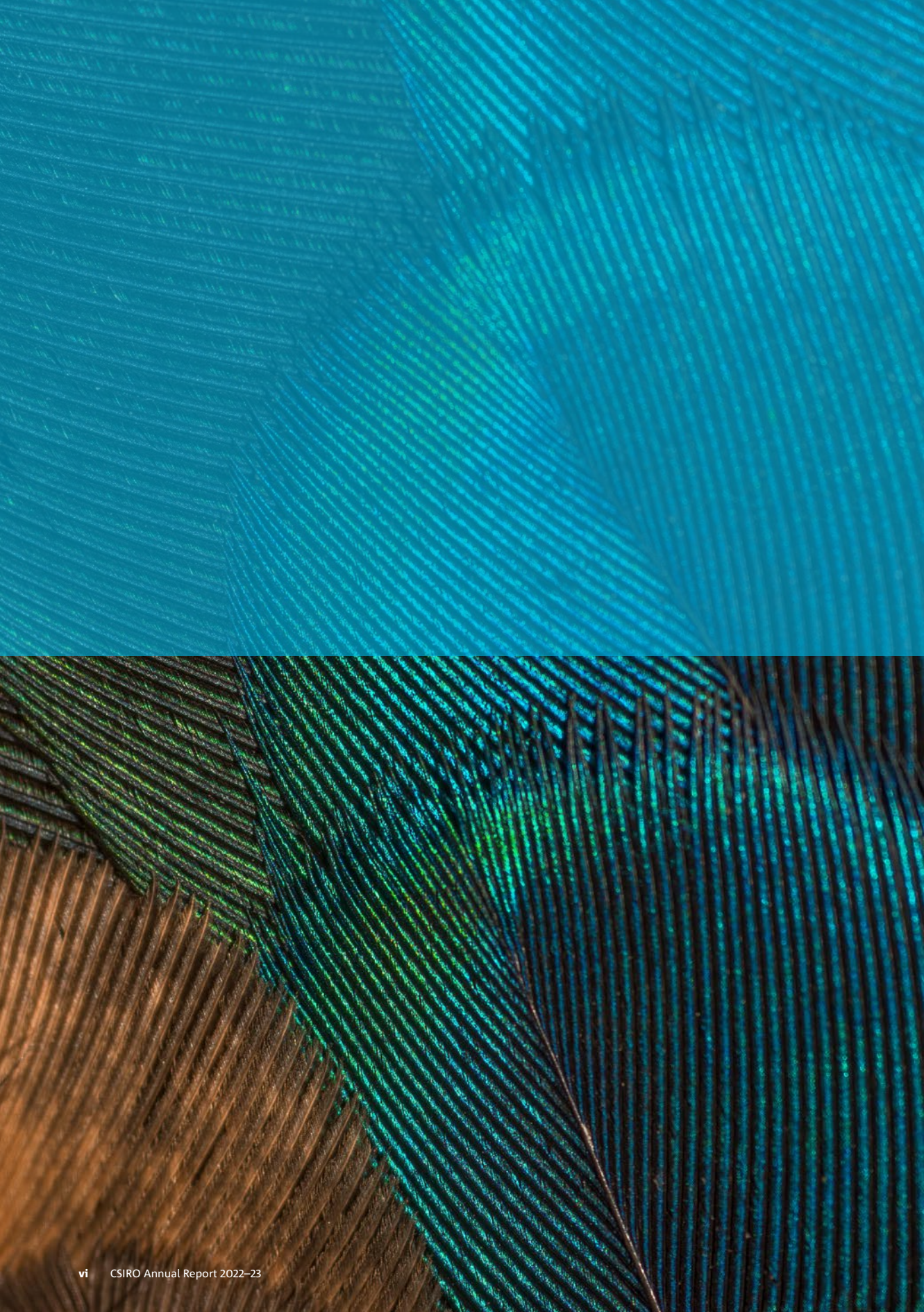
Adelaide – Food, Health and Nutrition

Perth – Space Sciences

Townsville – Tropical Innovation

Newcastle – Energy Technology


CAIRNS
Australian Tropical Herbarium (ATH)
Darwin
TOWNSVILLE
Woodstock
Townsville ATSIP
Atherton
BRISBANE
Coopers Plains
Dutton Park
Herston
Pullenvale, Queensland Centre for Advanced Technologies
St Lucia
ARMIDALE
Chiswick
Bribie Island
Toowoomba
Forest Hill
NARRABRI
Australia Telescope National Facility (ATNF)
Myall Vale
Mopra
PARKES
Australia Telescope National Facility (ATNF)
Newcastle
Boorowa
SYDNEY
Eveleigh
Lindfield
Lucas Heights
Marsfield
North Ryde
Westmead
Australia Telescope National Facility (ATNF)
Irymple
ADELAIDE
Kintore Avenue
SAHMRI
Waite Campus
WERRIBEE
Sneydes Road
South Road
CANBERRA
Black Mountain
Crace
Ginninderra
Tidbinbilla
Canberra Deep Space Communication Complex
Australian National Herbarium
Australian National Insect Collection
Australian National Wildlife Collection
Australian Tree Seed Centre
Australian National Soil Archive
GEELONG
Australian Centre for Disease Preparedness
Belmont
MELBOURNE
Aspendale
Clayton
Parkville
HOBART
Hobart
Sandy Bay
Marine National Facility
Australian National Fish Collection
Australian National Algae Culture Collection



Contents

Delivering on our purpose

Solving the greatest challenges through innovative science and technology.

In 2022–23, we continue to provide innovative scientific and technology solutions to national challenges and opportunities to benefit the nation – our industry, our community and our environment. Here are a few examples of our capability, agility and response in action:

Our 2022–23 performance

OBJECTIVE	KEY PERFORMANCE INDICATOR	RESULT	PAGE
1. Deliver impact through innovation	Demonstrate uptake and adoption	Achieved	44
	Enhance innovation translation	Partially achieved	45–46
2. Purpose-driven science and technology	Impact by alignment, design and scale	Achieved	47
	Drive future science opportunities	Partially achieved	48–49
	Be Australia's trusted advisor	Partially achieved	49
3. Engage and empower talent	Have a safe and inclusive workplace for all	Achieved	50
	Be a destination employer	Partially achieved	51–52
4. Build collaborative networks	Do fewer, bigger things together	Achieved	52
	Have shared national labs	Achieved	53

Meeting expectations

The Minister for Industry and Science the Hon Ed Husic MP delivered a Statement of Expectations to our Board on 9 December 2022.[1]

Through issuing a Statement of Expectations, Ministers are able to provide greater clarity about government policies and objectives relevant to a statutory authority, including the policies and priorities it is expected to observe in conducting its operations.

The following are examples of how we have delivered on those expectations:

STATEMENT OF EXPECTATIONS	PAGE
Applying science to advance national interest	23, 59, 102
Taking Australian science to the world	25, 34, 115
Advancing Government's policy priorities	26, 34, 61
Advancing First Nations Science	32–32
Achieving Net Zero Emissions and becoming a Renewable Energy Superpower	27, 35, 75
Delivering a future made in Australia through the National Reconstruction Fund	63, 67–68
Research translation and commercialisation	60, 61, 67
Supporting the health of Australians	70, 76
Managing research infrastructure and national facilities	82, 83
Promoting STEM	95, 98
STEM Careers	97
Communication of CSIRO science and research	112, 113
Driving the organisation's performance	91, 118–119
Legislative requirements	40, 105
Agency staff and health	90, 92
Working with the Department and office	105, 123

1 CSIRO Statement of Expectations: csiro.au/en/about/Corporate-governance/Minister-and-Board/Statement-of-Expectations

We engaged with more than

3,100

industry and government entities, including nearly **1,600 small- to medium-sized enterprises (SMEs)**.

Indigenous Research Grants and Indigenous Graduate Programs launched

to increase Indigenous-led science and a pipeline of future leaders for Australia's innovation system.

Progressed **3 key landmark infrastructure upgrades and one new build** to ensure access to world-class facilities, laboratories and collections.

Our licensing portfolio grew to 662 licences, with

79 **new licences,**

taking our science to the world.

Retained our **number one position** in Australia for patents filed, demonstrating our leading science excellence.

Our deep technology venture fund, managed by Main Sequence, has **invested in 8 new companies** (totalling 53), enabling start-ups across the funding 'Valley of Death'.

3 new spinouts were created to advance a strong pipeline of translation activity.

$50 million in underlying royalties and $9 million in IP sales, grows our revenue to achieve sustainability.

449 **CSIRO Early Research Career Postdoctoral and Engineering Fellows** to grow the next generation of STEM professionals.

3 **new missions launched** with joint investment from industry to lift R&D investment by Australian businesses.

Foreword by the Chair

The CSIRO Board is proud to deliver an Annual Report that demonstrates benefit to all Australians over the past year. In December, the Board received a new Statement of Expectations from the Australian Government, reflecting many of the themes discussed in this year's Annual Report.

Importantly, CSIRO grew its focus on climate change initiatives in line with its legislative amendment to give effect to Australia's obligations under the Paris Agreement. This includes the launch of the Towards Net Zero Mission to tackle the hardest-to-abate emissions in Australian industry; the launch of the CarbonLock Future Science Platform to develop new technologies for carbon sequestration; and a new partnership with industry to build Australia's first movable hydrogen generator. Each of these projects are built on Australian research and designed to equip Australian industry with the skills and technology to strengthen our nation's energy future.

This year CSIRO continued to invest in the breakthrough science of the future through its Future Science Platforms, informed by work to update CSIRO's Future Science and Technology plan as well as engaging with Australia's Chief Scientist, Dr Cathy Foley, on Australia's updated national science priorities.

This includes deep engagement with Australia's first scientists through working with Indigenous businesses and communities to co-develop solutions from science that meet their needs, as well as the broader commitments in CSIRO's third Reconciliation Action Plan.

This future science will underpin innovation in Australian industries for decades to come, building sovereign capability and bolstering supply chains, in line with the priorities of the Australian Government's National Reconstruction Fund. It will also underpin creation of new businesses and industries, empowered by commercialisation programs like the ON accelerator and CSIRO Innovation Fund, managed by Main Sequence, which both delivered strong results this year.

Australia's future science will be performed by the next generation of STEM professionals, who will represent the diversity of Australia's population. CSIRO's education and outreach programs are contributing to widening and strengthening our national STEM talent pipeline, including new programs launched this year with Telstra and the BHP Foundation, and a citizen science campaign to inspire and engage the next generation.

Recognising that solving the greatest challenges cannot be done by one organisation alone, or even one nation, CSIRO has continued to strengthen international partnerships for national benefit. This year initiatives like CSIRO's Memorandum of Understanding with the United States' National Science Foundation (NSF) not only strengthen national collaboration but bring together a united focus on solving challenges like the global energy transition, in line with the Australian Government's priorities.

The Board is proud of CSIRO's achievements over the past year and commends the 6,000+ passionate and hard-working people who have delivered these results for the benefit of all Australians. In particular, the CSIRO Board acknowledges the significant contributions of Dr Larry Marshall, CSIRO's longest serving Chief Executive in 50 years, who completed his final term as Chief Executive at the end of June. This Annual Report reflects a strong legacy of growth and impact to the nation under his leadership. We look forward to continuing CSIRO's vital work in making life better for all Australians when we welcome incoming Chief Executive Professor Doug Hilton later this year and commence the next chapter at Australia's national science agency.

Ms Kathryn Fagg AO
Chair, CSIRO Board

Chief Executive's report

As I complete my third and final term as Chief Executive, I am so proud to share Team CSIRO's most recent achievements for the nation, built on a solid strategic foundation that will ensure they continue to deliver solutions from science for many years to come.

This year we celebrated the success of programs that CSIRO runs for the nation to improve our innovation performance. Tackling the gap between our world-class research and commercially ready concepts, our ON Program returned this year. Another 9 teams from Australian research organisations and universities took their innovative concepts from benchtop to beta through the intensive program. Since inception in 2015, the ON Program has now helped more than 3,000 people from 52 Australian research organisations find commercial applications for their research.

To support more deep-tech Australian start-ups across the funding 'Valley of Death', our CSIRO Innovation Fund, which created Main Sequence in 2016, has now invested in more than 50 deep-tech start-ups.

This year portfolio companies have continued to go from strength to strength. For example, hydrogen storage solution start-up Endua, created with Ampol to commercialise CSIRO research, raised nearly $12 million in funding in May.

Recognising that solving the greatest challenges cannot be done in isolation, our national missions program built on the success of its first 5 missions to launch another 3 this financial year: Towards Net Zero to work with Australia's industries with the hardest-to-abate emissions; Minimising Antimicrobial Resistance to tackle the growing health threat from antibiotic reliance; and AquaWatch Australia to revolutionise how we monitor water quality from space.

With successes like these, it's little surprise CSIRO's people have rightly maintained the trust of Australia for many years, with CSIRO continuing to be the most trusted of the iconic Australian brands we benchmark against and last year being named the most trusted Australian Government brand. Our independent analysis of the value CSIRO delivers to Australia has grown from an estimate of $5 billion in 2014 to $10.2 billion in 2022.

We have demonstrated that growth does not have to come at the cost of sustainability, reducing our Scopes 1 and 2 emissions by 79 per cent from our baseline year on our journey to net zero and continuing to increase our diversity, including women in leadership roles, and improving on key culture survey metrics.

Looking to CSIRO's future, this year our 'Impossible without You' recruitment campaign is welcoming the next generation of researchers and professional staff to create a more diverse and inclusive STEM pipeline for CSIRO and Australia's future. Our pulse employee culture survey showed increases across all key areas measured, and we continue to deliver strong safety results that reflect commitments like our annual HS-Me Day initiative, introduced in 2017.

It has been an honour and a privilege to be part of Team CSIRO for the past 8 and a half years. I leave our national science agency in a strong position, and I am confident it will continue to deliver for Australia. I look forward to celebrating its many future successes.

Dr Larry Marshall
Chief Executive, CSIRO

Our Board

Ms Kathryn Fagg AO
Board Chair
(non-executive)
Appointment:
2 August 2018
to 13 October 2026

Mr David Knox
Deputy Chair (non-executive)
Appointment:
5 May 2016
to 13 October 2025

Dr Larry Marshall
Chief Executive
Appointment:
1 January 2015
to 30 June 2023

Dr Michele Allan
Member (non-executive)
Appointment:
5 May 2016
to 4 May 2024

Professor Edwina Cornish AO
Member (non-executive)
Appointment:
26 November 2015
to 25 November 2023

Mr Drew Clarke AO
Member (non-executive)
Appointment:
24 August 2017
to 23 August 2022

Professor Tanya Monro AC
Member (non-executive)
Appointment:
25 February 2016
to 24 February 2024

Professor Alex Brown
Member (non-executive)
Appointment:
16 March 2023
to 15 March 2028

Professor Michelle Simmons AO
Member (non-executive)
Appointment:
17 September 2020
to 19 January 2023 (resigned)

Hon Ian Macfarlane
Member (non-executive)
Appointment:
14 October 2021
to 13 October 2024

Read more about the accountable authority members in Appendix B and on our website: csiro.au/en/about/people/Board-Members.

Our Executive Team

Dr Larry Marshall
Chief Executive

Professor Bronwyn Fox
Chief Scientist

Ms Kirsten Rose
Future Industries

Dr Peter Mayfield
Environment, Energy and Resources

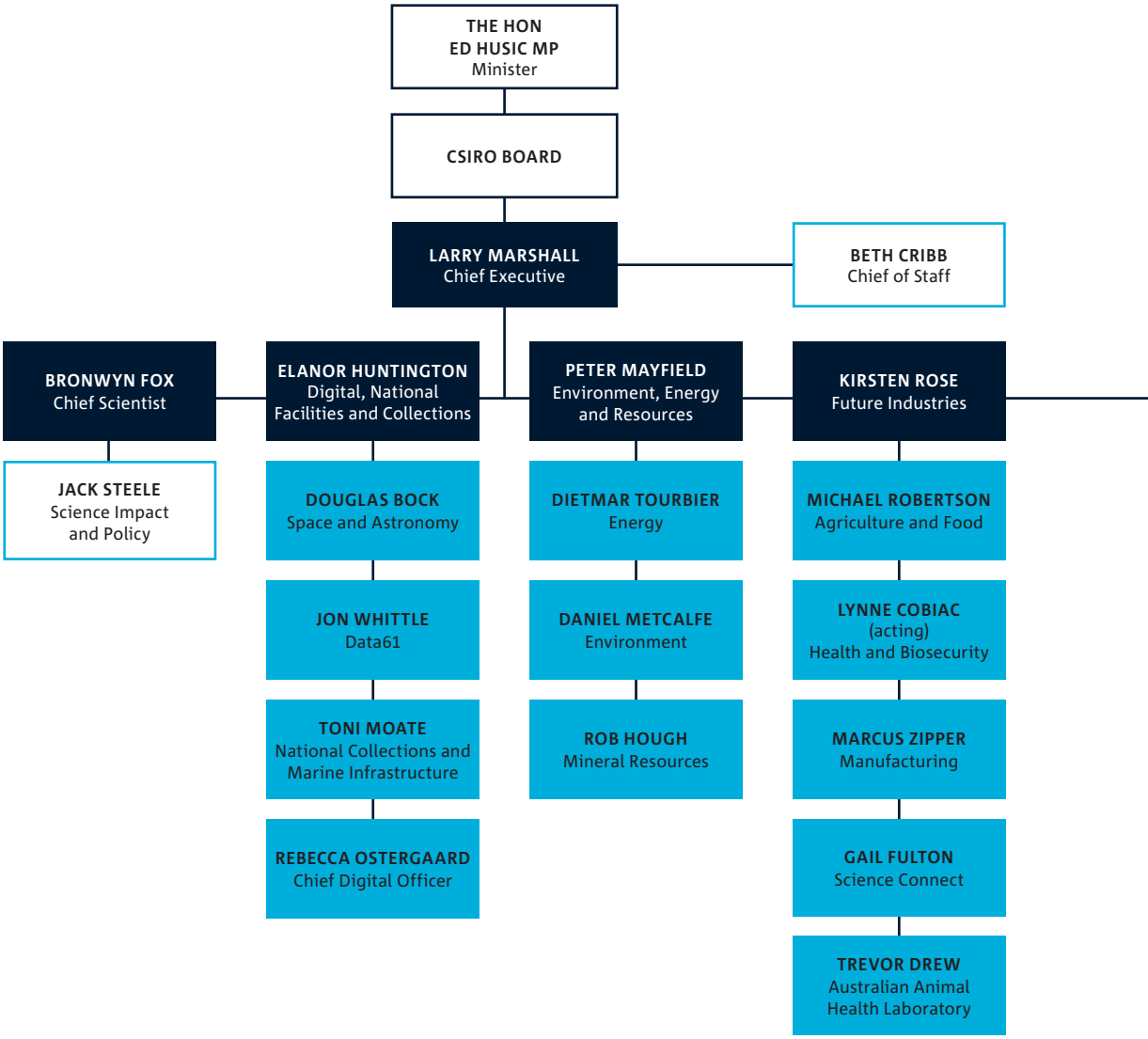
Ms Katherine Paroz
People

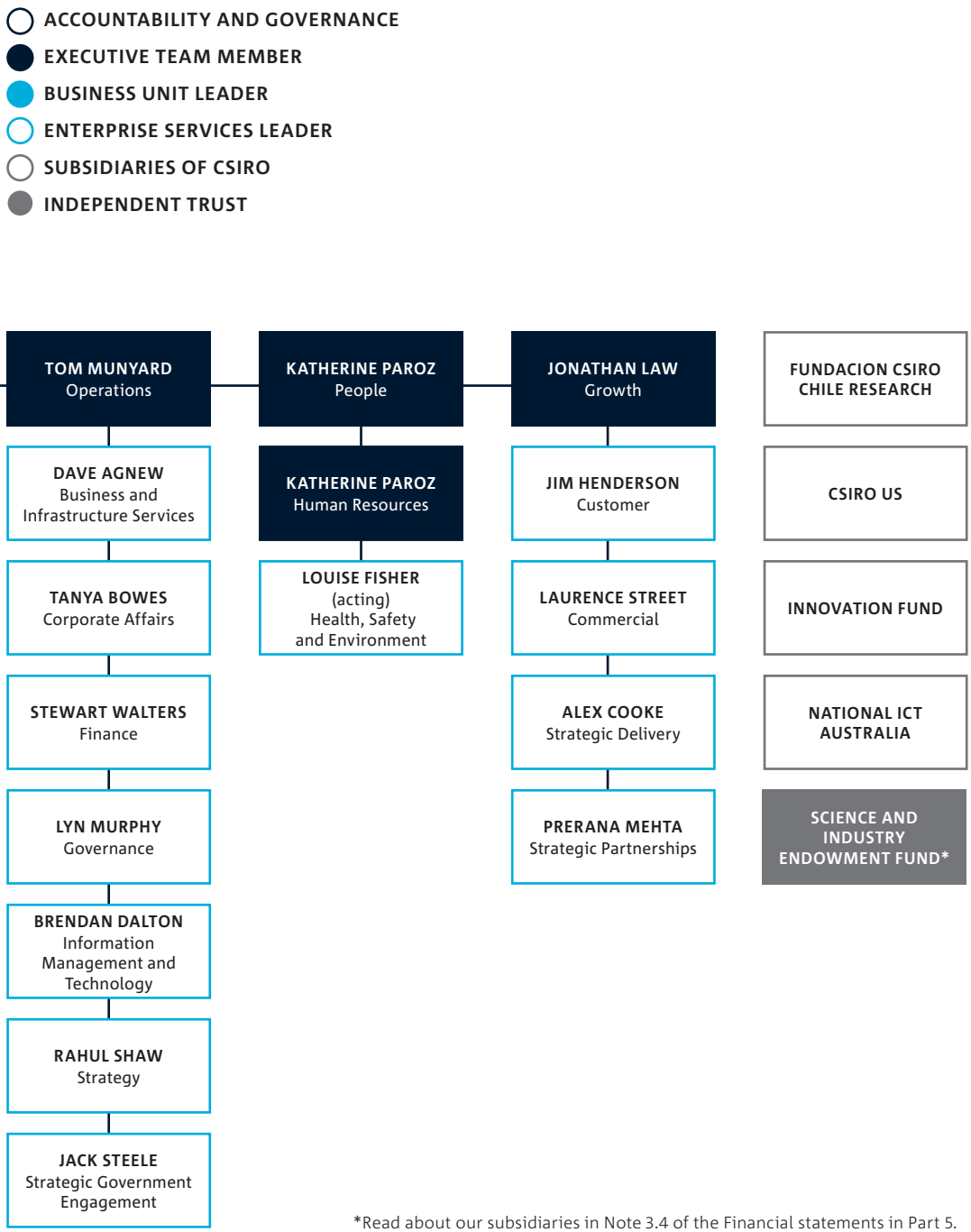
Professor Elanor Huntington
Digital, National Facilities and Collections

Mr Tom Munyard
Operations

Mr Jonathan Law
Growth

Our organisational structure





*Read about our subsidiaries in Note 3.4 of the Financial statements in Part 5.

Our greatest asset, our people

Our people are our most important asset and are critical to our success. At 30 June 2023, we employed 6,316 people (FTE of 5,938) comprising 4,470 ongoing staff and 1,846 non-ongoing staff (including casual employees). This is an increase of 11.4 per cent (644) from the previous year.

Research science staff constituted 3,835 of staff, around 61 per cent (roughly the same proportion as 2021–22).

Our diverse workforce of people come from more than 130 countries, with around 27 per cent from non-English speaking backgrounds. We range from staff, trainees and apprentices aged 16 years to emeritus researchers and office staff aged over 80 years.

Our science could not be progressed without collaborations across the national innovation system involving an additional 2,403 affiliates, including fellows, distinguished visitors, students, contractors and other collaborators.

Our exceptional people underpin our impact and bring our science to life. Many of our people have been commended for their expertise and we are extremely proud of their successes. This is a selection of their recognitions during 2022–23.

Member of the Order of Australia (AM)

Dr John Angus, CSIRO Honorary Research Fellow
For significant service to the agricultural sector through research roles and to education.

Prime Minister's Prize

Dr Nick Cutmore (CSIRO), Dr James Ticker and Dirk Treasure (Chrysos, a CSIRO spin-off company)
The 2022 prize for innovation for the successful commercialisation of PhotonAssay technology.

Officer of the Order of Australia (AO)

Dr Marianne Horak, CSIRO Honorary Fellow
For distinguished service to entomology, to taxonomic and phylogenetic research, and to philanthropic endeavours.

Dr Michele Allan, CSIRO Board Member
For distinguished service to the agricultural, food production and business sectors and to tertiary education.

Fellow of the Royal Society

Dr Graeme Moad AC FRS
CSIRO Fellow Polymer Chemistry Manufacturing (44 years of service)

In May 2023, Dr Graeme Moad was elected a Fellow of the Royal Society for his exceptional contribution to science. His research interests lie in the fields of polymerization mechanisms, and polymer design and synthesis, with over 250 (co)author publications, co-inventor on 38 patent families and co-author of the book *The Chemistry of Radical Polymerization*.

Dr Moad has received many awards and accolades, and in 2022 he was appointed a Companion of the Order of Australia.

The Royal Society Fellowship are the most eminent scientists, engineers and technologists across the UK and Commonwealth, who each year select up to 52 Fellows and up to 10 Foreign Members from a group of around 800 candidates.

This year CSIRO's Dr Moad joined approximately 1,700 Fellows, including around 85 Nobel Laureates, with fewer than 70 of the Fellows being Australian.

Values-based actions

Our values describe what it means to be a member of Team CSIRO. By articulating and embedding these behaviours mapped against our objectives, we set expectations in our work environment and make explicit how we should each 'show up' to do our jobs, deliver our strategy and achieve our purpose.

Read more about our values on page 20.

Deliver impact through innovation

Turning science into solutions that make it real

We do science with real impact. We thrive when taking on the big challenges facing the world. We take educated risks and defy convention. We celebrate successes and failures and leverage them to learn as we strive to be the force for positive change.

Curious
Adaptive
Entrepreneurial

Purpose-driven science and technology

Earning trust by predicting, preparing for and solving the greatest challenges

We're driven by purpose but remain objective. We fight misinformation with facts. We earn trust everywhere through everything we do. We trust each other and hold each other accountable. Together our actions drive Australia's trust in CSIRO.

Accountable
Authentic
Courageous

Engage and empower talent

Putting our people first so they can focus on putting our customers first

Our first priority is the safety and wellbeing of our people. We believe in, and respect, the power of diverse perspectives. We seek out and learn from our differences. We do our very best to get all this right.

Respectful
Caring
Inclusive

Build collaborative networks

Forming deep collaborations to amplify our impact and go further together

We achieve more together than we ever could alone. We listen and collaborate, in teams, across disciplines, across boundaries. We embrace ambiguity and use discussion and persistence to generate unique solutions to complex problems.

Partnering
Cooperation
Humility

Our science and infrastructure

Key to solving the greatest challenges are our multidisciplinary and collaborative teams and cutting-edge research infrastructure. We maximise these world-class capabilities across 8 targeted domains by ensuring we maintain global leadership in science excellence and critical facilities that foster innovation.

Science domains

Agriculture and Food

Solutions for cropping, livestock, aquaculture, horticulture and food industries.

Data

Focused on driving Artificial Intelligence, recovery and resilience, and reinventing science through areas such as robotics, cyber security, modelling and analytics.

Energy

Enabling Australia's transition to a net-zero emissions energy future.

Environment

From oceans to coasts to land to atmosphere to climate, delivering solutions that support the resilient and sustainable management of our natural resources.

National infrastructure

Australian Centre for Disease Preparedness

A high-containment facility designed to allow scientific research into the most dangerous infectious agents in the world.

Pawsey Supercomputing Centre

A world-class, high-performance computing facility accelerating scientific discoveries.

Health and Biosecurity

Focused on preparedness, responsiveness, digital health, and health and wellbeing.

Manufacturing

Partnering with industry to develop innovative products and processes that support global competitiveness and environmental sustainability.

Mineral Resources

Creating a more productive, sustainable and globally competitive mining and mineral resources industry.

Space and Astronomy

Enabling humanity to understand our Earth and Universe, which contributes to innovative science and technology development.

Marine National Facility

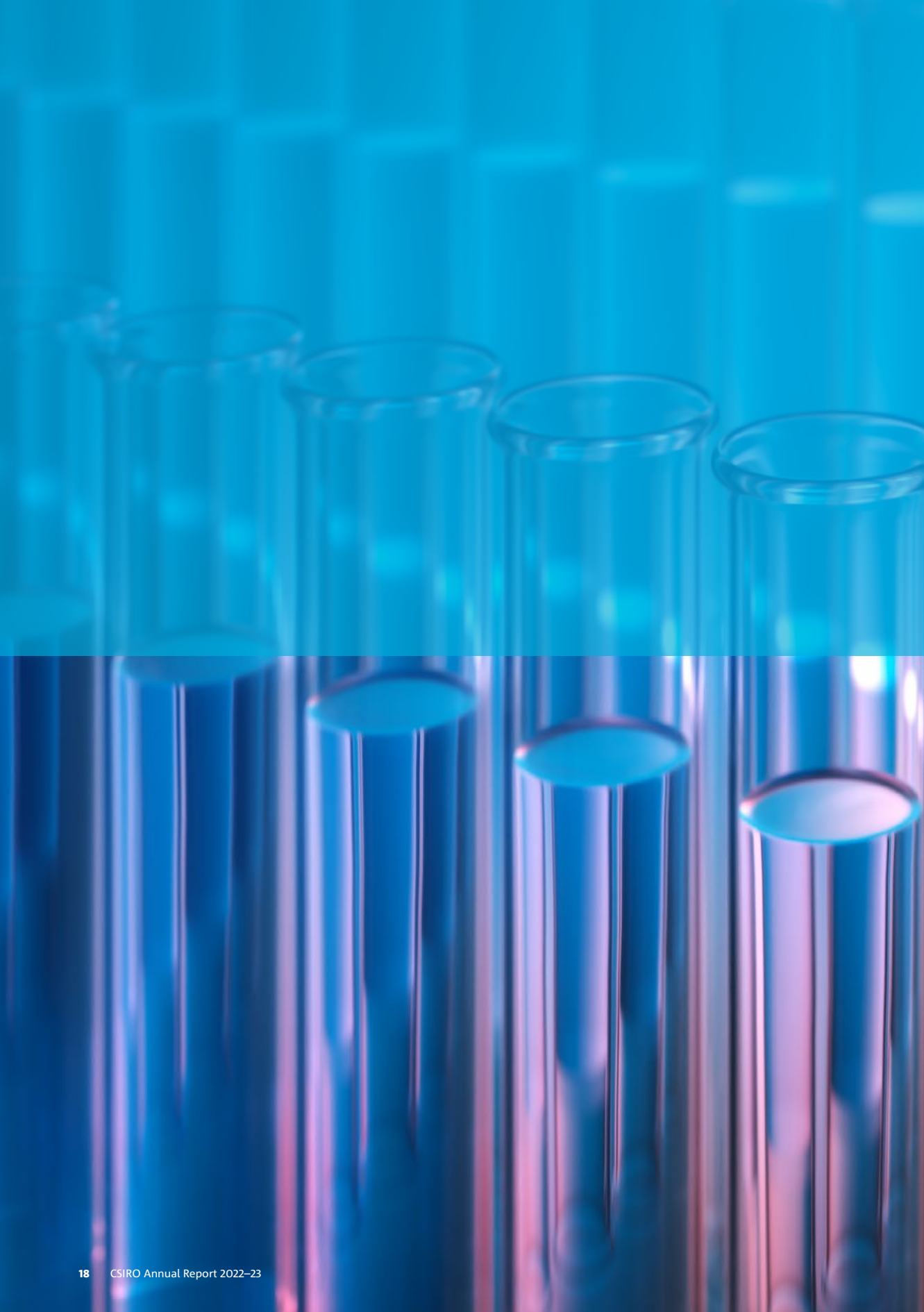
Operates the Research Vessel (RV) *Investigator* and maintains advanced scientific equipment and a library of more than 35 years of marine data.

National Collections

Manages collections of plants and animals of Australian and international significance.

Space and Astronomy Facilities

Operates radio astronomy, spacecraft communications and tracking, and collects satellite-derived data about Earth.



Part 1

Our purpose

Our strategy

Our strategy, as outlined in our Corporate Plan and Portfolio Budget Statement for 2022–23, directs how we will achieve our purpose and vision. It comprises the science challenges we set out to solve for the nation and the objectives that guide our delivery, supported by the values that underpin how we work.

Our purpose is to solve the greatest challenges through innovative science and technology

The challenges we are solving

Health and wellbeing	Enhance the health of Australians through preventative personalised, biomedical, and digital health services.
Food security and quality	Achieve sustainable security through new Agrifood products, technology and innovation for Australia.
A secure Australia and region	Help safeguard Australia from threats (terrorism, regional instability, pandemics, biosecurity, disasters and cyber-attacks).
Resilient and valuable environments	Enhancing the resilience, sustainable use and value of our environments, including by mitigating and adapting to the impacts of climate and global change.
Sustainable energy and resources	Build competitiveness, sustainability and security of our energy and minerals resources while heading to Net Zero.
Future industries	Help create Australia's future industries and jobs by collaborating to boost innovation performance and promote STEM skills.

Our values underpinning how we work

Making it real

Trusted

Our objectives to deliver

Deliver impact through innovation	Advance Australia's commercialisation of science and deliver new value from digital innovation.
Purpose-driven science and technology	Deliver impact at-scale aligned with the challenges we are solving and the portfolios of research directed to them. Invest in the right future science and technology to solve tomorrow's challenges.
Engage and empower talent	Attract world-class talent and strengthening our nation's STEM pipeline. Build a culture that makes us an employer of choice and operate in an adaptable, resilient and responsive way.
Build collaborative networks	Share our world-class national labs and facilities with industry, universities and government and harness the power of our diverse relationships for better outcomes.

Our vision is to create a better future for Australia

People first

Further together

Our research effort

We can categorise research and development according to its research effort – it is called Types of Activity. There are 4 categories:[2] pure basic; strategic basic; applied; and experimental development.

Figure 1.1 shows the proportion of our science investment using the 4 different research Types of Activity from across the strategy period 2015–23. The introduction of Future Science Platforms (FSPs) in 2017 as fundamental cutting-edge science was an early shift in the activity type. The missions program, introduced in 2019, was to drive more of a shift with enhanced cross-organisational activities that work closer to market, resulting in effective translation and adoption.

Contributing to the achievement of Australian national objectives

Socioeconomic outcomes allow R&D to be categorised according to the intended purpose or adoption. Figure 1.2 shows the investment levels of our research portfolio towards Australia's outcomes during the year. Our total research and development investment during the year was nearly $1.54 billion.

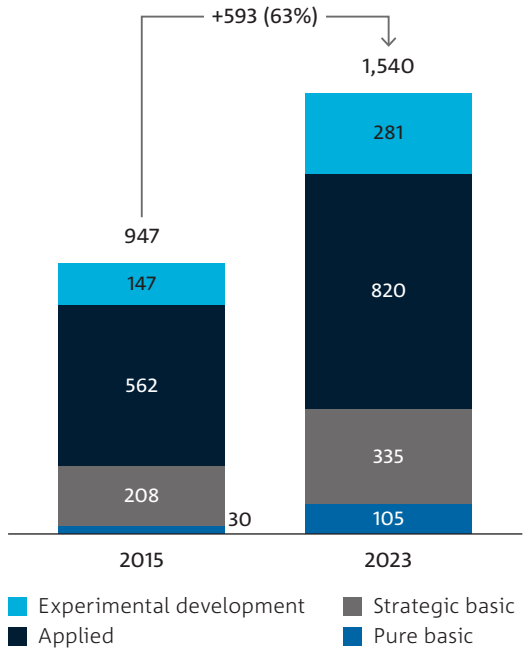


Figure 1.1: CSIRO level of investment by Types of Activity ($ million)

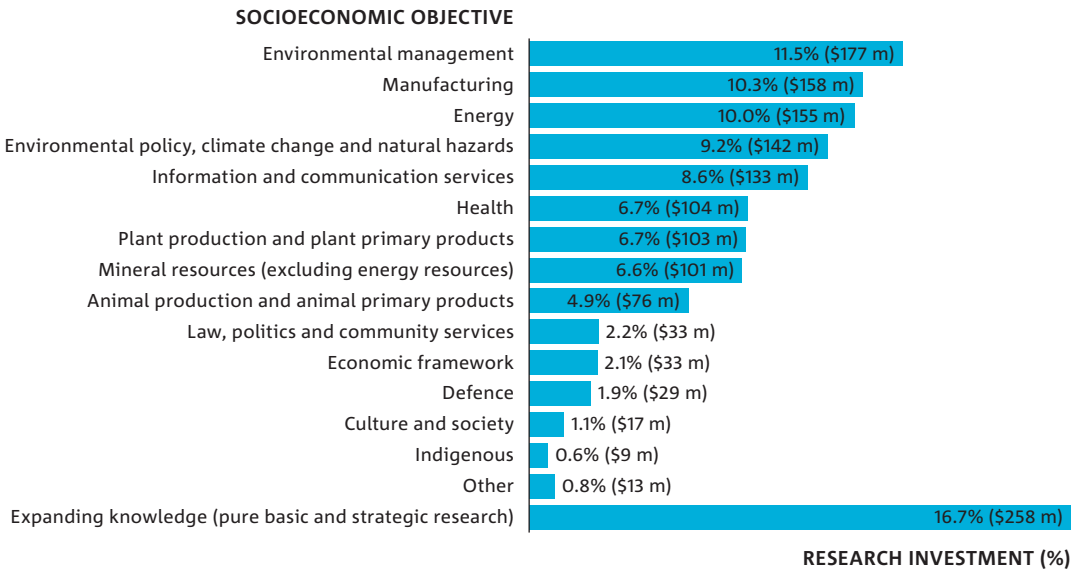


Figure 1.2: Our research investment (proportion %, $ million spent) by socioeconomic objectives[3]

2 Types of Activity: Australian and New Zealand Standard Research Classification (ANZSRC), 2020, Australian Bureau of Statistics (abs.gov.au).

3 Other category includes construction, education and training, commercial services and tourism and transport. Research investment includes all business units and National Facilities excluding Science Connect. Expanding Knowledge category mostly includes the R&D that does not have an identifiable socioeconomic objective, which is usually the case for pure basic and strategic basic research types of activity classification.

Returning value to Australia

In 2022–23, we continued refining how our research portfolio aligns to the greatest challenges we're solving for Australia. This work is ensuring our science and technology optimises the benefit from each investment made.

	Impact areas			
Health and wellbeing	Support healthier lives Page 28	Infectious diseases prevention and preparedness Page 63	Digital transformation of healthcare Page 78	Health technology solutions Page 70
Food security and quality	Profitable agricultural production Page 26	Improved crops and animals Page 79	High-value foods and seeds Page 26	Sustainable, trusted value chains Page 26
A secure Australia and region	Biosecurity Page 84	Defence and national security Page 61	Sovereign resilience Page 84	Stable and prosperous region Page 77
Resilient and valuable environments	Climate resilience Page 75	Healthy ecosystem Page 29	Resilient communities and built environments Page 189	
Sustainable energy and resources	Electricity transition Page 35	Industry and transport decarbonisation Page 27	Sustainable prosperity from resources Page 14	Value-added critical minerals Page 35
Future industries	Future high-tech industries Page 86	Transition to sustainable industry Page 80	Strengthen the innovation system Page 104	

8.4:1 return on investment

$10.2 billion annual benefit to the nation

Our partnerships

To meet our responsibilities under the SIR Act, we partner and engage nationally and internationally to deliver benefits to Australia.

Assisting Australian industry

Industry partnerships are a fundamental way to address national challenges, achieving impact and supporting Australia's interests. Businesses engage with us for reasons ranging from increasing competitiveness, expanding markets, developing new industries, to managing risk. In some cases, we collaborate to deliver research or technology solutions directly into a company's core business; alternatively, we may be supporting responses to environmental and social challenges, including climate change adaptation, sustainability, decarbonisation and energy transformation.

We have a long history of working with Australian small- to medium-sized enterprises (SMEs). There is high demand from those SMEs for research capability in the emerging post-COVID landscape, and the Australian Government's Modern Manufacturing Strategy highlights a national drive to better utilise R&D for economic growth.

Partnering with government

We continue to be a key partner of government in provision of advice, assisting with input to policy development and supporting the implementation of policies, programs and projects. We have formal advisory roles in a range of policy priority areas, including robotics, manufacturing, the National Reconstruction Fund, Biosecurity, critical technologies, and disaster resilience and recovery. We regularly provide briefings and reports to address government requests, briefings on research undertaken by us that is of interest to government, and submissions to government consultation and parliamentary inquiries.

Connecting with the Australian community

As Australia faced ongoing environmental challenges, natural disasters and technology disruption, our experts explained the science and our work on solutions in media interviews, social media engagement and community forums. Our social channels are a key platform for sharing information and building relationships with the community and securing our social license to operate. Despite ongoing digital disruption, our channels have continued to grow, with 10 per cent growth in followers in 2022–23.

Collaborating with Australian universities

We collaborate with most of Australia's publicly funded universities particularly in key research fields of agricultural sciences, environment and ecology, geosciences, plant and animal sciences, space science, computer science, material sciences and chemistry. Two-thirds of our publications involve Australian research collaborators, including from universities.

Liaising with other countries in scientific research matters

We connect globally to strengthen recognition of Australian science at an international level by pursuing key strategic partnerships – driving large programs of work to position us and the nation as:

- a competitive world leader in future science capability needs
- able to solve global challenges through mission engagement
- aligned to the Australian Government bilateral and multilateral agenda
- supporting our ability to respond to major global and sector specific market shifts in science and innovation.

Impacts for our region

As Australia's national science agency, CSIRO continues to build strong relationships with neighbouring countries to progress solutions to shared regional challenges.

Greenhope wins 1st prize at the Demo Day pitch event as part of the Road to G20: Beating Plastic Pollution from Source to Sea.

Professor Andy Hor, Deputy Chief Executive (Research) of A*STAR and Jonathan Law, Executive Director, CSIRO Growth.

Central Highlands Innovation Cluster signing ceremony, Vietnam 2022 with CSIRO and Đắk Lắk, Đắk Nông, Gia Lai, Kon Tum and Lâm Đồng province representatives.

Indo-Pacific

Indo Pacific Plastics Innovation Network (IPPIN): Aligned with CSIRO's Ending Plastic Waste mission, IPPIN aims for an 80 per cent reduction in plastic waste entering the environment by 2030. IPPIN brings together a collective of researchers, innovators and investors who are redefining the life cycle of plastic.

Singapore

A*STAR partnership: We are supporting Australia's commitment in the region by building stronger scientific collaboration and innovation links. We formalised our partnership with A*STAR Research Institutes Singapore with a Master Research Collaboration Agreement. This bilateral partnership will strengthen Singapore-Australia science, technology and innovation collaboration in fields of mutual interest relevant to the green economy and will create opportunities to develop networks on priority areas that will enable our green transition.

Vietnam

Aus4Innovation (A4I): An impact-driven development assistance program that aims to strengthen Vietnam's innovation system, prepare for, and embrace opportunities associated with Industry 4.0, and help shape Vietnam's innovation agenda in science and technology.

New Zealand

Agrifood and fibre research: We are partnering across New Zealand to investigate molecular farming for high-value crops and agricultural production systems simulation modelling. The focus is to share science and innovation knowledge across the 2 countries, particularly in agricultural production technologies and food safety.

Pacific Island countries

Building climate resilience: We are providing valuable purpose-driven science in Vanuatu's partnership to the Van-KIRAP project. A 5-year USD$22 million project aims to support climate resilient development in Vanuatu through the development, communication and application of climate information services for agriculture, fisheries, infrastructure, tourism, water sectors and communities.

Missions

Our missions program ensures we focus on the issues that matter the most: those which affect our quality of life, our economy and our environment.

Missions bring together research agencies, universities, industry, government and community to work collaboratively on outcomes that lead to positive benefit, new jobs and economic growth.

Since announcing the program in 2020, we have launched 8 missions with our partners and collaborators, each with an ambitious target to deliver by the end of this decade.

In 2022–23, we launched 3 of those missions: Towards Net Zero, Minimising Antimicrobial Resistance and AquaWatch Australia.

8
missions launched

$442 m
co-investment funding

1,181
mission-aligned projects

Missions launched since 2020

Hydrogen Industry

Launched: May 2021
Goal: Supporting global decarbonisation through a commercially viable Australian Hydrogen Industry comprising both domestic and export value chains by 2030.

Drought Resilience

Launched: September 2021
Goal: Reducing the impacts of Australian droughts by 30 per cent by 2030.

Future Protein

Launched: September 2021
Goal: Leverage increasing global demand for high-quality protein to create new Australian protein products and ingredients that earn an additional $10 billion in revenue by 2030.

Trusted Agrifood Exports

Launched: September 2021
Goal: Increase the value of Australian food premiums by $10 billion by 2030, by building trust in the safety, quality and provenance of our agrifood.

Ending Plastic Waste

Launched: March 2022
Goal: 80 per cent reduction in plastic waste entering the environment by 2030.

Launched 3 new missions

Towards Net Zero

Launched: October 2022
Goal: Helping Australia's hardest-to-abate sectors – including steel, aviation and agriculture – to halve their emissions by 2035.

Charting Australia's low emissions future

The opportunity

Australian industries like steel, aviation and agriculture are critical to our nation's prosperity; however, they account for 20 per cent of our greenhouse gas emissions. To meet Australia's net zero by 2050 target, and ensure our industries prosper in international markets, we must address all emissions sources.

The solution

Launched in late 2022, our Towards Net Zero Mission has been implemented to assist Australia's hardest-to abate sectors halve their carbon emissions by 2035. The $90 million mission was designed to help transition industries with new technologies and capability building.

The mission ensures we capture opportunities for our regions, communities and the environment as these industries change and generate new economic growth. Navigating Australia's transition to net zero will require new collaborations, analysis and roadmaps that allow us to discuss and select pathways, putting into use technologies for low emissions practice and expanding Australia's emissions offset capacity.

The impact

Towards Net Zero is uniquely positioned to bring together government, research, industry and communities to co-develop pathways to a low emissions future. To ensure these sectors remain globally competitive, we are building networks for learning and sharing, de-risking technological solutions, and creating demonstrations for rapid adoption and building industry platforms.

The Sustainable Aviation Fuel Roadmap finds Australia is in a prime position to develop a domestic industry. It identifies opportunities to produce and scale production using Australian feedstocks, and also highlights challenges the nascent industry must address including supply chain constraints, international standards and regulation.

Minimising Antimicrobial Resistance

Launched: February 2023
Goal: To halt the rising death rate and economic burden of antimicrobial resistance in Australia by 2030.

The silent pandemic

The opportunity

Antimicrobial resistance (AMR) is a looming global health crisis, recently designated by the World Health Organization (WHO) as one of the top 10 public health threats facing humanity – responsible for more than 1.27 million deaths globally a year. It occurs when bacteria and other microbes become resistant to drugs such as antibiotics, designed to kill them and treat infections, and is usually caused by overuse or misuse.

The solution

In 2023, CSIRO and the Australian Academy of Technological Sciences and Engineering (ATSE) released a report identifying the key challenges and opportunities Australia will need to address if it wants to help prevent, detect, diagnose and respond to AMR and reduce its impacts. The report, *Curbing antimicrobial resistance: A technology-powered, human-driven approach to combating the 'silent pandemic'*, recommends greater national coordination in the fight against AMR and a focus on streamlining commercialisation processes for new solutions and preventative technologies. Specific examples included surface sprays that change colour when pathogens are present and toilets that detect and disarm harmful microbes before they are flushed into our waterways.

The impact

The report said the focus on preventative technologies can make a positive impact on human, animal and environmental health, now and into the future, helping Australia and the world maintain and extend the effectiveness of antibiotics for longer.

These challenges create a situation where it can be difficult to determine which are the most pressing, and relevant needs to address first, the AMR Mission is developing a R&D roadmap for solutions, highlighting areas of greatest need and benefit to Australia.

Making medicine agile and more user friendly. As technology advances so do opportunities to manage health outcomes in homes. Taken from the report: *Curbing antimicrobial resistance: A technology-powered, human-driven approach to combating the 'silent pandemic'*.

AquaWatch Australia

Launched: March 2023
Goal: Ensure quality water resources with an integrated ground-to-space national monitoring system by 2026.

A weather service for water quality

The opportunity

Internationally, water systems are being threatened by climate change, environmental degradation, industrial pollution and other contaminants. Existing water monitoring technologies are often limited in their reach and in their ability to forecast future events.

The solution

Together with Foundation Partner SmartSat Cooperative Research Centre (CRC), we're bringing together research, government and industry with an initial co-investment to design and develop the AquaWatch Australia Mission. It will deliver a world-first ground-to-space water quality monitoring system for Australia and the globe. Once fully operational, the system will provide near real-time updates and predictive forecasting – a weather service for water quality. Data from an extensive network of ground-based sensors and Earth observation satellites will be integrated at a central data hub where our capability in data analysis and Artificial Intelligence (AI) can provide forecasts a few days ahead.

The impact

AquaWatch Australia has 6 pilot sites so far, including monitoring toxic blue-green algae blooms at Lake Tuggeranong in Canberra and monitoring sediment flow from the Fitzroy River out to the Great Barrier Reef.

It will globally support better water quality management, sanitation, aquaculture and environmental assessment, with early warning of harmful events such as toxic algal blooms, blackwater and runoff contamination. This will help increase the resilience of Australian communities who depend on water, improve outcomes for our natural environment after events like bushfires and floods, and help meet the United Nations' Sustainable Development Goals, including supporting Australia's commitments towards Goal 6: Clean Water and Sanitation.

CSIRO's HydraSpectra sensor for installation at the AquaWatch pilot site at Keppel Bay on Darumbal Sea Country, monitoring sediment and dissolved carbon flow from the Fitzroy River towards the Southern Great Barrier Reef.

Future Science Platforms

A key mechanism to solving the greatest challenges is our investment in cutting-edge and transformative research.

Our Future Science Platforms (FSPs) program is an investment in boundary-pushing science that will underpin innovation. The program's objective is to identify science breakthroughs that provide the potential to reinvent and create new industries for Australia.

These strategic initiatives are turning the greatest challenges into opportunities, where innovative science and technology can break through seemingly impossible problems to improve Australia's sustainability and prosperity.

313
CSIRO Early Research Career Fellows

1,050+
publications

43
registered IP filings

Deep Earth Imaging
2017–24
Imaging, conceptualising and predicting location and character of the Earth's deep resources

Environomics
2017–25
Using genomics to reinvent how we measure and monitor ecosystems

Responsible Innovation
2017–25
Delivering responsible science and technology for all Australians

Precision Health
2018–24
Transforming Australia's health

Hydrogen Energy Systems
2018–26
Sustainable hydrogen production, transport and use

Space Technology
2019–25
Growing Australia's space capabilities

Matured from the FSP program June 2023

Artificial Intelligence and Machine Learning
2019–23
Data science for Artificial Intelligence and machine learning technology development

Driving tomorrow's science

As each FSP reaches the end of its planned funding period, the best technologies and capabilities transition into our business units – moving to a new phase of development – or are adopted by research partners or follow another pathway to commercialisation. This pipeline allows us to introduce new FSPs to tackle the next emerging challenges.

To date, we have invested $518 million in 20 FSPs, and this year the program grew to a total annual investment of $92.6 million.

Round 4

Quantum Technologies
2021–26
Translating fundamental quantum research to address real-world problems

Microbiomes
2021–25
Interconnectivity of microbiomes across systems for One Systems Health

Valuing Sustainability
2021–26
Measures to underpin sustainable innovation for industries and communities

Autonomous Sensing
2021–26
Combining fundamental sensor research and autonomous engineering

Collaborative Intelligence
2021–25
The science to help people and machines be better together

Round 5

Revolutionary Energy Storage Systems
2022–27
New management systems to meet future energy needs safely, efficiently and sustainably

CarbonLock
2022–27
Radical innovation across carbon capture and carbon storage science

Immune Resilience
2022–26
Harnessing immune responses for better protection against diseases and emerging health threats

Advanced Engineering Biology
2022–27
Supercharging biotechnology delivery to support food security, health and sustainable manufacturing

Advancing First Nations science

We seek to create a science landscape in respectful partnership with Indigenous Australia, delivering innovative, sustainable, holistic solutions for our greatest challenges.

Helping Secret Harvest to further their Native Secrets botanicals

The opportunity

New extraction processes for native plants that are respectful and scientifically sound.

The solution

Working with Indigenous-owned businesses on research and products involving Indigenous knowledge requires deep respect and understanding from our people. These engagements take time and involve building trusted and respectful relationships that are as important as the science and technology being developed.

Small business Secret Harvest and its brand Native Secrets are owned by Bidjara/Kara Kara man Phil Thompson and Wailwan woman Cherie Thompson. They began working with CSIRO in 2022 to explore the potential of a plant Indigenous to the area around their farm on Wiradjuri Country outside Dubbo and in other parts of Australia. They were connected to CSIRO via our Kick-Start initiative to collaborate on new extraction processes for native plants.

'We thought working with CSIRO via Kick-Start was a great chance to explore opportunities around new technologies, extraction methodologies and our native plants. It's such a great fit for us… it's an opportunity to start telling positive stories about our people and to make sure we captured the wealth of knowledge known to our old people before it's lost… I've always thought that if we can share that knowledge then we can all benefit from it. This is an Australian story that we can all share and be really proud of,' Phil said.

The impact

CSIRO scientist and Adjunct Professor Peter Duggan, who is working with Secret Harvest, said 'Our best-case scenario is that CSIRO will say they've found the perfect extraction methodology for this plant, and it could be transferrable. Then that will be the technology that we'll invest in and we'll do that locally here in regional New South Wales. This could lead to the creation of as many as 30 new jobs for the region within 3 years'. 'This is a great opportunity for CSIRO to apply our expertise in botanical medicine development to an entirely Australian product with First Nations people,' said Peter.

This year we've launched several programs and initiatives to acknowledge and celebrate the wealth of generational knowledge and Indigenous expertise.

Indigenous Research Grants Program

Our Indigenous Research Grants Program was launched in October and will run for 4 years. It will kick-start science projects and increase Indigenous-led science by fostering collaborative partnerships through small-, medium- and large-scale multidisciplinary science priorities identified by Aboriginal and Torres Strait Islander people, communities and organisations.

This year we supported 11 applications in Round 1 (total funding $1,481,000), and Round 2 closed in May 2023. The program will contribute to support one Indigenous PhD candidate stipend, one Indigenous CSIRO Early Research Career Fellow and up to 10 Indigenous undergraduate students. As a result of the program, we now have 58 active Indigenous science projects across CSIRO and 11 of these are funded through the Indigenous Research Grants program.

Indigenous Graduate Program

Our Indigenous Graduate Program was launched in March 2023 to deliver against the priorities of the Government, supporting the Indigenous Science and Technology Sector by building the capability of Aboriginal and Torres Strait Islander graduates and developing the pipeline of future leaders of the innovation system. Our program offers 3 unique streams across enterprise services and research with a particular focus on supporting graduates through Higher Degree by Research studies to develop the next generation of Indigenous Scientists and STEM professionals. The program welcomed 12 Indigenous graduates across the 3 streams in June 2023 with a further 38 positions to be filled next financial year.

Inaugural CSIRO Indigenous Research Grants program

The opportunity

The Indigenous Research Grants program was designed to address priorities raised by Aboriginal and Torres Strait Islander people and to support Indigenous science while building the capability of Indigenous researchers.

The solution

One grant recipients was the Jurrargarbin Bunjarah ('Red and White paint made from stones') from Yugararpul language of the West Moreton region. This significant project is providing an Indigenous voice to the mining sector and involves the co-design of a framework for Indigenous engagement and reconciliation in the mineral resources field, specifically focusing on Indigenous perspectives and priorities. The Indigenous-owned social science research company Murawin Pty Ltd will conduct the fieldwork, producing a series of case studies of Indigenous perspectives to be used for further research and socialisation of the project.

The impact

The grants program will give Aboriginal and Torres Strait Islander people the opportunity to support Indigenous science and technology in their community and extend the reach of science far beyond the initial project. 'It was fantastic to receive so much interest in the grants program and I thank everyone who applied. I hope there will be even more applications this year,' said CSIRO Indigenous Science and Engagement Program Director Chris Bourke.

CSIRO team leader and scientist Katherine Locock on Country with Phil Thompson, co-founder of Native Secrets, a company supported by CSIRO Kick-Start, in Dubbo Wiradjuri Country.

Our global reach

We solve the greatest challenges, both for Australia and the world. We do this through maintaining an active international presence by building collaborative relationships that generate positive impacts for today and tomorrow.

His Excellency Manpreet Vohra, India's High Commissioner to Australia.

Supporting innovation in India

Australia's relationship with India continues to grow strategically, economically and scientifically. The $32.5 million CSIRO and India Partnerships consist of 3 packages: (1) The India Australia Rapid Innovation and Startup Expansion (RISE) Accelerator; (2) The India-Australia Critical Minerals Research Partnership; and (3) The India-Australia Green Steel Partnership. These are all designed to showcase our bilateral innovation ecosystem and advance our technology capabilities, which will support innovative technologies and export diversification pathways to deliver jobs of the future to the resources sector in the transition to a low emissions economy.

Partnering across the Pacific with US's National Science Foundation

The opportunity

Global challenges call for a global response. Climate change, clean energy and sustainability, building low emissions technologies and developing ethical Artificial Intelligence are some of humanity's most pressing global challenges.

The solution

These challenges are at the centre of an expanded, multi-million-dollar partnership between CSIRO and our sister science agency in the United States, the National Science Foundation (NSF). The partnership promotes collaboration between Australian and US researchers, supports the development and commercialisation of new technologies, and advances research and technology adoption. It also facilitates co-funded grant opportunities for Australian and US universities and research ecosystems to collaborate on research to address these global challenges.

In 2023, we became an international anchor partner in the NSF Global Centers on Climate Change and Clean Energy, alongside the NSF, the Natural Sciences and Engineering Research Council of Canada, the Social Sciences and Humanities Research Council of Canada, and UK Research and Innovation. The A$100 million Global Centers initiative supports interdisciplinary collaborative research hubs.

Our Chief Executive Dr Larry Marshall, Minister for Industry and Science the Hon Ed Husic MP and NSF Director, Sethuraman Panchanathan.

In Australia, the Global Centers will be supported where they align with our missions – specifically those responding to energy transition.

The impact

In addition to generating international sources of funding towards our missions and mission-like activities, this research partnership shows that solving global challenges cannot be achieved by one organisation or country alone. Collaborating with other organisations and countries with shared interests is vital in addressing these challenges.

Contributing to international targets

Paris Agreement

We are supporting Australia to become a renewable energy superpower and achieve net zero emissions.

The transition to net zero emissions by 2050 requires reinventing all that we do.

It requires new, cleaner and smarter energy systems and innovations in transport, fuels and materials, lowering emissions across multiple sectors while growing our economy and protecting our communities and standard of living. It also offers opportunity in realising significantly more value from our critical minerals, essential for the technologies to achieve net zero emissions.

To tackle this challenge, we are engaging with government and industry to deliver the science and technology to guide our journey forward.

For more than 2 decades, we have invested in innovation, built collaborations and platform technology, and analysed energy futures to better understand the pathways to achieve net zero. We have been developing roadmaps for hydrogen and low emission technology, turning our critical energy metals into high-value components for the energy transition.

We are leading the way with missions programs to catalyse innovation investment to build Australia's energy and resource security and competitiveness and our supply chains, all while lowering emissions.

These missions include:

- **Hydrogen Industry Mission** – underpinning development of a domestic and export hydrogen market.
- **Towards Net Zero Mission** – developing transition pathways to embed low-emission technology into Australian industries like agriculture and partnering with industry to build early demonstrators of low emissions technologies for critical industries like our iron ore export and processing industries.
- **Renewable Energy Powerhouse mission in development** – unlocking new critical mineral resources and creating Australian capability, technologies and new value-added partner-connected supply chains for affordable renewable energy generation and storage.
- **Smart Energy mission in development** – for reliable, affordable, sustainable and equitable energy by building integrated systems intelligence into our energy transformation.

Our boundary-pushing Future Science Platforms (FSPs) include the Hydrogen Energy Systems FSP developing new technologies to support a globally competitive future Australian hydrogen industry, and a new CarbonLock FSP launched in 2023 to permanently remove carbon from the atmosphere. A Revolutionary Energy Storage Systems FSP launched in 2022 is also developing new storage solutions to meet future energy needs. This research is underpinned by our world-leading climate science that informs a broad range of adaptation and mitigation drivers.

Our goal is to enable Australia's transition to a vibrant, resilient and sustainable renewable energy forerunner, participating in the international challenge of de-risking essential global supply chains for decarbonisation.

Sustainable operations

We ensure the sustainability of our organisation to continue to deliver on our purpose. Crucial to this is our financial performance revenue from our partnerships, business and commercialisation activities as summarised in Table 1.1. Total expenses of $1,639.2 million, externally generated revenue of $665.8 million and Government appropriations of $991.1 million. See Part 5 for our full financial reporting.

Governance and managing risk

We are committed to ensuring our future governance remains contemporary, fit for purpose, and serves as a driver and enabler of our science. In 2022, we established a Child Safe Office to provide dedicated support to our operations as a child safe organisation.

Breakthrough science, innovation and collaboration can carry significant risk of technical or scientific failure. We manage risks and mitigate their consequences in a considered and effective way. We recognise that to achieve our purpose, we must take measured and managed risks to best support the achievement of our objectives.

The CSIRO Board determines the nature and extent of the risk it will accept to achieve the organisation's purpose and strategy consistent with well-organised, ethical and cost-effective use and management of public resources. The Board supports our efforts to identify and manage our risks through 3 standing sub-committees (read more on pages 112–113).

Table 1.1: Investment in our research by source, $ million

REVENUE SOURCE	2018–19	2019–20	2020–21	2021–22	2022–23
Australian private sector	85.9	86.4	88.7	83.9	88.4
Australian governments	208.9	208.8	213.4	269.4	243.4
Rural industry research and development (R&D) corporations	44.5	38.2	35.6	30.3	32.1
Cooperative Research Centres	9.8	9.5	9.6	9.4	9.1
Overseas entities and international	93.2	98.6	75.3	73.2	84.5
Work in progress/deferred revenue	-8.9	-9.2	-26.7	-40.5	1.1
Total co-investment, consulting and services	**433.4**	**432.2**	**395.9**	**425.6**	**458.5**
Intellectual property (IP) – royalty and licence revenues	34.4	28.6	38.9	49.7	49.7
Total research and services revenue	**467.8**	**460.8**	**434.8**	**475.3**	**508.2**
Other external revenue	48.6	40.6	26.0	25.9	63.3
Gain/(loss) on sale of assets	11.5	1.6	2.6	0.6	9.2
Other fair value gains and reversals	1.1	40.8	36.2	55.5	85.0
Total external revenue	**529.0**	**543.8**	**499.6**	**557.3**	**665.8**
Revenue from government	834.6	837.9	960.5	949.0	991.1
Total revenue	**1,363.6**	**1,381.6**	**1,460.1**	**1,506.3**	**1,656.9**
Less expenses	1,396.4	1,388.6	1,383.2	1,387.4	1,639.2
Operating result	**-32.8**	**-7.0**	**76.9**	**118.9**	**17.7**

*See note 1.2F in the Financial statements.

Our net zero journey

We aim to be an exemplar of a sustainability culture and practice as befits a world-class research organisation with sustainability at its core. Our commitment is to achieve net zero emissions for our organisation by 2030.[4]

We have been reporting our emissions and energy use data since 2006 and have actively captured and collated our environmental performance data for internal use for many years prior. See Part 4 for our sustainability reporting.

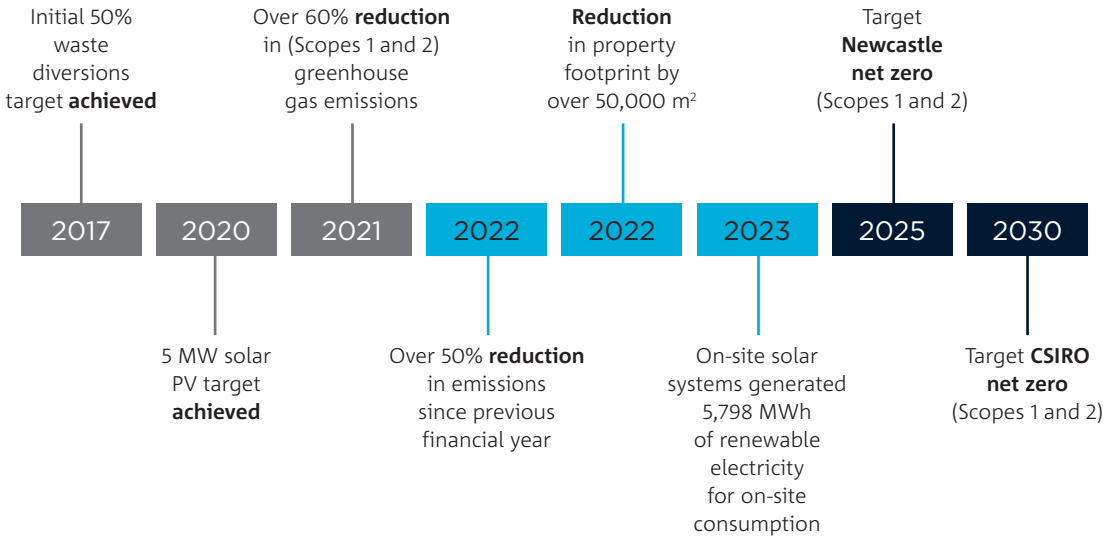
Building upon our significant actions to date, in 2022–23 our main activities have been:

- formation of a Waste Avoidance and Resource Recovery Strategy (WARRS) working group
- development of our Smart Buildings Roadmap
- completion of the phase 1 'shark tank' project
- completion of a carbon offsetting report
- formation of a climate risk working group
- development of a sustainable procurement tool.

Leading the field in sustainability

Our ambitious and creative approach to sustainability was recognised this year when we were named Sustainability R&D Leader in the 2023 Australian Financial Review's Sustainability Leaders list. Our submission focused on our Sustainability Strategy, which sets ambitious goals for improving our environmental, economic and social impact, as well as our comprehensive annual sustainability reporting.

In addition to the accolade, we were also featured as one of 5 organisations in the 'professional services, engineering, advisory' category, highlighting the initiatives implemented to reach net zero, such as the installation of solar panels on our buildings and our use of live energy dashboards, allowing building users to view energy consumption and renewable energy generation and identify efficiency gains.



4 finance.gov.au/government/aps-net-zero-emissions-2030

Part 2

Annual performance statements

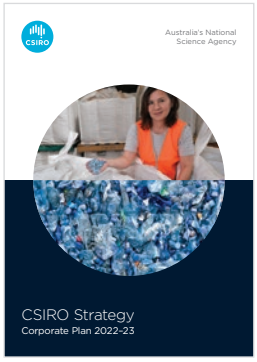
Introductory statement

The CSIRO Board, as the accountable authority of CSIRO, presents the 2022–23 annual performance statements as required under s39 (1) (b) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act). These annual performance statements are based on properly maintained records and accurately present CSIRO's performance in achieving its purpose for the year ended 30 June 2023 in accordance with s39 (2) of the PGPA Act.

Ms Kathryn Fagg AO
Chair, CSIRO Board
11 September 2023

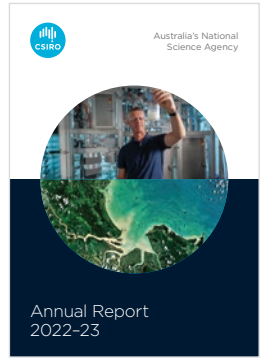
Our performance framework

CSIRO operates within the enhanced Commonwealth performance framework in accordance with the PGPA Act.



The PGPA Act requires each Commonwealth agency to produce a Corporate Plan at the beginning of the reporting cycle that sets out its purpose, strategies for achieving its purpose and how success will be measured. CSIRO's 2022–23 Corporate Plan is available at csiro.au/en/about/Corporate-governance/Corporate-Plan/22-23-corporate-plan

In addition, resources are provided to CSIRO through the Government budget process as documented in the Portfolio Budget Statements (PBS) for the Industry, Science and Resources Portfolio. The PBS states the outcome for CSIRO and includes high-level performance requirements (pages 107–119). For this reporting period there were 2 PBS releases, in March 2022 and again in October 2022 after a change in Government. The latest 2022–23 PBS for the Industry, Science and Resources Portfolio is available at industry.gov.au/corporate-governance/budget-statements.



At the conclusion of the reporting cycle, agencies are required to produce an annual performance statement and assess the extent they have succeeded in achieving their purpose. CSIRO measured its performance using 9 key performance indicators, with 24 associated metrics, as stated in our 2022–23 Corporate Plan (pages 38–39).

This section reports our results for 2022–23 against the purpose and performance criteria.

Our methods, data, sampling and targets

Methodologies

1. Quantitative counts.
2. Survey method is used to consistently measure and rigorously validate how we are performing over time. All survey findings are conducted, analysed and reported by independent providers to adhere to National Ethics Standards, avoid bias, and ensure credible performance reporting in accordance with the Public Governance, Performance and Accountability (PGPA) Rule.
3. Impact assessments and evaluations are conducted by third-party providers on CSIRO's procurement panel or undertaken internally and validated by external experts to ensure evaluation process and analyses are rigorous and the findings are defensible. CSIRO's evaluation guide, which is publicly available, is the reference document for all impact assessments. CSIRO impact assessments are published on www.csiro.au by default, unless the report is commercial-in-confidence or policy sensitive; for example, where publication may prejudice a commercialisation process, a government announcement is due related to the evaluation subject matter, an external partner has agreed to the evaluation for internal purposes only, or similar. In such cases the options are to delay publication for a time or publish a high-level summary only or both. As part of the recent review of CSIRO's Performance Framework, an international analysis of performance reporting approaches of peer research organisations was conducted, which highlighted that in-depth, rigorous, and validated case studies are a universally accepted way of demonstrating research organisations are delivering against their intended purposes. Therefore, we adopt a similar approach to align with this international standard and carry a global reputation of having a leading edge in the field.

Quality Assurance

All metric performance results are quality checked and approved at the Director level.

Weightings

All metrics are equally weighted.

Data sources

Internal systems with access to SAP, Opportunity to Delivery (O2D), Human Resources, Health and safety, Financial, IP, contract and engagement platforms. External surveys, impact assessment and evaluation data are sourced by third-party providers or requested from CSIRO systems.

Sampling

Impact assessments and evaluations are selected based on the following criteria:

Representativeness: Selected to reflect the breadth of activities undertaken by CSIRO and the type of research undertaken. This ensures a more comprehensive picture is available of the performance of the organisation (across provision of national facilities and infrastructure, education services and research, and across different impact pathways, that is, commercial, policy, capability building and learning).

Significance (strategic importance): Programs of work that are strategically significant to the organisation and/or represent large investments (for example, large Government initiatives, missions, FSPs) and all undergo impact assessments or evaluations at program close.

Evaluation readiness: The availability and accessibility of evidence for analysis to substantiate impact realised or expected in future, including the willingness of CSIRO's partners/customers to participate in the evaluation, determines if an assessment is shortlisted to proceed to evaluation.

Target setting

All targets are endorsed by the CSIRO Board, with oversight by the Board Audit and Risk Committee (Charter available: csiro.au/en/about/corporate-governance/minister-and-board/barc), which assists CSIRO and its Board in the areas of financial management, risk management, internal control and compliance. Targets are set to drive growth, establish new baselines in which forward goals can be agreed, or to maintain high performance.

Analysis of our performance

Table 2.1: Summary of performance against each strategic objective (2022–23)

OBJECTIVES	KEY PERFORMANCE INDICATOR	RESULT
1. Deliver impact through innovation	Demonstrate uptake and adoption	Achieved
	Enhance innovation translation	Partially achieved
2. Purpose-driven science and technology	Impact by alignment, design and scale	Achieved
	Drive future science opportunities	Partially achieved
	Be Australia's trusted advisor	Partially achieved
3. Engage and empower talent	Have a safe and inclusive workplace for all	Achieved
	Be a destination employer	Partially achieved
4. Build collaborative networks	Do fewer, bigger things together	Achieved
	Have shared national labs	Achieved

Table 2.2: Metrics partially or not meeting set targets for 2022–23

OBJECTIVE	KPI	METRIC
1. Deliver impact through innovation	Enhance innovation translation	Participation in ON programs
		SME facilitated projects
		Industry organisations engaged in education programs
2. Purpose-driven science and technology	Drive future science opportunities	Infrastructure usage rate Australia Telescope National Facility (ATNF) Australia Telescope Compact Array (ATCA) Australian Square Kilometre Array Pathfinder (ASKAP) Pawsey Supercomputing Centre (Pawsey)
	Be Australia's trusted advisor	Net Promotor Score
3. Engaged and empowered talent	Be a destination employer	Commenced and continuing industry-based PhDs (iPhD)

When assessing the overall performance of a KPI, those with single metrics are rated either 'achieved' or 'not achieved' in relation to meeting the set target. For KPIs with multiple metrics, they are rated either 'achieved', 'partially achieved' or 'not achieved' regarding the collective effort in meeting each individual target. For 2022–23, we performed well against the key performance indicators (Table 2.1) – 5 (56 per cent) out of 9 KPIs achieved, 4 (44 per cent) partially achieved and metrics identified in the Corporate Plan and PBS. Our performance met or exceeded expectations in 18 (75 per cent) of the 24 metrics and partially or not met expectations against 6 (25 per cent) metrics (Table 2.2).

This indicates we have been largely successful in delivering against our objectives and strategic priorities for the year, demonstrating a solid capacity to deliver against our purpose.

Our performance results were achieved in the context of a challenging and dynamic operating environment, as detailed in our strategy (see pages 16–21 in the 2022–23 Corporate Plan). This is likely to continue for 2023–24 and the outlook period to 2026–27 as we persist in solving the greatest challenges through innovative science and technology to create a better future for Australia.

NOTE: Single indictor metrics not meeting their set target are rated 'Not achieved'. The only multi-indicator metric is for 'Infrastructure usage rates' – which measures 4 facilities – with 2 facilities not meeting their set target, this metric is rated 'Partially achieved'.

2021–22 RESULT	2022–23 TARGET	2022–23 RESULT	2022–23 RESULT
N/A new metric	100	96	Not achieved
Mitigation action: As the ON program continues to rebuild its participation and partnering levels, based on a previously highly successful program, pipeline development channels have been established to prepare teams to feed into either a Bootcamp or ON Prime. Although not meeting the CSIRO stretched target of 100 teams, the ON program did exceed the contractual target of 50 teams in the first year of operating, with 85 teams completing the On Prime and On Accelerate programs.			
351 SME connections	350 SME connections	342 SME connections	Not achieved
Mitigation action: 2023–24 Corporate Plan sets stretch targets to drive a whole organisational push to increase SME engagement across more activities, programs, and initiatives. Goal is to double the number of SMEs engaged with public R&D by 2030.			
N/A new metric	82 organisations	65 organisations	Not achieved
Mitigation action: The Science Connect business unit is developing a growth plan for strategic partnerships, and refreshing approaches to drive greater whole-of-organisation commitment to CSIRO education programs.			
			Partially achieved
ATNF – avg. 68% ATCA – 70% ASKAP – N/A Pawsey – 94.4%	ATNF – avg. 70% Pawsey – 90%	ATNF – avg. 65% ATCA – 60% ASKAP – 59% Pawsey – 56%	
Mitigation action: The Team is also improving usage rates by minimising the down time from unexpected failure through proactive management and upgrades of components, as well as progress reporting on a quarterly basis, with particular tracking of those facilities with ageing components or other enhancement activities to be undertaken.			
+47	> +51	+49	Not achieved
Mitigation action: Feedback from the survey has been provided to leadership teams in the business units and relevant enterprise support functions to improve staff availability and pace of engagement in order to ensure we are effectively resourcing and moving at the speed of industry partners. In order to increase the response rate for next year, the Corporate Affairs team is proactively communicating with customers about the benefit we gain through their feedback, which results in providing them with improved service.			
N/A new metric	20	13	Not achieved
Mitigation action: Increased awareness and strong networks developed over the last 12 months have built momentum with universities and industry partners, resulting in a significant increase in co-designed projects in the second round of project development (40 in the 2023–24 pipeline already).			

Our performance results

CSIRO's performance in 2022–23 against our Corporate Plan KPIs, mapped to our 4 strategic objectives.

Objective 1: Deliver impact through innovation

Outcome: Deliver new value from digital innovation, support the translation of research into solutions and drive the nation's commercialisation outcomes through our unique commercialisation pathways capabilities, industry and investor connections, and access to funding opportunities.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Demonstrate uptake and adoption	**Total annual Intellectual Property (IP) revenue** (also a PBS metric)	$50 million	≥$39 million	$59 million
	ACHIEVED Our IP revenues grew to $59 million (representing a 18% increase from 2021–22), including $50 million in underlying royalties and $9 million in proceeds from the sale of IP. Our commercialisation and technology translation continues to play a leading role in the Australian innovation ecosystem, particularly considering overall licensing and spinout activity. **Methodology:** Quantitative count – $ million. **Source:** SAP. **Quality assurer:** Chief Financial Officer.			
	Value of CSIRO's equity holdings (also a PBS metric)	$159.8 million	$150 million	$221.96 million
	ACHIEVED The value of our direct equity portfolio grew to $221.96 million (representing a 38.9% increase from 2021–22) or $233.46 million if NICTA holdings are included, with $6.7 million realised from our portfolio. Spinouts and equity positions were created despite challenging market conditions both in Australia and globally. **Methodology:** Quantitative count – $ million. **Source:** SAP. **Quality assurer:** Chief Financial Officer.			

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Enhance innovation translation	**Normalised Citation Index (NCI) at science field**	N/A	At least ¾ (75%) RISE units of assessment in top 3 quartiles	87% in top 3 quartiles (20 out of 23 units)

ACHIEVED

We benchmark each business unit's key research fields against peer institutions (mainly governmental and applied research organisations, with some corporations included). Comparison with the university sector is increasingly inappropriate for us as their research has very different citation patterns, and institutional results are distorted by growing academic collaboration in some fields.

Our system, Reporting and Improving Science Excellence (RISE), considers our science to be excellent if we are ranked in the top quartile of peers, and strong to adequate if we are ranked in the 2nd or 3rd quartiles. In total, there were 23 Units of Assessment. In 11 units we were ranked in the top quartile of peers, covering 58% of the publications included in the evaluation. In a further 9 units, we ranked in the 2nd or 3rd quartile of peers, covering 33% of the evaluated publication, and in 3 units we ranked in the bottom quartile, representing only 9% of the publications included in the evaluation.

Methodology: Quantitative count – # of academic publication citations. **Source:** Bibliometrics. **Quality assurer:** Director, Science Impact and Policy.

	Participation in ON Program	N/A	100	96

NOT ACHIEVED

A total of 96 teams participated throughout 2022–23, across all ON Program activities, with many more engaging in pipeline activities at an individual level. Teams were involved in:

- ON Prime and ON Accelerate programs (85 teams, a total of 274 participants)
- ON Accelerate Bootcamp (11 teams, a total of 35).

In efforts to reactivate the innovation ecosystem and stakeholders, we engaged nationally in face-to-face forums with almost 300 attendees across workshops and roadshow events, with a further 200 attending the 'Further Together – unlocking value from research' event in December 2022, aimed to promote our activities under the University Research Commercialisation Action Plan.

Methodology: Quantitative count – # of participants attending ON Accelerate, ON Prime and Bootcamps **Source:** O2D. **Quality assurer:** Director, Strategic Delivery.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Enhance innovation translation	**Externally validated evaluations of Indigenous science and engagement programs or projects**	N/A	2 evaluations completed	2 evaluations completed

ACHIEVED

Evaluation 1 results: Our Community Sentiment Survey annually measures our reputation and trust on a yearly basis across the general public. In 2023, we commissioned a sample of Aboriginal and Torres Strait Islanders (251 interviewed) for deeper insights into their views of us. The CSIRO 2023 Aboriginal and Torres Strait Islander Sentiment Research Insights Report found prompted awareness amongst Aboriginal and Torres Strait Islanders was high at 73%, and 52% reported their perception of us as positive or very positive. Regarding knowledge about us, 43% had a moderate or significant amount. Unprompted, 29% of respondents nominated us as a trusted innovation, science and/or research organisation. Finally, respondents were in high agreement that we are trusted (66%), an advancement for the greater good of Australia (68%), and a research organisation that has a positive impact and outcome (65%).

Evaluation 2 results: In June 2023, we commissioned Yulang Indigenous Evaluation, an Aboriginal-led consultancy, to conduct a process assessment of the CSIRO Indigenous Research Grants Program's first year. The evaluation found the program showcases best practice for a grants program where Aboriginal and Torres Strait Islander people are involved as research participants or business partners. It was carefully structured and thoughtfully applied to align in important ways with aspects of Aboriginal and Torres Strait Islander cultures including protocols and rights. The program's flexibility allowed for exploration of projects with communities that reflected their priorities, and the emphasis on Indigenous governance and data sovereignty in the program's development was also a strength. With continued investment, the program's impact will be in upskilling applicants and increasing opportunities for showcasing diversity, meanings and benefits of Indigenous science; along with improving the range of resources about Indigenous science research and processes; the capacity and capability of us to work with and for Aboriginal and Torres Strait Islander people, communities and organisations; and our attractiveness as a place to work for Indigenous scientists.

Methodology: Externally validated evaluations – systematic assessment that critically examines programs. **Source:** Internal program data and interviews. **Quality assurer:** Program Director, Indigenous Science and Engagement.

Number of SME facilitated projects	351	350	342

NOT ACHIEVED

This result represents the number of R&D facilitated projects through our Kick-Start and the government funded Innovation Connections programs – including projects with us, Australian universities and other research organisations. The result is slightly lower than the target (8 SMEs or 2.3%) due to Innovation Connections closing immediately after the May 2023 budget announcement, affecting further projects from commencing in the last 2 months of the financial year.

Methodology: Quantitative count – # of SMEs involved in Innovation Connect programs. **Source:** SAP. **Quality assurer:** Director, SME Connect.

Number of industry organisations engaged in education programs	N/A	82	65

NOT ACHIEVED

CSIRO continuously engages with STEM industry organisations to support, advocate and provide opportunities in education programs. 'Engaged' is defined as having a strategic, whole-of-organisation commitment with an education program. It does not include, for example, every organisation that provides an individual STEM professional mentor or volunteer (which would be several hundred). The number of organisations 'engaged' is counted each quarter. In 2022–23, the quarterly count of organisations was: Q1 = 71, Q2 = 63, Q3 = 61, and Q4 = 63. An average of 65 for the year.

Methodology: Quantitative count – # of organisations working with CSIRO Education and Outreach programs. **Source:** O2D. **Quality assurer:** Services Program Director, CSIRO Education and Outreach.

Objective 2: Purpose-driven science and technology

Outcome: Impact-driven focus, motivated by national challenges, harnesses leading-edge science and technology to create exponential impact for the nation.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Impact by alignment, design and scale	**Externally validated assessments of triple bottom line impacts from a cross-section of the science areas reported annually** (also a PBS metric)	20	20	20
	ACHIEVED Each year CSIRO commissions impact case studies that are used to represent the value of our research activities and national facilities, collections and services programs. During 2022–23, we completed the targeted 20 impact case studies, which aim to cover the breadth of the organisation's investment portfolio. **Methodology:** Mixed methodology – externally conducted and validated impact case studies. **Source:** SAP, O2D and external interviews. **Quality assurer:** Director, Strategy.			
	Benefit Cost Ratio (BCR) reporting CSIRO's return on investment every 2 years (also a PBS metric)	8.4:1 BCR $10.2 billion value per annum	At least $1.5 billion value per annum	8.4:1 BCR $10.2 billion value per annum
	ACHIEVED This assessment provided an estimate of the overall value we deliver to the nation, mainly drawing upon the 170 impact case study findings. The 2023 report confirmed the previous estimate of an 8.4:1 return on investment (ROI), indicating that for every $1 invested in CSIRO, at least $8.40 in value is returned to the Australian people. **Methodology:** Mixed methodology – Benefit Cost Analysis. **Source:** SAP, O2D, impact case studies and external interviews. **Quality assurer:** Director, Strategy.			
	CSIRO's science investment in missions	$97.5 million	$140 million	$178.4 million
	ACHIEVED In 2023, missions continued to catalyse a substantial shift in our organisation's investments and activities. The portfolio of 13 missions and missions-in-development constituted $178.4 million in internal and external investment, on track to constitute a third of our impact science investment by 2025. Internal investment into mission-aligned activity was $67.5 million of the total. $110.9 million was derived from external revenue, of which $29.4 million was originated as part of the missions' strategies; a 46% increase on last year. **Methodology:** Quantitative count – $ million. **Source:** SAP. **Quality assurer:** Director, Strategic Delivery.			

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Drive future science opportunities	**Whole-of-life registerable and non-registerable intellectual property (IP) from Future Science Platforms (FSPs)**	268	>268	401

ACHIEVED

The 2022–23 target was exceeded, with the total reported IP increasing from 268 to 401, increasing the total IP listings by 133 (33%). The substantial increase particularly reflects growth in the non-registerable IP category, which includes source code/algorithms/ software and other IP such as know-how. However, there has also been a growth in registerable IP (up 8% from last year).

Note: This data is collected on a calendar year cycle (1 January 2022 to 31 December 2022), reported here as the annual result. The result is comprised of life-to-date IP data for all 20 FSPs funded to date, including 4 newly established Round 5 FSPs (commenced January 2022) and 4 Round 1 FSPs that matured and transitioned from the program at 30 June 2022.

Methodology: Quantitative count – patents, source code/algorithms/ software and other IP such as know-how. **Source:** Internal IP registration system. **Quality assurer:** Director, Science Impact and Policy.

Infrastructure usage rates (also a PBS metric)	ATNF – avg. 68% Pawsey – 94.4% NRCA – 70% (avg. over 5 years) MNF – 80%	ATNF – avg. 70% Pawsey – 90% NRCA – 70% (avg. over 5 years) MNF – 90%	ATNF – avg. 65% Pawsey – 56% NRCA – 70% (avg. over 5 years) MNF – 98%

Australia Telescope National Facility (ATNF), Australia Telescope Compact Array (ATCA), Australian Square Kilometre Array Pathfinder (ASKAP), Pawsey Supercomputing Centre (Pawsey), National Research Collections Australia (NRCA), Marine National Facility (MNF)

PARTIALLY ACHIEVED

ATNF: Average 65% of hours for astronomical observation (4.6% decrease from 2021–22).

Parkes: Successful observing time just on 70%.

ATCA: Achieved 60% successful observing time. Completion of the StarFISH Legacy project created some unused 'Green time' not usable for other projects. Increase in the fraction of time lost to equipment failure was partly due to the sudden failure in January 2023 of the cable management system in one of the antennas, which took 2 months to repair. Ageing components are being replaced.

ASKAP: One of our newest radio telescopes, achieved 59% observing time in the period April 2022 to March 2023 inclusive, just slightly below the target of 60% for this year. In this period, 4.1% of scheduled observing time was lost due to equipment failure. Additional delays were caused by teething problems with the Setonix rollout, which have been addressed in close collaboration with the cluster vendor. While not currently included in the ATNF target, due to the requirement to scale usage rates in line with physical infrastructure capacity, from 2023–24 ASKAP will join the ATNF 70% target.

Pawsey: 56% core hours on supercomputer usage (41% decrease from 2021–22). A change in systems at the Pawsey Supercomputing facility has impacted the core usage rate for this reportable period. Usage was 94% between July and December 2022, on track to exceed the target. With the deployment of Setonix Phase 2 between January and March 2023 there was a reduction in usage (due to systems being offline for extended periods of time). Usage for this period was calculated at 45%, bringing the total usage rate for the reporting period to 56%.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Drive future science opportunities	**NRCA:** 70% outward loans of collections (averaged over 5 years) (maintained usage from 2021–22). NRCA outward loans target recognises that preparing loans requires significant time investment and some requests may not be possible to comply with international conventions and legislation. NRCA met the objectives of outward loans, noting that the 2 Collections closed for relocation activities were omitted from statistics this year. **MNF:** 98% successful research days delivered (18.4% increase from 2021–22). MNF research days recognises the percentage of the planned schedule that was successfully delivered, meeting the stated voyage objectives. MNF met the objectives of the planned schedule of 11 research voyages totalling 298 operational days. **Methodology:** Quantitative count – # of days facilities are in operation. **Source:** Internal individual facilities booking systems. **Quality assurer:** Director, National Collections and Marine Infrastructure; Director, Space and Astronomy; and Director, Pawsey.			
Be Australia's trusted advisor	**Positive public sentiment of CSIRO**	74%	≥74%	74%
	ACHIEVED Our Community Sentiment Survey results showed our positive sentiment in the community remains high and stable at 74%. In addition, our trust rating remains consistently high, with a total trust score combining both 'moderately and extremely trustworthy' of 88%, from 86% in 2022. **Methodology:** Externally conducted online survey. **Source:** Representative sample of the Australian general population. **Quality assurer:** Director, Corporate Affairs.			
	Positive business sentiment of CSIRO	73%	≥75%	80%
	Our Business Sentiment Survey showed our positive sentiment with business increased to 80%, from 73% in 2022. Industry awareness of the potential to work directly with us increased to 52%, from 44% in 2022. Our trust score (moderately and extremely trustworthy) increased to 94%, from 90% in 2022. In this period, we were named the 'most trusted' Government Service in the Trusted Brand Awards, based on Roy Morgan's ongoing Risk Monitor survey. **Methodology:** Externally conducted online survey. **Source:** Sample of Australian businesses. **Quality assurer:** Director, Corporate Affairs.			
	Customer satisfaction measured through Net Promoter Score (NPS)	+47	>+51	>+49
	NOT ACHIEVED Our annual Customer Satisfaction Survey generates a Net Promoter Score – a customer loyalty metric that measures the likelihood of customers recommending CSIRO to others. A score of +49 represents a +2 point increase from 2021–22 but did not reach the target KPI of +51. We also continue to struggle to increase the response rate in our survey. As NPS scores range from -100 to +100, our score of +49 represents a good result that is considered excellent by industry standards. The survey indicates that 88% of the respondents think we perform ethically, 91% believe our science is of high quality and 94% like the way they are treated. Overall, our customers satisfaction rate was 79% – a slight increase on the previous year. Feedback collected through the survey emphasises the professionalism and expertise that CSIRO brings to collaborations and the appreciation that we engage with partners as a team. At the same time, staff availability and pace of engagement were noted as 2 areas where we could improve. We are evaluating this feedback as we focus on engaging for impact and improving our systems and processes to better enable us to move at the speed of business. **Methodology:** Externally conducted online survey. **Source:** Sample of CSIRO customers. **Quality assurer:** Director, Strategic Delivery.			

Objective 3: Engage and empower talent

Outcome: We have a workforce of the best and brightest minds united by our purpose. Our people are enabled to work seamlessly across teams and develop sought-after careers in and outside CSIRO.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Have a safe and inclusive workplace for all	**Hazards and proactive health, safety and environmental (HSE) reporting**	3,164 (771 hazards, 2,385 HSE contact)	1,800	4,314
	ACHIEVED Hazards and proactive HSE reports increased by 27% to 4,314 from 3,164 in 2021–22, well exceeding the 1,800 target. HSE reporting consisted of 1,125 Hazard reports (31% increase) and 3,189 HSE Contacts (25% increase). **Methodology:** Quantitative count – # of reported hazards and safety contacts. **Source:** DoneSafe (Health and Safety) system. **Quality assurer:** Director, Health Safety and Environment.			
	Diversity in leadership defined by the proportion of female leaders	41.1%	≥41%	42.9%
	ACHIEVED We have exceeded the 2022–23 target to now have 42.9% female leaders in CSIRO, seeing an increase of 1.8 points (4.2%) from last year. We have invested heavily in gender equity initiatives and are currently participating in several external benchmarking and accreditation programs such as Science in Australia Gender Equity, Workplace Gender Equality Agency, Champions of Change and the Women in STEM Decadal Plan. **Methodology:** Quantitative count – # females in CSOF 6 and above roles. **Source:** SAP. **Quality assurer:** Director, Life.			
	Staff survey capturing sentiment towards CSIRO's culture	34th percentile	37th percentile	43rd percentile
	ACHIEVED Our Culture Pulse Survey enabled us to check in on the actions that are underway following the full Culture Survey from 2021–22. Our results (43rd percentile) showed an increase of 9 percentile points (from 34th percentile) for the Core Values index, which sees us significantly outperforming organisations in the global public administration benchmark and puts us on par with organisations in Australia and New Zealand. We continue to focus on our CSIRO Values as key enablers of our culture. **Methodology:** Mixed methodology – Externally conducted online survey. **Source:** CSIRO staff population. **Quality assurer:** Director, Life.			

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Be a destination employer	**Successful diversity in recruitment and retention of staff employed through the Impossible Without You campaign**	N/A	40/40/20% Men/Women/ Neutral 3% Aboriginal and Torres Strait Islander	51%/48%/0% Men/Women/ Neutral 6% Aboriginal and Torres Strait Islander

ACHIEVED

The program is in its final phase, which is focused on recruitment of talent. As it evolves, future phases will concentrate on retention. Our attention on diversity and inclusivity resulted in the inaugural appointments of 51% men and 48% women, consistent with our gender diversity targets for the program. This result includes 12 Aboriginal and Torres Strait Islander graduates commencing, representing 6% of people appointed in the program, well in excess of the original target of 3%, with a further 38 roles to be filled next financial year.

Methodology: Quantitative count – % of recruited staff by gender and Indigenous. **Source:** SAP. **Quality assurer:** Chief Scientist.

Commenced and continuing industry-based PhDs (iPhD)	N/A	20	13

NOT ACHIEVED

At 30 June 2023, across the iPhD program (including its preceding Pilot Program) there were 32 Higher Degree by Research candidates that either commenced or were underway in 2022–23. This includes 19 candidates in the pilot program and 13 projects commencing under the newly funded program. During the 2022–23 period, 7 of the 19 candidates completed their PhD (graduated). Recruitment for the new phase of the program was lower than initially targeted, due to being delayed while program funding was confirmed in the October Budget. Additionally, challenges came from the tight labour market, noting 3 projects are still seeking to recruit suitable candidates. Increasing awareness of the program and the strong networks built over the last 12 months have built momentum with universities and industry partners and a significant increase in co-designed projects in the second round of project development, during the 2022–23 period. This resulted in more than 40 projects being identified across 24 universities and more than 35 industry partners, in preparation for the next period of student recruitment in late 2023. This national program is demonstrating the ability to recruit, train and graduate STEM professionals with the knowledge and skills to better translate research, work at the interface of science and industry, and build new sectors for the future.

Methodology: Quantitative count – # of student contracts. **Source:** SAP. **Quality assurer:** Director, Science Impact and Policy.

Percentage of internally filled positions	N/A	Establish baseline	30% internally filled positions

ACHIEVED

We maintain our commitment to nurturing our talent pipeline to seek and keep the best. Encouraging mobility of staff allows for agile use of talent and offers career shifts and changes. Of those positions formally advertised as an opportunity in 2022–23, 30% were filled by internal talent. Yet, due to growth in areas across the organisation, external talent was also needed to meet the demand for capability; therefore, our overall headcount increased by 11.4% this year. Over the year we continued to explore new and innovative ways to internally mobilise our capability across our strategic priorities. We are close to launching our 'Talent Marketplace' platform – a key component of our broader strategy to innovate and re-design how we work collaboratively and productively. By leveraging technology and infrastructure, we aim to create a dynamic platform that empowers our people to access new opportunities, collaborate with others, and showcase their skills and expertise.

Methodology: Quantitative count – % of vacancies filled by existing CSIRO staff. **Source:** SAP. **Quality assurer:** Director, Launch and Careers.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Be a destination employer	**Percentage of CSIRO Early Research Career (CERC) Fellows retained as future leaders**	46%	42%	68%

ACHIEVED

The SIR Act and the Minister's Statement of Expectations requires us to contribute to Australia's STEM capability. We deliver against this requirement through many programs (see pages 95, 97, 98, 105, 107, 110 and 188), yet key to our success has been the training of CERC Fellows. At the completion of this training program, the researchers have comprehensively developed leadership skills, impact-oriented mindset and exceptional science excellence. Our goal is to retain a portion of these fellows to feed into discipline areas that align with our strategic direction, as well as provide the innovation system with highly skilled talent.

This year we retained 68% (22 points or 32% higher than 2021–22), leaving 32% available to the wider system to optimise. The exceeding of this target was significantly influenced by our Impossible Without You program, which added funding for an additional 32 CERC retentions.

Methodology: Quantitative count – % of Fellows retained post contract end. **Source:** SAP.
Quality assurer: Director, Launch and Careers and Director, Science Impact and Policy.

Objective 4: Build collaborative networks

Outcome: We collaborate across the global innovation system, share our national labs and world-class infrastructure, and build strong partnerships to support research and development (R&D) investments, amplify innovation and solve our greatest challenges, together.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Do fewer, bigger things together	**Average of deployment-in and deployment-out proportions**	8.6%	>20%	22%

ACHIEVED

The average of deployment-in and deployment-out proportions across our organisation measures how project resources are shared internally to collaboratively solve our greatest challenges. In 2022–23, research business units were slightly more active in deploying out their talent to support other research project areas (24.3%) than bring in talent (18.6%), resulting in an average of 22% of cross-organisational collaboration.

This result demonstrates how talent is actively shared in order to leverage capabilities and support multi-disciplinary teams that work to solve complex problems, amplifying how we work together to achieve our purpose.

Methodology: Quantitative count – research staff allocations. **Source:** SAP.
Quality assurer: Chief Financial Officer.

KPI	METRIC	2021–22 RESULT	2022–23 TARGET	2022–23 RESULT
Have shared national labs	**Externally validated evaluations of CSIRO's infrastructure investments reported annually**	N/A	2 evaluations completed	2 evaluations completed

ACHIEVED

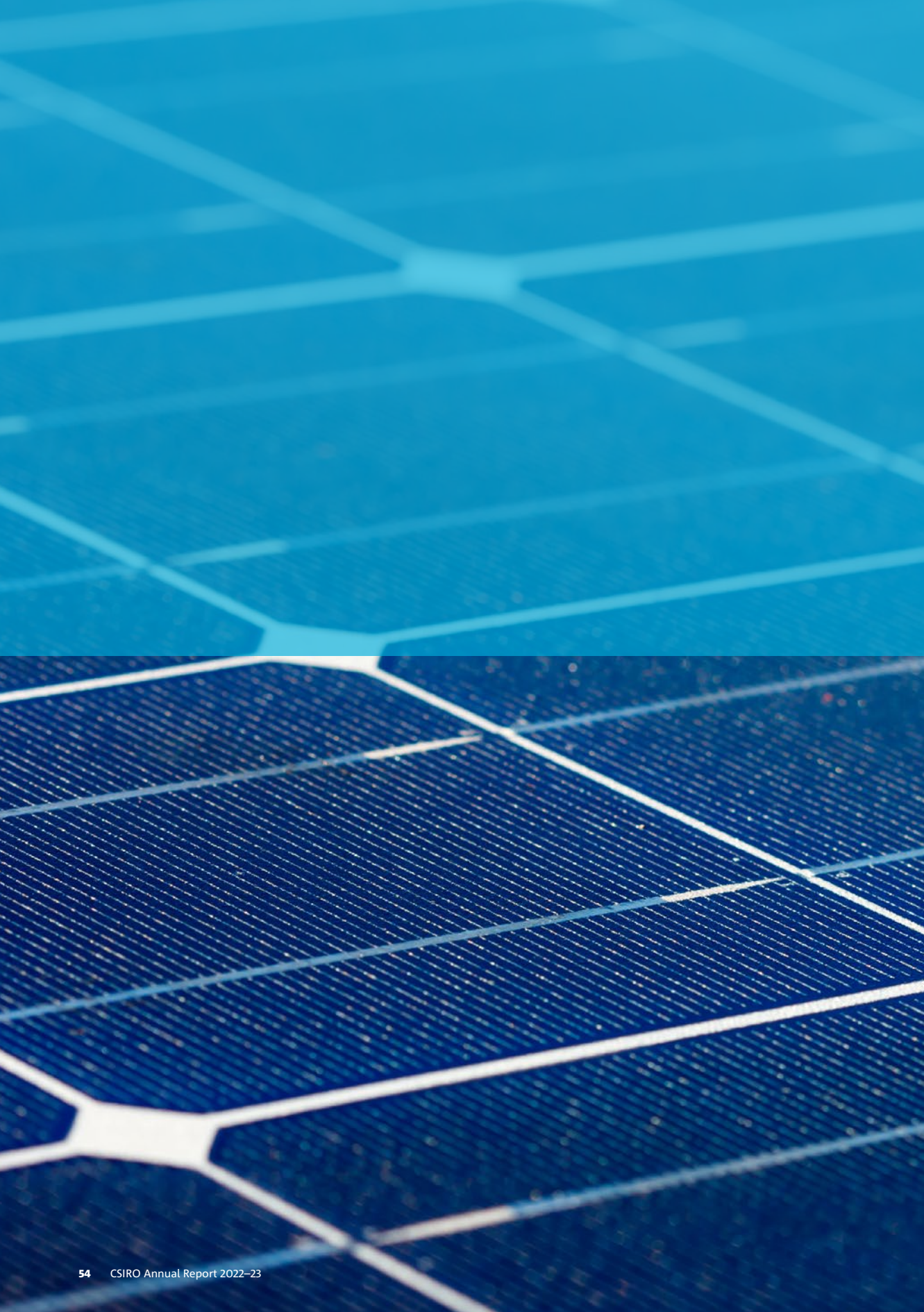
Evaluation 1 results: Lindfield Collaboration Hub (LCH) was established to create a specialised space to support the Australian manufacturing sector's start-up ecosystem in building, testing and iterating prototypes and products. The LCH business model enhances collaborative networks, develops innovation-based commercial opportunities, and increases the competitiveness of SMEs and start-up companies with which we engage.

In the 7 years since inception, LCH has become NSW's key innovation incubator, supporting over 40 start-up companies and creating more than 150 new jobs. Ten businesses are currently on site, with 3 new companies being established in the last 12 months. Connect@Lindfield, a pre-accelerator program for hardware start-ups and SMEs looking to grow and scale their business and make a real impact, was relaunched this year, providing 8 participating companies access to world-class researchers, industry networks and mentoring from experienced entrepreneurs.

Evaluation 2 results: Westmead Research Hub, part of our Sydney Site Consolidation Project, opened in August 2022. The Hub enables world-class research on clinical trials, diagnostics for early disease detection and prevention, virtual care models of chronic disease and aged care, health system analytics and bioinformatics, and using Artificial Intelligence for health. It also increases access to clinicians and other researchers within the Hub, and the large and diverse Western Sydney population base. This is facilitating a strategic business advantage and aligning to Australia's innovation precinct developments in our major cities and the global rise of innovation hubs at scale.

Feedback from our staff relocated to the Hub (December 2022) was positive in relation to the quality and functionality of facilities and internal collaborative opportunities. The expected increase in professional interaction with other organisations in the precinct was not reported as favourably, suggesting such intended benefit is still yet to be realised. Team adjustment and on-site attendance were both areas reported positively, and most respondents (95%) suggested, assuming no increase in the severity of COVID-19, they would maintain or increase their attendance going forward, signalling a return to the benefits of on-site interaction and collaboration.

Methodology: Mixed methodology – externally conducted and validated evaluations.
Source: Internal program data, surveys and external interviews. **Quality assurer:** Director, Health and Biosecurity and Director, Strategic Delivery.



Part 3

Our priorities

Delivering strategic priorities and expectations

Our success is achieved through a focus on the strategic priorities and key initiatives identified in the CSIRO 2022–23 Corporate Plan to deliver on our objectives. Each are designed to drive shifts and progress against our 4 objectives.

Our priorities also align with the Minister's Statement of Expectations. This tables demonstrates our advancement and delivery for each of the priorities and expected areas of focus.

Objective 1: Deliver impact through innovation

STRATEGIC PRIORITIES	KEY INITIATIVES	2021–22	2022–23	STATEMENT OF EXPECTATIONS
1.1 Accelerate commercialisation	Main Sequence – CSIRO Innovation Fund			✓ Advancing First Nations Science ✓ Translation and Commercialisation ✓ Advancing National Interest
	CSIRO commercialisation program			
	Commercialisation services			
1.2 Digital transformation	Accelerate and scale digital transformation of the scientific process	Launch		✓ National Reconstruction Fund

Objective 2: Purpose-driven science and technology

STRATEGIC PRIORITIES	KEY INITIATIVES	2021–22	2022–23	STATEMENT OF EXPECTATIONS
2.1 Impact focused	Science solutions to solve challenges			✓ Advancing National Interest ✓ Advancing Government Priorities ✓ Health
	Challenge strategies for greater impact	Launch		
	Missions program			
2.2 Future science and technology (FS&T)	FS&T and Labs			✓ Towards Net Zero Mission

 Planning  Implementation  Continuous improvement

Objective 3: Engage and empower talent

STRATEGIC PRIORITIES	KEY INITIATIVES	2021–22	2022–23	STATEMENT OF EXPECTATIONS
3.1 Preferred place to work	CSIRO Culture Program including Diversity and Inclusion			✓ Staff ✓ Promoting STEM
3.2 World-class talent	Attract and develop outstanding talent			
3.3 Greater adaptiveness	Ways of Working (including Enterprise Services of the Future)	Launch		

Objective 4: Build collaborative networks

STRATEGIC PRIORITIES	KEY INITIATIVES	2021–22	2022–23	STATEMENT OF EXPECTATIONS
4.1 Shared national labs	Innovation hubs, ecosystems and precincts	Launch		✓ Health ✓ Global collaboration ✓ Advancing Government Priorities ✓ Advancing First Nations Science ✓ National Facilities ✓ Working with Department
	Landmark infrastructure upgrades			
	Square Kilometre Array (SKA)			
4.2 Exponential networks	Strategic partnerships program			

 Planning  Implementation  Continuous improvement

Objective 1

Deliver impact through innovation

1.1 Accelerate commercialisation

We are

prioritising

growing research commercialisation performance, in collaboration with the higher education sector and industry

continuing

to scale research commercialisation capability and performance through national programs, partnerships and investment

enriching

innovation and ensuring effective translation of knowledge

fostering

industry collaboration essential for driving impactful commercialisation outcomes and supporting Australia's economic growth

Australia's first movable hydrogen generator

The opportunity

Australia needs hydrogen to help reach net zero emissions by 2050. Groundbreaking new technology could help reshape the nation's energy landscape by safely generating hydrogen at off-grid locations.

The solution

In an Australian first, as part of our Hydrogen Industry Mission, a new project will develop an easily deployed device to produce hydrogen directly at the point of consumption, supporting global decarbonisation through developing a commercially viable Australian hydrogen industry. Research and innovation provider Advanced Carbon Engineering have invested $10 million over 6 years to support the development of a demonstration unit based on patented technology to efficiently generate hydrogen from liquid carriers. This will enable safe and efficient storage and transport from production sites to where the energy will be used.

CSIRO's Deputy Hydrogen Industry Mission Lead, Dr Vicky Au, said, 'Australia has the potential to become an energy superpower through hydrogen, but we need to find better methods of safely transporting and storing it at scale. The power of industry and research coming together cannot be overstated when delivering the solutions needed for a sustainable future.'

The impact

Advanced Carbon Engineering CEO, Jon McNaught, said that the company is building national capabilities by conducting critical research, facilitating innovative discoveries and building new industries. 'Innovation is vital for humanity's future, driving progress and economic growth, solving challenges, creating opportunities and ensuring a sustainable future for generations,' Mr McNaught said.

According to Australia's National Hydrogen Strategy, a clean hydrogen industry will support 16,000 jobs by 2050, plus an additional 13,000 from the construction of related renewable energy infrastructure. Australian hydrogen production for export and domestic use could generate more than $50 billion in additional GDP by 2050, resulting in avoided greenhouse gas emissions equivalent to a third of Australia's current fossil fuel emissions by 2050.

CSIRO's Deputy Hydrogen Industry Mission Lead Dr Vicky Au with CSIRO research scientists Dr Christian Hornung and Dr John Chiefari holding catalytic static mixers.

CSIRO commercialisation program

The focus of these initiatives is to increase the volume, velocity and value of science translation and the capacity and capability of commercialisation.

Commercialising for impact and financial sustainability

In 2022–23, our commercialisation performance has continued to deliver growth, despite being tested by an accelerated downturn in the global investment ecosystem and difficult market conditions.

Our licensing portfolio grew to 662 licences in force, with 79 new licences in 2022–23. Licensing revenues continued to grow to $59 million, including $50 million in underlying royalties and $9 million in proceeds from the sale of IP.

In 2022–23, we created 3 new spinouts and continue to advance a strong pipeline of commercialisation and technology translation activity.

- **Hadean** – CSIRO and RFC Ambrian have partnered to establish Hadean, a company aimed at advancing solid oxide electrolysis technology for hydrogen production. The innovative approach harnesses a ceramic electrolyte, utilising heat to significantly boost cell efficiency. Hadean's unique design not only simplifies manufacturing processes but also employs cost-effective materials, providing a distinct economic advantage compared to other electrolysis methods. With a strong focus on durability and scalability, Hadean is actively working towards refining the technology, and plans are underway to deploy a small demonstration unit by 2024.
- **MRead** – CSIRO and RFC Ambrian launched MRead to develop magnetic resonance (MR) sensor technology to detect explosives and drugs on a molecular level. MRead is developing MR detector units, which look like handheld metal detectors and can be deployed in the field for de-mining contaminated land. MRead plans on deploying its first handheld detectors to landmine-affected regions in Southeast Asia in 2024.
- **OmnisOva** – OmnisOva was launched to develop an advanced breeding technology to remove the major food allergen protein from chicken eggs, making them safe for consumption by those with egg allergies.

Our investment in portfolio companies has continued to grow, with the current direct investment portfolio valued at $221.96 million (representing a 38.9 per cent increase from 2021–22), or $233.46 million if NICTA holdings are included. $6.7 million was realised from CSIRO's portfolio.

Main Sequence – CSIRO Innovation Fund

Main Sequence, created by CSIRO to manage the CSIRO Innovation Fund, invests in translating publicly funded Australian research into extraordinary global companies that create jobs and grow our economy. Between 2017 and 2023, a $100 million investment by CSIRO and the Australian Government stimulated over $4.35 million in private sector venture investment in the sector.

In 2021–22, the Australian Government announced $150 million of additional support for Main Sequence to launch fundraising for its Fund 3 and continue its mission to solve the world's biggest problems in health, food, technology, space, decarbonisation and industrial productivity. To operationalise Fund 3, during the 2022–23, subsidiary companies were established, and investment vehicle structures were advanced. Soft marketing of the investment opportunity conducted during this reporting period has been successful, with all key investors from the existing Main Sequence Funds indicating their intention to reinvest. Several new, larger strategic investors were also identified.

Since its inception in 2017, Main Sequence has invested in 53 companies, with 8 of these being new investments in this financial year alone. These investee companies have created over 2,120 deep technology jobs. Each of these companies has some advantage delivered by either one of Australia's universities or CSIRO and:

- at least 20 of these companies have ongoing relationships with CSIRO
- 25 portfolio companies have over 60 separate collaborations with 23 of Australia's universities
- over 100 strategic co-investors have invested in these companies alongside Main Sequence, attracting over $4.35 of private sector investment for every dollar invested by Main Sequence.

Main Sequence key to CSIRO space technology commercialisation

The opportunity

As we look to the stars to expand our knowledge and exploration of space, it is estimated an additional 50,000 satellites will be launched within the next decade, creating congestion in transmission of data from space to ground stations.

The solution

Satellite technology start-up Quasar Satellite Technologies (QST) was spun out of CSIRO in 2022 under the Main Sequence 'venture science' model. QST commercialised CSIRO's Phased Array Feed (PAF) technology by providing a world-leading ground station service for satellite operators and users. The ground station technology will support multiple satellite launch and space data collections simultaneously.

This year QST has been awarded a $5.3 million Defence Innovation Hub contract for space communications and space domain awareness. The contract builds on the success of the initial start-up and offers great opportunities for Australian jobs to be created. It provides launch opportunities across multiple space exploration and technology industries.

The impact

The technology, offered as an 'online service', will enable commercial and public sector partners to access data from satellites in low, medium and geostationary orbit from anywhere in the world, like the many cloud computing software services available today.

The latest evolution of CSIRO's phased array technology will help Quasar Satellite Technologies ground station service to communicate with hundreds of satellites simultaneously.

Intellectual Property (IP): central to effective translation

We are a key producer of high-utility Australian IP, particularly in the domains of biological analysis, nanotechnology, biotechnology, food chemistry, polymers and materials. This IP often focuses on domains that universities and private inventors focus less on nationally.

Our registered IP underpins the successful impact of many of our technologies, including bringing in research projects, licensing and opening other commercialisation pathways.

At June 30, we had 4,345 active patents, 330 active trademarks, 74 active registered designs and 107 active Australian plant breeder's rights (PBR). We filed 54 provisional patent applications directed to new inventions, 35 Patent Cooperation Treaty applications and 2 direct patent filings. There was a consistent level of new patent and PBR filings during the year. This is a good indicator of existing technologies making their way through the pipeline, and it highlights our continued focus on our commercialisation strategy.

Table 3.1: Intellectual Property 2022–23, $ million

IP CATEGORY	SUB-CATEGORY	2019–20	2020–21	2021–22	2022–23
Patents	Provisional applications	64	53	48	54
	Patent Cooperation Treaty (PCT) applications and direct filings	48	60	49	37
	Patent families	675	658	647	681
	Granted cases	2,233	2,199	2,499	2,511
	Live cases	3,997	3,754	4,035	4,345
Trademarks	Australian	271	266	261	276
	Overseas	49	46	48	54
Plant Breeder's Rights	Australian	59	65	77	89
	Overseas	23	22	19	18
Registered Designs	Australian	3	14	15	18
	Overseas	6	17	15	56

HIGHLIGHT

New lab to bolster future vaccine production

The opportunity

Gaps in Australia's sovereign capability in manufacturing and scaling-up vaccines were brought into stark focus during the COVID-19 pandemic when we could test small batches of vaccines developed in Australia but lacked the facilities to rapidly scale them up to manufacture clinical supplies. Historically, we have relied on overseas facilities and partners, creating a critical gap in our ability to protect Australians when international supply chains are interrupted.

The solution

This year we opened a new $23.1 million National Vaccine and Therapeutics Laboratory in Melbourne to produce clinical supplies for vaccines and drug candidates under development in the Australian research industry.

The new facility was built after a pilot facility was successfully deployed during the COVID-19 pandemic, when we scaled up vaccine candidates that had been developed onshore as part of a national strategy to combat the ongoing virus.

The impact

The past 2 years have highlighted the importance for Australia to have a robust sovereign capability in developing vaccines and therapeutics.

The facility was completed with funding from the Federal Government and Victorian Government. It is available for industry, researchers and companies as part of our portfolio of National Labs.

CSIRO's National Vaccine and Therapeutics Lab will strengthen Australia's ability to translate and commercialise research. Image: Nick Pitsas.

National patent network: retaining our number one position

Our patent network includes all patents filed with IP Australia, with an earliest filing date between 2017–21 and a status of Filed, Accepted, Certified or Granted (Table 3.2). Patent collaboration does not necessarily reflect patent volume or the strength of an institute's patent portfolio but rather that it is the best-connected patenting entity.

CSIRO was ranked 1st by all 3 metrics, up from 2nd, by Weighted Betweenness last year, overtaking Monash University.

Global patent filings: our rise in the rankings

The World Intellectual Property Office (WIPO) each year publishes data and reports on complete patents known as Patent Cooperation Treaty (PCT) filings. Table 3.3 shows published PCT filing counts in recent years for the top government research organisations, limiting the list to the top 20.

Note that the data obtained from WIPO looks at the number of PCT applications with a publication date during 2021, while the number of PCT applications reported earlier from internal CSIRO data shows the number of applications with a filing date during 2021; the numbers are thus different.

We are ranked joint 19th, an increase of 6 places, which, for context, returns the organisation to its 2018 rank. Filing counts tend to be volatile on an annual basis, and changes in ranking of this magnitude are expected. Our ranking has historically ranged from 15th to 25th.

Table 3.2: Australian Patent Collaboration Network Rankings

INSTITUTION	WEIGHTED DEGREE CENTRALITY	WEIGHTED BETWEENNESS CENTRALITY	WEIGHTED PAGERANK
CSIRO	**1**	**1**	**1**
University of Sydney	2	4	2
University of Melbourne	3	3	3
Monash University	4	2	5
NewSouth Innovations	5	5	4
University of Queensland	6	6	6
Grains Research and Development Corporation	6	21	9
Western Sydney Local Health District	6	65	8
University of South Australia	9	7	7
Australia's Nuclear Science and Technology Organisation	10	16	10

Data source: IPGOD Data, Applications 2017–21 with status Filed, Accepted, Certified or Granted.

Table 3.3: PCT Filings of Top Government and Applied Research Organisations Globally

INSTITUTION	ORIGIN	2019	2020	2021	RANK
Shenzhen Institute of Advanced Technology	China	152	362	396	1
Fraunhofer	Germany	331	428	343	2
Commissariat à l'énergie atomique et aux énergies alternatives (CEA)	France	229	208	182	3
Institut National de la sante et de la recherche medicale (INSERM)	France	122	167	144	4
Centre national de la recherche scientifique (CNRS)	France	130	121	116	5
Agency for Science, Technology and Research (A*STAR)	Singapore	135	142	104	6
Academy of Telecommunications Technology	China	265	321	87	7
National Institute of Advanced Industrial Science and Technology	Japan	121	98	87	8
Netherlands Organisation for Applied Scientific Research (TNO)	Netherlands	70	76	78	9
Korea Electronics Technology Institute	South Korea	70	83	74	10
Consejo Superior de Investigaciones Cientificas (CSIC)	Spain	56	66	72	11
Sloan-Kettering Institute for Cancer Research	US	60	54	66	12
US Department of Health and Human Services	US	103	48	65	13
Mayo Foundation	US	88	73	60	15
MIMOS Berhad	Malaysia	15	62	60	15
Max Planck Institutes	Germany	47	55	57	16
VTT Technical Research Centre	Finland	49	57	52	17
Riken	Japan	47	39	49	18
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	**Australia**	**28**	**39**	**48**	**19**
Korea Research Institute of Chemical Technology	South Korea	54	58	48	19

Science excellence: a crucial role in the Australian innovation system

Recognition of our research quality is critical to increasing the value of science translation.

Based on data from InCites, we produced 2,671 articles and reviews in 2022. This represents 3.2 per cent of Australian output and 0.12 per cent of global output, both slight declines on 2021.

While this may appear to be a sharp decline in output from 3,412 publications last year, the trend is complicated by a change made by Web of Science in moving journals over to early access indexing, which slightly inflated 2019 and 2020 counts. When early access indexing is ignored, our output declined from 3,355 to 2,919. This may reflect a decline in emphasis on quantity rather than quality and the impact of remote working on science output.

We are a major contributor to Australian research in key research fields, including agriculture sciences, environment and ecology, geosciences, plant and animal science, space sciences, computer science, materials sciences and chemistry. In these fields we contribute a high share of national output, perform well in terms of academic impact and are important connectors in the nation's collaborative network.

Our research is strongly connected to other Australian R&D organisations. Two-thirds of CSIRO's publications involve Australian collaborators and two-thirds involve international collaboration.

Our publications over the last 5 years have averaged 6.1 organisations per publication, compared to 5.7 for Australia and 2.5 countries per publication, compared to 2.4 for Australia. Our average number of institutes has risen from 4.0 to 6.6 over 10 years, and the average number of countries has risen from 2.0 to 2.5.

Our various areas of research have different peer organisations, so we have benchmarked performance at a combination of business unit and research field level, for a more granular and calibrated view. We are performing at or above the levels of science excellence required to deliver our impact in 20 of 23 such units of assessment.

We have consistently been ranked 6th or 7th against a selection of international applied research organisations over the last 10 years. Compared to a broader list of 47 frequent peers, our rank has improved from 18th to 13th across all fields and from 17th to 11th across our 9 major fields over the last 8 years.

Conversely, our citation ranking is in decline compared to Australian universities. Eight years ago, we were ranked 1st against Australian universities; now we are ranked 16th. The difference in these 2 groups has a number of causes, including distortion from university collaboration in some fields and a relative decline in the academic impact of applied research. The key insight is that our citation impact is no longer strong in a tenuous comparison with academic institutions, but it is excellent and stable or improving against similar applied research organisations.

CSIRO Publishing: expanding Open Access to knowledge

CSIRO Publishing is an editorially independent science publisher that connects society, government, industry and citizens of all ages to science.

We currently publish 26 journal titles – 14 in partnership with the Australian Academy of Science. This year we continued our focus on transitioning our scholarly journals publishing model to Open Access (OA), increasing the total number of Read and Publish agreements with more than 50 Australian and New Zealand libraries. These agreements allow authors access to our scholarly journals and to publish articles as OA in nominated journals at no cost.

We released 35 book titles this year across a range of reading levels. Digital books comprised approximately 10 per cent of sales and we co-published several titles with international partners, including The Natural History Museum (London), CRC Press and CABI. Our *Double Helix* magazine continues to encourage a new generation of science-curious kids, publishing 8 issues per year, with features including the Sustainability Squad and International Day of Women and Girls in STEAM (Science, Technology, Engineering, Arts and Mathematics).

Writing is an essential skill for scientists. Without it, their research remains unknown and unlikely to have an impact. Through our Scientific Writing Workshops, we've been training scientists and researchers from university and government agencies to write for more than 10 years. In 2022–23, over 430 attendees benefited from the highly interactive courses and flexible delivery.

CSIRO commercialisation services

The focus of these key strategic initiatives is to boost and complement our commercialisation capability and services for the innovation system. In addition, the programs also look to expand the variety, quality and effectiveness of the many pathways to impact we use.

National Reconstruction Fund (NRF) initiative

The NRF is an election commitment of the government with the primary objective to revitalise industry, especially Australian-based manufacturing. The Minister for Industry and Science advised Parliament that 'our national science agency, the CSIRO, played a crucial role in helping identify NRF's priority areas, identifying the opportunities that offer the best chance for growth and jobs, including across advanced manufacturing, science and technology'.

We understand that the following publicly available CSIRO reports were considered by the current government (then in Opposition) when establishing the priorities for the NRF program: Australian National Outlook 2015;[5] Australian National Outlook 2019; Roadmaps for industry sectors, for example, Food and Agribusiness Roadmap 2017[6]; and Report on Climate and Disaster Resilience 2020.[7]

During 2022–23, we continued to support the development of the NRF in line with requests from the Department of Industry, Science and Resources through coordination meetings; submitting a public response to the public consultation process,[8] as well as providing a submission to the Senate Committee that was considering the NRF bill; and identifying CSIRO experts to join industry working groups that the Department convened to provide feedback on specific sectors. We will continue to monitor developments in relation to the NRF in 2023–24, as the fund's Investment Mandate and related documents become available.

ON Program: advancing skills in commercialisation

Our ON Program was relaunched this year under a $37.4 million commitment over 4 years by the Australian Government's University Research and Commercialisation (URC) scheme. The program aims to prepare and train Australian university researchers, publicly funded research teams and industry to move research into the market through the commercialisation of products and services. Its flagship programs are:

- ON Prime: to undertake customer discovery and market validation
- ON Accelerate: to validate and develop high-potential innovation ventures.

This year the ON Program conducted 3 formal programs and pipeline activities to reactivate the ecosystem. We delivered 2 rounds of ON Prime; (1) ON Prime 12 had 122 participants across 35 teams; and (2) ON Prime 13 had 121 participants across 41 teams. ON Prime had representation from 24 organisations across universities, research institutes and us, including 2 dedicated cohorts supporting the iLAuNCH University Trailblazer for the University of Southern Queensland.

We delivered our ON Accelerate7 program with 31 participants across 9 teams, having representation from 9 organisations across universities, research institutes and us. Of the 85 teams in these national programs, more than 81 per cent were from the research ecosystem with less than 19 per cent CSIRO-based.

Since the ON Program began in 2015, it has helped more than 3,750 people from over 1,100 teams across 34 universities, 19 publicly funded research agencies and medical research institutions, and us. Those teams have created 70 companies and over 600 jobs. Post-program, ON participants have raised $311.6 million in investment capital and $305 million of commercialisation grant funding.

5 Australian National Outlook: csiro.au/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/innovation-business-growth/australian-national-outlook
6 Food and Agribusiness Roadmap: unlocking value-adding growth opportunities for Australia: csiro.au/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/agriculture-and-food/agribusiness-roadmap
7 CSIRO Report on Climate and Disaster Resilience: csiro.au/research/natural-disasters/bushfires/report-climate-disaster-resilience
8 Consultation hub, National Reconstruction Fund: Consultation paper – Department of Industry, Science and Resources: https://consult.industry.gov.au/national-reconstruction-fund

Teams participating in the ON Program have representation across all 7 of the National Reconstruction Fund's priority areas. The Program offerings continue to be refined and adapted to meet current market needs and the growing innovation capability maturity in the research sector.

Trailblazer: connecting universities to our cutting-edge equipment and facilities

As part of Australia's Economic Accelerator initiative, we play an active role in the Governments $242.7 million Trailblazer Universities Program (under the Australian Government's University Research Commercialisation Action Plan).

The Trailblazer Program is led by six select universities with dedicated investment to accelerate Australia's innovation agenda at speed and scale. Trailblazer universities are demonstrating the use of open, collaborative Intellectual Property (IP) agreements that are attractive for industry partners.

Our role is to drive investment in, and adoption of the world-class research infrastructure we manage, with the goal of developing technology for commercialisation.

Through the program, we are contributing $45 million to enhance research translation and commercialisation, foster greater engagement between universities and industry, and expedite the commercialisation of university research by leveraging new scale-up CSIRO specialist equipment.

During 2022–23 we entered into Specialty Equipment Collaborations with 6 universities (Curtin University, Deakin University, University of Adelaide, University of Queensland, University of New South Wales and the University of Southern Queensland), 3 of which are from our group of top 10 collaborators. The equipment acquired under these agreements will play a crucial role in supporting various sectors – including defence, space, recycling and clean energy, food and beverage, resources technology and critical minerals processing – and is all strategically located at sites that offer an established knowledge base, further facilitating impactful outcomes in collaboration with our industry partners.

SME Connect: developing capability and driving innovation

Our SME Connect program partners SMEs (small- to medium-sized enterprises) with Australia's best researchers and facilities to support and enable innovation through funding, expertise and resources. This year we facilitated 342 research projects nationally for 291 companies, which injected more than $33.6 million into research and development (R&D). Those projects were delivered by 40 Australian research organisations, including us and 32 universities.

We delivered the following areas of work this year:

Innovation Connections: facilitating SME research

Innovation Connections is an Australian Government program facilitated by us, offering a free service for established SMEs to understand their research needs and facilitate connections with the research sector. It also provides dollar-matched funding for research and development projects with universities and research organisations across Australia. Our dedicated team of facilitators help businesses find the right expertise, regardless of SME or researcher location.

In 2022–23, we facilitated 302 Innovation Connections projects with 253 companies, generating over $29.7 million in R&D. Of these projects, 23 projects were delivered by us and 236 projects by 39 Australian research organisations, including 32 universities. Forty-three projects were grants for recent university graduates to work on in-house research projects for SMEs.

On June 30, the Innovation Connections program was closed by the Federal Government. We wish to acknowledge the incredible work of our facilitators over the past 8 years, delivering this highly successful program and creating vast impact to Australian SMEs. Since 2015, the program has helped over 1,596 companies across more than 2,400 projects, worth over $220 million, with projects undertaken with us, 39 universities and 38 research organisations. Eighty-six per cent of businesses continue to engage after the program and over $4 billion in capital has been raised by alumni companies with over $23 billion in valuation.

CSIRO Kick-Start: connecting businesses to research and industry

Our Kick-Start program helps eligible businesses locate the best capability and access affordable, high-quality expertise though subsidised research to maximise impact and output. The program provides facilitation and dollar-matched funding to conduct a project with our researchers and facilities. This has enabled participating businesses to create new or expanded products or services and has led to capital raising or entry into international markets.

Since 2017, the program has helped 218 companies across 255 projects, worth $23.1 million. Forty-one Kick-Start alumni companies have gone on to do 117 further projects and agreements with CSIRO worth over $26.6 million. Alumni companies have raised over $750 million of capital and have a collective valuation of over $1.7 billion. In 2022–23, 43 Kick-Start projects were approved and 40 projects commenced with 38 companies. The total value of Kick-Start projects commenced was $3.95 million, including $1.8 million in vouchers and $2.15 million from industry contribution. Notably, 10 per cent of the Kick-Start projects commenced in 2022–23 was from Indigenous-led companies.

Innovate to Grow

Innovate to Grow is a 10-week experiential learning program to help SMEs understand the benefits of R&D, work on a real business challenge, connect with relevant research experts and link to suitable funding programs. Since the launch in June 2020, over 450 SMEs (50 per cent from regional areas and including all states and territories) have participated in 19 programs, with 24 follow-on projects worth a total value of $2.1 million. This includes 19 follow-on projects with us and 5 Innovation Connections projects with universities.

In 2022–23 Innovate to Grow ran 8 cohorts for 164 SMEs in the sectors of defence, energy, agrifood, advanced manufacturing, mining/Mining Equipment, Technology and Services (METS), and cyber security and digital technology. Four of the programs were supported by the following agencies: Australian Department of Industry, Science and Resources (DISR) Cyber Security Skills Partnership Innovation Fund; Defence Science Institute; and the WA Department of Primary Industries and Regional Development.

Feedback on the program and impact measures have been outstanding, with an average 8.5 (out of 10) 'willingness to recommend' score and up to 20 per cent of SMEs initiating research collaboration initiatives in the first year post-program. The program is delivered using Practera's online ed-tech platform and facilitation services, with assistance from CSIRO and university researchers, industry groups and federal and state government supporters.

SIEF Ross Metcalf STEM+ Business Fellowship

The Science Industry Endowment Fund (SIEF) Ross Metcalf STEM+ Business Fellowship program supports innovative Australian businesses by funding 2–3-year projects that are delivered by early career researchers. Since commencing in 2016, the program has supported 44 projects. The funding for this program has now been fully exhausted and remaining projects will finish over the next 12 months.

Generation STEM Links

Our Generation STEM Links program is supported by the NSW Government through the Science and Industry Endowment Fund (SIEF). The program places undergraduate and TAFE students in paid industry-based placements across New South Wales. We provide participating businesses with student recruitment and matching services, student mentoring and coaching throughout the placement, as well as the distribution of dollar-matched business grants.

In 2022–23, there have been 32 placements started with 19 different industry partners. Anonymous participant surveys indicate that the program has been well-received by students and businesses with 90 per cent of students saying they would recommend this program to their peers and 75 per cent of businesses saying they would recommend this program to their networks. To date 80 per cent of participating students have been offered further work with their matched business following their Generation STEM Links placement.

The program will be facilitating new placements through to the end of 2024.

Innovation Connections: What makes the perfect blend good for you?

The opportunity

According to Statistica, in Australia we consume approximately 1.91 kilograms of coffee per person per year. So why not create a competitive advantage for an Australian SME by filling the everyday cuppa full of nutritious postbiotic health benefits?

The solution

Coffee Roasters Australia, a small business in Queensland, developed a postbiotic coffee blend and were eager to have their unique blend assessed by independent research. Without support for further research and development (R&D), the company considered abandoning this idea.

Through Innovation Connections, CSIRO facilitated and linked Coffee Roasters Australia with immunology and infectious disease researchers at Griffith University who have expertise in the gut microbiome, the role of gut microbiota and microbial manipulation in chronic disease. Innovation Connections also matched funding to support their project.

The outcome for Coffee Roasters Australia is an increase in sales, brand awareness and interest from multinationals looking to partner and take the product into health foods stores and supermarkets in the Asia Pacific region.

The impact

To encourage more SMEs like Coffee Roasters Australia to seek R&D partnerships, we published the results of Australia's largest ever survey about R&D collaboration in our report, *Enablers and Barriers to Industry R&D Collaboration.* The survey found businesses that collaborate with research institutions have higher levels of innovation, can better deal with uncertainty and are more profitable.

Mitch McGuire from Innovation Connections and Founder of Coffee Roasters Australia Alana Beattie in the Griffith University lab testing the postbiotic blend.

1.2 Digital transformation

We are

delivering

new value from digital innovation across people, science and infrastructure to optimise and revolutionise the process of science and enhance our services to Australia

empowering

our people through leading edge technologies and practices

focused

on building powerful new platforms, improving data stewardship and digital maturity, and accelerating the use of AI

providing

researchers with the tools and guidance so that data assets are findable, accessible, interoperable and reusable

Accelerate and scale digital transformation of the scientific process

These key strategic initiatives continue to implement the CSIRO digital science program and digitally enabled business platform models and to grow a global reputation for CSIRO as a digital disruptor of science.

Digital science: solving Australia's data-driven challenges

We solve Australia's greatest data-driven challenges through innovative digital science and technology. We do this by driving the development and adoption of Artificial Intelligence (AI), putting digital science and technology at the heart of Australia's resilience, and using digital technologies to revolutionise the future of scientific discovery.

Reinvent Science

Our Reinvent Science program brings visionaries together from across the organisation to invent and deliver new digital solutions and platforms with the potential to transform science. The program applies human-centred participatory design and product thinking to envision, synthesise, prototype, engineer, test, implement and scale transformative new digital systems and tools for knowledge and discovery.

We are nurturing emerging technologies to create genuinely new, digitally enabled science capabilities with cross-disciplinary impact through activities such as:

- developing digital platforms to scale and improve the quality, storage and analysis of data on marine life like the killer crown of thorns starfish
- developing innovative technologies for autonomous robots to use machine learning to monitor and manage large-scale natural environments
- opening new frontiers for exploration, analysis and collaboration on large-scale data and models, from immersive interaction with multidimensional oceanographic data to unlocking the power of agricultural production simulation
- research teams working to understand and solve researchers' digital challenges, streamline their workflows and create new opportunities for scientific discovery.

Digitally enabled business platforms: leveraging AI

The AI4Missions program aims to advance the science and impact of AI to achieve our mission objectives, establish a pool of world-leading AI talent within our organisation to respond to emerging AI opportunities, and leverage Australia's significant AI expertise across industries and universities. To do this, we collaborate with internal and external stakeholders across 16 projects that cover 8 defined key research and technological activities. Examples of current projects underway include:

- **Operationalising Responsible AI** uses a risk-based approach to operationalise AI ethics principles in selected mission projects, making both AI systems and their development processes trustworthy.
- **Causal Inference in Complex Multiscale Systems project** seeks to identify robust relationships between climate and socio-economic impacts. With the AI platform developed using the AI4Missions approach, users can specify many bespoke CO_2 emissions pathways, testing hundreds of models in minutes.
- **AI4Missions' newly live, external facing website** allows the larger scientific community to engage with project leads directly.

The Managed Data Ecosystem (MDE)

The MDE project provides the people, technology and supporting structures to improve how we create, collect, share and work with data, analytics and models. The MDE is connecting current and new platforms in seamless ways and improving interoperability to speed up how we digitally deliver to our customers, enhancing our services to progress research faster.

We are strengthening Australia's biosecurity using AI-enabled diagnostics. This AI-generated image shows how we aim to protect Australia from biosecurity threats.

Objective 2

Purpose-driven science and technology

2.1 Impact focused

We are

prioritising

the future – identifying the right problems to solve and shaping our research for maximum impact

investing

in innovative science and technology to revolutionise and transition large energy industries to cleaner energy and renewable solutions

operationalising

our impact priorities in support of key national challenges to effectively achieve our purpose

giving

back to the nation $10.2 billion of value per annum – the value from across our portfolio remaining at 8.4:1 benefit cost ratio

Highlights under this objective are themed by the 'greatest challenge' they are solving.

Science solutions to solve challenges

As we look to the future to solve the greatest challenges and create value and a better future for all Australians, we are investing in innovative science and technology to revolutionise and transition large energy industries to cleaner energy and renewable solutions. Our Towards Net Zero Mission is focused on the hard-to-abate sectors, including steel, agriculture and aviation with a goal to halve their emissions by 2035 and decarbonise by 2050.

Our other investments in clean energy transition include our FSPs, on pages 30–31, and our missions' programs on page 26–29. We also have a suite of innovation programs including iPhD, Kick-Start and ON Prime, giving researchers and industry the opportunity to collaborate on technology projects for future industry commercialisation.

Operationalising our impact priorities in support of key national challenges is critical for us to achieve our purpose. Each year we commission impact assessments (case studies) that are used to represent the value of our research activities, national facilities, collections and services programs. During 2022–23, we completed the targeted 20 impact case studies, which aim to cover the breadth of our investment portfolio.

Our approach for establishing the value delivered to the nation by quantifying our return on investment (ROI) involves comparing the estimated benefits of our research and other programs (as identified in our impact case studies) to the costs of these programs for a specific time period (recent years' actuals plus up to 10 years of projections). This creates the equivalent of a moving average return on investment that places less emphasis on historical patterns and more emphasis on current value generation.

During 2022–23, we commissioned a further update of The Value of CSIRO assessment, an external analysis of 170 impact case studies covering our portfolio, initiated within 25 years (between 1997 and 2022). The 2023 report confirmed the previous estimate of an 8.4:1 ROI, indicating that for every $1 invested in us, at least $8.40 in value is returned to the Australian people.

This most recent update re-focused the case study-based analysis on our challenges framework to demonstrate the value we deliver across each of the challenge areas. Our ability to analyse the value we deliver increases the more studies we add to the portfolio. It is important to note that the reported ROI represents a lower bound estimate and does not include unmonetised impacts, such as our contribution to the knowledge base and awareness of science and innovation across Australian society, our education programs, and the role we play in conservation and culture.

Sharing our lessons learned from impact assessments

One of the primary benefits of our impact case study approach is the ability it provides to distil practical lessons from real examples of the uptake and adoption of various outputs, which can be fed back into the organisation to assist it to optimise its impact. Significant implications for our contribution to impact have been identified through these case studies in terms of both R&D processes and impact management practice, including the:

- importance of early and frequent meaningful engagement with stakeholders (especially end users) to facilitate the uptake and adoption of R&D outputs
- need for effective risk management and mitigation approaches and an understanding of risk appetite, in the context of impact delivery
- significance of planning for impact and the development and implementation of effective frameworks and monitoring processes to track performance
- vital role played by R&D support functions (including business development, communications and legal) in facilitating impact delivery pathways.

We continue to advance our already world-leading, best practice approach to the conduct of impact case studies. Methodological lessons learned from case study practice are being incorporated into an updated version of our publicly available Impact Evaluation Guide. Through freely sharing the Guide online, we aim to contribute to a capacity uplift in relation to impact practice across both the national and international innovation systems.

CarbonLock Future Science Platform to tackle climate change

The opportunity

Reaching Australia's goal of net-zero emissions will take a concerted focus on reducing emissions as well as developing new 'negative emissions technologies' (NETs), which remove and store carbon dioxide from the atmosphere. NETs offer a promising pathway to limiting global warming to well below 2°C above pre-industrial levels.

The solution

In March 2023, we launched the CarbonLock Future Science Platform (FSP), investing $20 million to develop new and innovative ways to remove carbon from the atmosphere and permanently lock it away. Research areas will include exploring Direct Air Capture (DAC), an early stage enabling technology that captures carbon dioxide from the air and stores it for later use or disposal. Research will investigate new materials that can speed up and scale up DAC, including training Artificial Intelligence to develop novel composite materials.

Additionally, CarbonLock will consider the immense potential of 'in-situ mineral carbonation', which involves turning carbon dioxide into stone by reacting atmospheric carbon with rock to form new rock – an area where Australia has a huge advantage because of its strong history in mineral resources.

The impact

CarbonLock is Australia's preeminent research program focused on permanent atmospheric carbon removal and is already playing a significant role in driving high-level engagement, new science and policy, nationally and internationally. CarbonLock continues working closely with partners – including other FSPs, universities and industry – to develop verifiable, scalable, fast, responsible and permanent carbon removal technologies.

CSIRO's Colin Wood leads the direct air capture team, who are developing a technology called CarbonAssist™ which removes CO_2 directly from the atmosphere. The CO_2 can then be safely and permanently stored as part of a carbon capture and storage project or used to make carbon-based products. The technology can be readily scaled and deployed across a number of industries.

Nutri V: Good for your waist, good for waste

The opportunity

Farmers often end up with excess produce that doesn't meet specifications, have an oversupply, or otherwise waste nutritious stalks and leaves – so much so that on average, 2–3 of every 10 vegetables planted are wasted. In addition to the nation's food waste challenge, less than 10 per cent of Australian adults eat their recommended 5 serves of vegetables a day.

The solution

Using our unique food processing expertise, world-class food research facilities in Melbourne and support for small and medium businesses through our CSIRO Kick-Start program, we're supporting the creation of healthy concept products. In the case of Nutri V, we're co-developing an innovative veggie-loaded snack to take it to market.

In November 2022, Nutri V Goodies snacks hit Coles supermarket shelves around the country, delivering 2 serves of vegetables in every pack and saving broccoli, pumpkin and cauliflower from going into landfill or becoming animal feed.

The impact

Nutri V is helping Australia to achieve its goal of cutting national food waste in half by 2030 by turning food that would otherwise go to waste into highly nutritious snack food.

CSIRO's Danyang Ying, Nutri V CEO Raquel Said and CSIRO's Andrew Lawrence.

Helping safeguard international nuclear material

The opportunity

Keeping an eye on nuclear waste materials currently requires inspectors to operate above spent fuel ponds on a suspended platform, sometimes in 40-degree Celsius heat, using a handheld device to identify hundreds of used nuclear fuel rods.

The solution

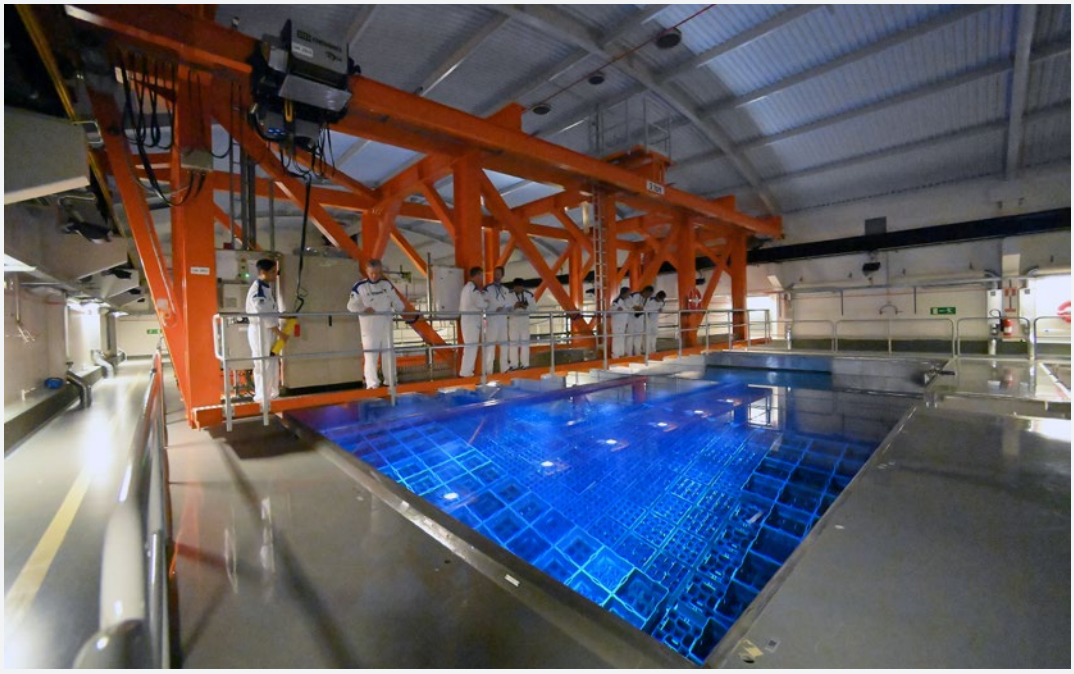
Collaborating with Hungarian robotics company Datastart and the International Atomic Energy Agency (IAEA), we developed world-leading technology to tackle this challenge through the Robotized Cherenkov Viewing Device (RCVD). The RCVD, a floating device, autonomously navigates a path across the pond while updating a real-time map with footage and data of the fuel assemblies. It analyses each assembly's position and unique signature to detect if fuel has been removed or replaced. Information is communicated back to human staff members.

In October, the RCVD completed a successful test in an operating nuclear power facility in South America. The prototype system navigated a spent fuel pond and provided inspectors with real-time data that can be used for safeguards verification.

'This new technology will remove humans from harm's way and ensure the rate of safety inspections matches that of nuclear material,' said Rosie Attwell, CSIRO Technical Program Manager.

The impact

The test demonstrated that autonomous robots could soon assist with field measurement and analysis of spent nuclear fuel, reducing the burden of carrying in-field verifications for the facility operator, significantly improving the quality of the data collected, and providing greater protection for human workers.



IAEA nuclear safeguard inspectors during a spent fuel training exercise. The camera-like devices are what inspectors currently use to analyse spent fuel pools.

CSIRO researchers use machine learning to advance Alzheimer's research

The opportunity

Magnetic resonance imaging (MRI) scans are used for measuring thinning of the brain cortex to understand disease progression. However, changes to the cortex are usually very small, often in sub-millimetre range.

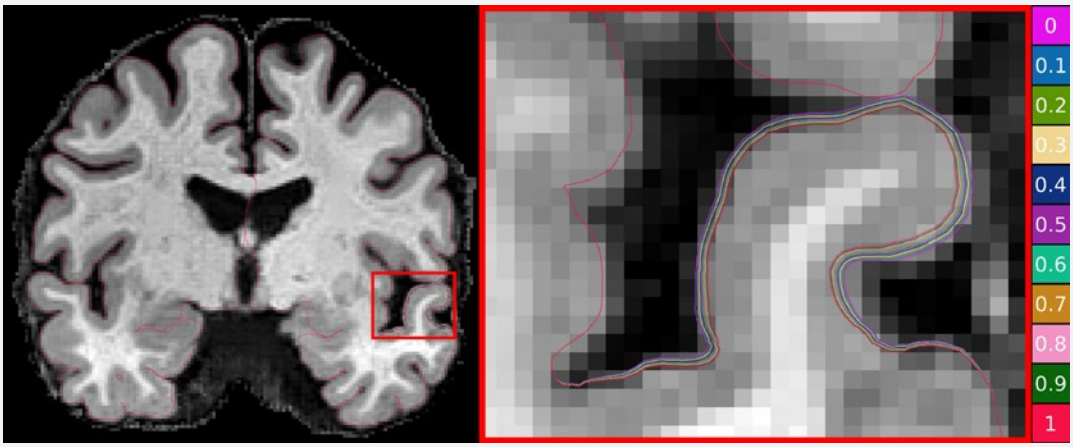
The solution

Our scientists, in partnership with Queensland University of Technology, have used machine learning to develop a world-first method to test the accuracy of tools used to measure brain atrophy – or thinning – in neurodegenerative diseases like Alzheimer's disease. Producing sets of artificial MRI scans of brains with predefined signs of neurodegeneration in the cortex region, our scientists can assess the accuracy of measurement tools for levels as low as 0.01 millimetres, across different regions of the brain.

The impact

Findings from this research were published in the journal *Medical Image Analysis*, and the work has already had international impact. Accurate measurement of the thinning of the brain's cortex is crucial for early detection and understanding disease progression. It can be applied to research in any brain disease that involves neurodegeneration and potentially to predict the level of cortical degeneration expected over time. This represents a significant step forward to better understand better dementia and other debilitating brain diseases.

The synthetic dataset images have been made publicly available so clinicians and scientists can use the synthetic images to conduct their own assessments of cortical thickness quantification methods.



Artificial MRI with ground truth, which is information known to be real or true according to empirical evidence.

New research facilities to boost cotton industry

The opportunity

Our longstanding commitment to Australia's cotton industry means our facilities require ongoing investment to stay up to date with cutting-edge technologies used in cotton breeding.

The solution

In February, we unveiled a $25 million upgrade to our cotton research facilities in Myall Vale, NSW. The achievements of the CSIRO Cotton Breeding Program at the Myall Vale facility are globally recognised, from developing pest-resistant cotton to producing more sustainable varieties that require less water.

The upgrades include the newly built Cotton Management Research Laboratory, which allows the precise pre-emptive monitoring of potential insect resistance and the measurement of crop nutritional status for improved management, as well as new cotton breeding areas, increased storage and processing areas.

The impact

The significant investment in the expanded facilities demonstrates our commitment to the cotton industry and ensures it into the future.

CSIRO's Executive Director Future Industries Kirsten Rose, CSIRO Agriculture and Food Director Dr Mike Robertson, Cotton Seed Distributors Managing Director Peter Graham, CSIRO Board Chair Kathryn Fagg AO and Leader of CSIRO's Cotton Breeding Program Dr Warwick Stiller at the opening of the new facilities. Image credit: courtesy Narrabri Courier.

Australian Silicon Action Plan: a blueprint for jobs and prosperity in our solar future

The opportunity

Australia has the highest per capita deployment of rooftop solar in the world and a range of large-scale solar farms in the pipeline. But our reliance on overseas supply chains for solar cell technology is holding us back from realising our potential as a global superpower in solar photovoltaic (PV) energy generation and export.

The Australian Government has identified silicon as a critical mineral, given its current supply chain risks and its importance to new economy technologies, such as solar cells, semiconductors (chips), optical fibres and aluminium alloys, and its potential use in energy storage batteries. That supply chain is currently dominated by China.

The solution

Australia has an abundance of silicon in the form of quartz, but there are challenges in the process of smelting quartz to silicon and then into high purity silicon. We published the Australian Silicon Action Plan setting out the actions Australia needs to take to develop our own fully-fledged supply chain for silicon and solar cells, and to become a jobs powerhouse in the solar revolution.

The impact

Developing this industry has the potential to provide employment and reskilling opportunities, deliver significant economic benefits that come from adding value to Australia's mineral endowment, and expand new industries to regional Australia with the world's best ESG (environmental, social and governance) standards, all while improving Australia's energy security and independence.

CSIRO's Australian Silicon Action Plan sets out the actions Australia needs to take to participate in a fully-fledged supply chain for silicon and solar cells.

2.2 Future Science and Technology

We are

investing

in the right revolutionary science and technology to accelerate scientific breakthroughs and solve tomorrow's challenges

providing guidance

through our Future Science and Technology, identifying cross-cutting capabilities and communities of practice for knowledge and skill sharing

supporting

Australian researchers to perform world-class science for national benefit by providing access to our landmark research infrastructure

foreseeing

the future of science – preparing us for the technology needs, challenges and opportunities ahead, with our Labs of the Future

Strategy for future science and technology (FS&T), and cross-cutting capabilities

Our FS&T plan provides guidance on the research and technology required to deliver our long-term strategy. It identified 10 cross-cutting capabilities (CCCs) – skills that 'cut across' our scientific fields and business units – and established communities of practice (CoPs) of more than 1,600 staff for knowledge and skill sharing. The CCCs are grouped into 4 domains:

1. **Biological:** Genomics; Synthetic Biology.
2. **Digital:** Robotics, Internet of Things and Sensing; Simulation and Modelling; Artificial Intelligence and Machine Learning.
3. **Physical:** Advanced Materials; Engineering; Quantum Technologies.
4. **Social Systems:** Social Science and User Experience; Indigenous Knowledge.

CCC outcomes and achievements so far have included helping to identify skills gaps in strategic workforce planning, build best practices and interdisciplinary capability across domains, contributing to national reports, creating skills databases, and awarding micro-funding to support small projects, establish collaboration or perform a proof-of-concept experiment.

National infrastructure driving future science opportunities

Our landmark national research infrastructure supported Australian researchers to perform world-class science for national benefit.

Marine National Facility (MNF): marine research that benefits the nation

The MNF met the objectives of 11 research voyages on the Research Vessel (RV) *Investigator* for 7 research organisations in the 2022–23 year. These voyages contributed essential scientific knowledge to support government and industry decision making and sustainable resource operations across a broad range of disciplines, including climate science; biological, chemical and physical oceanography; marine geology; fisheries and aquaculture; and atmospheric research fields.

This knowledge directly informs and influences critical public policies and programs, such as improving the modelling and prediction of weather and climate change to support climate resilience and the management of Australian Marine Parks. One of this year's highlights was the voyage to Indian Ocean Territories to characterise the benthic biodiversity from seamounts in Australia's Indian Ocean Territories for the first time.

Travelling to the most remote locations for climate change data

The opportunity

We are tracking the changing inventory of oceanic CO_2 to better understand natural variability and help predict future changes, including those induced by carbon dioxide emissions.

The solution

In May 2023, we launched our Marine National Facility research vessel RV *Investigator* to deploy and recover Integrated Marine Observation System (IMOS) moorings in one of the most remote locations, vulnerable to extreme weather and large waves, currents and severe storms, 47° south (southwest of Tasmania).

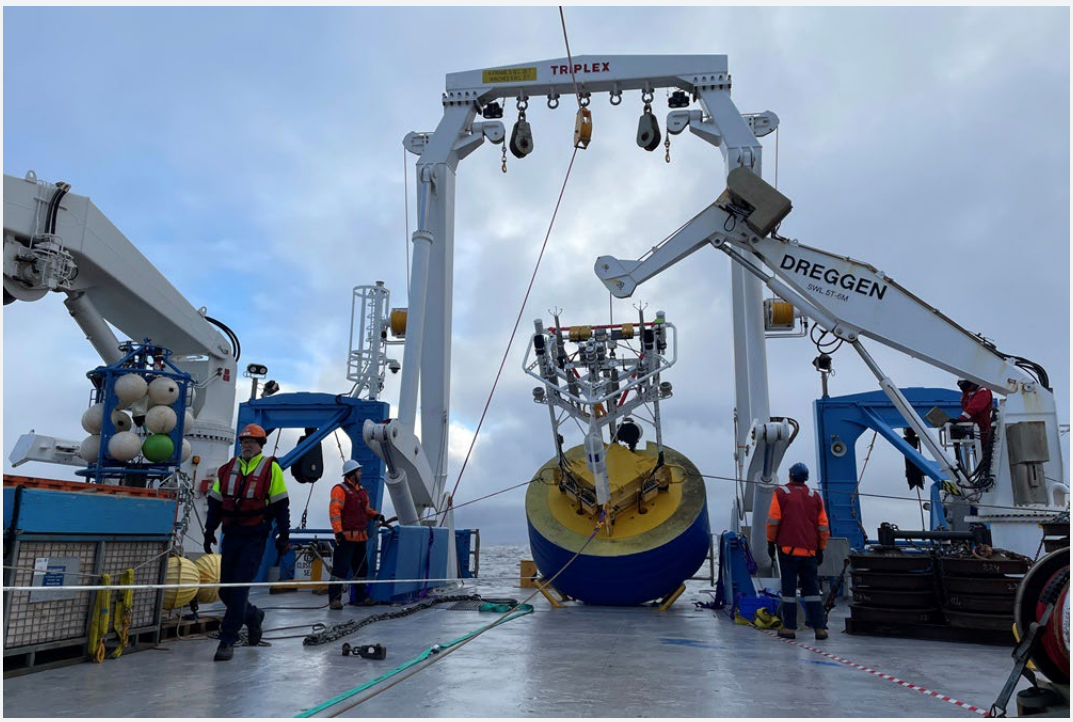
The Southern Ocean Time Series (SOTS) observatory is significant for its environmental challenges and the engineering excellence required to maintain IMOS moorings.

The moorings transmit surface data through satellites, improving our understanding of the processes controlling transfers of heat and carbon between the ocean and atmosphere and assisting with predictions of climate change.

SOTS is a partnership between the Integrated Marine Observing System, Bureau of Meteorology, Australian Antarctic Program Partnership and the Marine National Facility.

The impact

The SOTS data is the longest fixed time series of Southern Ocean observations operated by any nation, contributing to the global effort to understand ocean dynamics and their role in climate and responses to anthropogenic emissions.



A deep-water mooring on the back deck of RV *Investigator*. Image: Elizabeth Shadwick.

Australia Telescope National Facility (ATNF): 24/7 radio astronomy

The telescopes of our ATNF provided access to a wide range of state-of-the art radio astronomy instruments to Australian and international astronomers. A total of 259 refereed scientific papers using observations from ATNF facilities were published in 2022–23.

Parkes radio telescope, Murriyang

Observing time on the Parkes Telescope Murriyang is allocated competitively by scientific merit through the ATNF Time Assignment Committee, which meets twice per year. A majority of Committee members are Australian researchers external to CSIRO. A total of 100 proposals for observing time were received in 2022–23. Australian astronomers were awarded 51 per cent of the available time at the Parkes and overseas-based astronomers 49 per cent.

Australian Telescope Compact Array (ATCA)

Observing time on the Australia Telescope Compact Array (ATCA) is also allocated competitively by scientific merit, through the ATNF Time Assignment Committee. A total of 158 proposals for observing time were received in 2022–23. Australian astronomers were awarded 43 per cent of the available time at the ATCA and overseas-based astronomers 57 per cent.

Australian Square Kilometre Array Pathfinder (ASKAP)

The great majority (95 per cent) of observing time on ASKAP is allocated to the major all-sky surveys for which it was constructed. Nine large survey teams comprising around 800 astronomers from 206 institutions in Australia and overseas applied for time in 2021. Allocation of time is made according to the recommendations of an international review panel convened in 2022 to assess these proposals.

Centre for Earth Observation: monitoring the pulse of Earth

The NovaSAR-1 satellite national facility provided access to more than 3,500 satellite images for over 450 users from 38 countries, commenced 14 new imaging projects and released the first national-scale mosaic of NovaSAR-1 imagery with coast to coast coverage of Australia.

NovaSAR-1 is providing novel S-band SAR (Synthetic Aperture Radar) images to complement other satellite image data used in research and decision making. Images from NovaSAR-1 have been used for applications linked to climate, environment and disaster management, including use by Australian Government operational agencies for mapping flooding across Australia and detecting icebergs over the Shackleton Ice Shelf.

National Research Collections Australia (NRCA): digitising the Collections

Digitisation of the items held in the National Research Collections Australia was significantly progressed with successful migration of the Australian National Wildlife Collection and the Australian National Fish Collection onto our new ‘Specify’ collections management platform. This project also saw the imaging of 800,000 specimens from the Australian National Herbarium.

These initiatives will make the collections more secure, remotely searchable, accessible to users and amenable to analysis using technology such as Artificial Intelligence and machine learning. Digitised images of invasive weed and insect pests in our research collections have also been used to develop mobile biosecurity apps for in-field detection.

Atlas of Living Australia (ALA): Biosecurity Hub launched

The ALA national biodiversity data infrastructure provided open access to more than 114 million plant and animal species occurrence records to support Australian and international biodiversity science underpinning more than 300 science publications.

This year the ALA launched the Biosecurity Hub (ala.org.au/biosecurity) to provide Australia’s biosecurity sector a single point of access to ALA data, tools and resources to support their science and decision-making needs. The hub will be incrementally expanded to support new capabilities under development including ALA’s biosecurity alerts system, which will provide users with early warnings of the detection of species of biosecurity concern in Australia.

In addition, the ALA Labs webpage was recently launched to support the users of ALA data across the research, government and higher education sectors who wish to programmatically access ALA data through software tools such as Python and R, to support their biodiversity data analysis and visualisation work. The ALA Labs platform operates under the principles of providing open data with scientific transparency using repeatable analysis methods.

Australian Centre for Disease Preparedness (ACDP): protecting Australia

We have maintained our compliance with Australian legislation and regulations and international Organization for Standardization accreditations.

ACDP participated in 4 external recertification audits during the financial year against the requirements of ISO 9001, ISO 14001, ISO 17025, and ISO 17043. Auditors complimented highly the facility's commitment to quality and environmental management and were pleased to confirm ACDP's continued accreditation/certification in all areas. They commended the efforts to date to integrate the 2 management systems (ISO 9001) and (ISO 14001).

Having an Integrated Management System (IMS) that can be applied site-wide will ensure that ACDP continues to deliver trusted science in a compliant, efficient and environmentally responsible manner. Having a single framework will also build a strong foundation on which new certifications/ accreditations can be added or extensions to existing scopes achieved.

Individual rooms at the Werribee Animal Facility are undergoing capital improvements due to infrastructure issues. We promptly reported the infrastructure issues to relevant regulators (OGTR, DAFF and Animal Welfare Victoria), and some room approvals have been suspended while we are remediating the rooms. ACDP maintains its licence with Animal Welfare Victoria.

ACDP's Japanese encephalitis virus outbreak response team provided urgent testing, expertise and communications that underpinned Australia's response to the 2022 Japanese encephalitis virus outbreak. Their collaborative one-CSIRO approach was recognised by state and federal agencies.

In addition, ACDP was successful in its application to become a Reference Centre for Zoonotic Coronaviruses with the Food and Agriculture Organization of the United Nations. This enables ACDP to work within this extensive network to deliver global level capabilities in virus characterisation, diagnostic assay development, epidemiology and surveillance. It also provides field and technical support to member countries to prevent and control major animal diseases, both in their respective countries and globally.

Pawsey Supercomputing Research Centre: supercomputer debuted

To help power high-impact Australian research projects, Pawsey Supercomputing Research Centre became home to the Setonix supercomputer, delivering up to 50 petaFLOPS, or 30 times more compute power than its predecessor systems. Setonix debuted as the 4th greenest supercomputer in the world (on the Green500), the most powerful public research supercomputer in the southern hemisphere and the 15th most powerful in the world.

Bright beginning for Australia's newest supercomputer

The opportunity

As technology rapidly advances, exponentially larger datasets are created and stored, requiring increasingly powerful computers to wield their volume and extract insights to drive research and discovery forward.

The solution

This year we completed the Australian Government's $70 million upgrade to the Pawsey Supercomputing facility and the introduction of a new supercomputer called Setonix – named after Western Australia's favourite animal, the quokka (*Setonix brachyurus*).

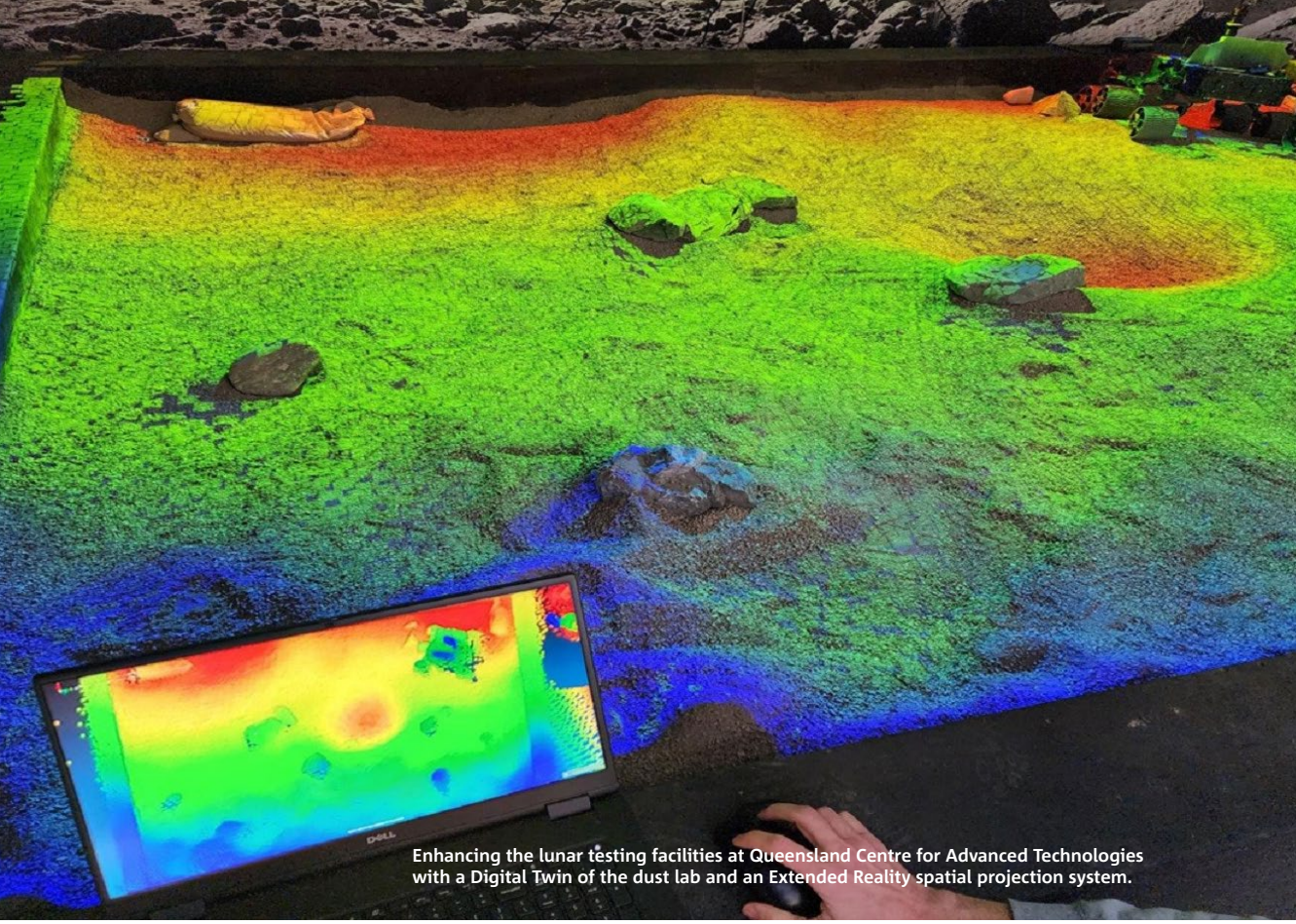
The impact

Within 24 hours of accessing the first stage of Pawsey's new Setonix system, researchers generated a highly detailed image of a supernova remnant using data gathered from the ASKAP radio telescope, which is owned and operated by us on Wajarri Yamatji Country in Western Australia.

The supernova remnant's dataset was selected to test Setonix because of the challenges involved in imaging such a complex object. In the case of ASKAP, Setonix's large, shared memory allows researchers to use more of their software features and further enhance the quality of images, unearthing more from the ASKAP data.

Processing data from ASKAP's astronomy surveys is a great way to stress-test the Setonix system and see what is possible. The generation of this image illustrated that the first phase of Setonix has increased the computing power of the Pawsey Centre by 45 per cent. When fully operational, Setonix will allow for more processing of vast amounts of data coming from many projects, and more science will be achieved in a fraction of the time.

Pawsey Supercomputing Centre in Perth Western Australia. Image: Pawsey Supercomputing Centre.



Enhancing the lunar testing facilities at Queensland Centre for Advanced Technologies with a Digital Twin of the dust lab and an Extended Reality spatial projection system.

Labs of the Future

Our Labs of the Future action is driven by our vision of science in 2030 and will ensure that CSIRO facilities are able to keep us at the cutting edge of science and technology. This year we supported scientists from across our organisation to bring their labs of the future to life with an investment of $704,000.

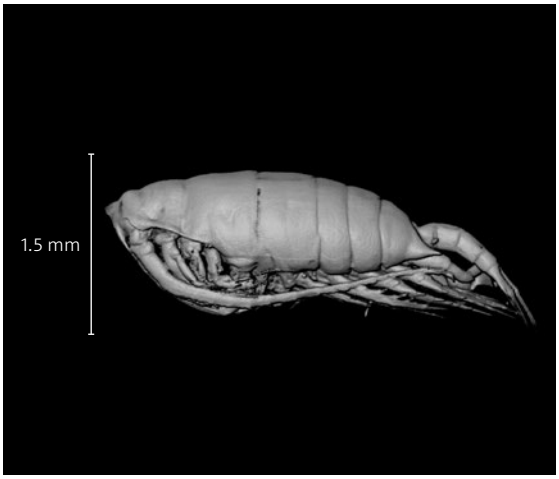
Fourteen teams have been implementing transformative projects, including exploring the introduction of robotics and automation, Artificial Intelligence and machine learning, virtual and augmented reality, and sensing platforms to their research processes. Project proposals and delivery experiences are providing key insights and learning to inform our Labs of the Future roadmap and prepare us for the technology needs, challenges and opportunities ahead.

Our **In-situ Resource Utilisation (ISRU) Facility** is a lunar test bed simulating some of the physical characteristics of the Moon's surface, particularly lunar dust. It is extremely challenging to replicate the physical lunar environment under Earth conditions, even using sophisticated computer simulations.

The **Extended Reality Interface for Lunar Regolith Experiments** project combined physical experiments with constructed equipment and digital simulations, adding enhanced visualisation capabilities to the lab. The project created and projected digital elevation features, tested and validated different mobile and static sensors, and generated operational digital twins of the surface for navigation experiments.

The **Digital Interactive Plankton Reference Collection from Australian Waters project** advanced our vision to build an Australian Marine Plankton Reference Collection with paired, physical and digital specimens of a wide range of zooplankton species encountered in Australian waters.

Planktonic organisms present a unique challenge for digitising as specimens are very small and must be kept in a liquid preservative medium. This project trialled MicroCT scan and laser microscopes to produce specimen images, which can be reconstructed as 3D elements, with internal and external visualisation and the potential for 3D printed models. This level of visual detail provides the team with the opportunity to discover and describe new species that was previously unachievable.



3D rendering of a male pontellid (copepod).

Typographic projection using the Extended Reality Interface in our lunar testing facilities at Queensland Centre for Advanced Technologies in Brisbane.

Objective 3

Engage and empower talent

3.1 Preferred place to work

We are

enabling

our people to thrive by driving a culture that embraces diverse backgrounds and perspectives

connecting

our people – encouraging them to share their work and experiences, support site cohesion and reinvigorate local connections

supporting

our culture by investing in our leaders

protecting

our people and fostering a positive HS&E culture by empowering them to be accountable for their own health and safety and minimise environmental impact

Culture Program: amplifying how we work

Our Culture Program this year focused on amplifying our people's connection to our strategy and leading and living our CSIRO values. One of the key initiatives to enable this was the continuation of our Fuse events.

Designed to connect people from different parts of our organisation and diverse regions in Australia, Fuse events provided an opportunity for our people to share their work and experiences, explore the interface between strategic priorities and day-to-day experience, support site cohesion and reinvigorate local connections.

Piloted in 2021 and continued in 2022, there have been 8 events in total, 4 of which were coordinated during the 2022–23 year.

Using a hybrid delivery design, each event involved 5–6 sites, linked via video conferencing, with participants afforded the option of attending face to face or virtually. In 2022–23, 1,532 people from 21 sites participated, bringing total participation across the last 2 years to 2,569 people from 39 sites. We engaged in productive workshop discussions of:

- **CSIRO values:** 2 years after the launch of our organisational values.
- **Setting goals and objectives:** an area of improvement identified in our culture survey in 2022.
- **Creating inclusive workplaces:** a key component of our Diversity, Inclusion and Belonging Strategy.

Since our last culture survey in 2022, we've been acting on our people's feedback to strengthen our culture across 3 areas: organisational, business units and leadership. This year we undertook a targeted survey to check in on specific priorities arising from previous results to help us gauge if our action plans are driving us in the right direction. The survey was completed by 4,357 people (66.4 per cent of eligible staff and affiliates). The feedback from our people was:

Core values: We've seen an improvement in our leaders doing what they say they will do, and our results are above average. While this is encouraging, we're hearing we can do more in holding people to account when their actions are not in line with our values.

Goals and objectives: We've seen a significant increase in the level of agreement about our goals compared to last year, viewed as ambitious and realistic. That said, the level of clarity about our goals is still below average, and this is something we will keep working on.

Empowerment: Our results improved slightly but remain largely stable compared to last year, with many of our people feeling they have a positive impact.

Overall, the results confirmed that our actions are the right things to be working on. We'll continue integrating feedback and taking action across the 3 areas committed to from the previous survey.

Diversity, inclusion and belonging

This year we launched our first Disability Access and Inclusion Plan 2023–26. The plan has 4 primary goals:

1. **A welcoming CSIRO:** a workplace of the future based on a broad range of experiences and perspectives.
2. **A connected CSIRO:** a supportive, skilled, and engaged workforce.
3. **An authentic CSIRO:** a culture that supports the diverse talent of our workforce.
4. **A responsible CSIRO:** systems and strategies that remove barriers and enhance outcomes for our workforce.

While our focus is on intersectionality, we will continue to address equity imbalances for specific communities and diverse groups. Targeted action plans aligned with our priority groups will enable us to accelerate change through tailored initiatives. Our key priority groups include Aboriginal and Torres Strait Islander Peoples; Gender Equity; Disability and Neurodiversity; LGBTQIA+; and Faith and Culture.

As a leader in science and innovation we voluntarily reported to the Workplace Gender Equity Agency (WGEA), a first for public sector organisations.

Our gender pay gap for 2022 (based on calendar year 2021 data) is 14 per cent (total remunerations). The WGEA process for the 2022 calculation will begin in September 2023.

The gap compares favourably to our Professional, Scientific and Technical Services industry average of 24.4 per cent (February 2022 data published by WGEA) and compared to the Australian gender pay gap of 22.8 per cent.

Since joining the Athena Swan SAGE accreditation program in 2014, the percentage of women in research positions has increased from 32.8 per cent to 37.9 per cent, and in research leadership positions has increased from 20.4 per cent to 32.8 per cent.

This year we had 70 marchers in the Sydney Gay and Lesbian Mardi Gras Parade and showcased CSIRO as a welcoming, dynamic and progressive workplace at Mardi Gras Fair Day.

The proportion of leadership roles held by people from non-English speaking backgrounds has increased from 17.8 per cent to 19.6 per cent. This coincides with the total representation of staff from a non-English speaking background increasing from 24.9 per cent to 27.1 per cent; 40.6 per cent of roles are held by women with 68.7 per cent of these in research roles.

Team CSIRO geek out at Sydney World Pride 2023

The opportunity

To ensure we are an employer of choice, we want to recruit and retain the best and brightest from around the world. In the global talent race, a strong culture of diversity and inclusion can support the best people and the best ideas being part of Team CSIRO.

The solution

To promote us as a diverse and inclusive workplace, we participated in the Sydney Mardi Gras Fair Day and Parade during WorldPride. Seventy members of the Pride@CSIRO Network and ally community proudly marched down Oxford Street Sydney to a cheering crowd and live television audience of over 1 million people.

On Fair Day, CSIRO experts engaged a 70,000-strong crowd on topics including our Koala Monitoring Program, our new SKA telescope in Western Australia, and recent developments in Artificial Intelligence and data security.

The impact

Our participation is a meaningful, visible and practical way to promote and drive the inclusion of LGBTQIA+ people in our workplace. It helps to grow an inclusive culture by raising awareness, encouraging allyship and challenging discrimination. We continue to improve LGBTQIA+ inclusion across the organisation and achieved a Silver Employer Status in the Australian Workplace Equality Index in 2022.

Chief Executive Dr Larry Marshall and the CSIRO World Pride 2023 Marchers.

Leadership capability

We continue to invest in our leaders to support a culture where our people can do their best.

Our Spark Leader Labs are continually iterated based on participant feedback to foster and support leaders to build high-performing dynamic teams, build networks and spark world-class leadership practice. Our MCI Institute Virtual Subscription provides short, sharp virtual classes on a variety of topics, including influencing, leading teams through change, stakeholder management and more. Our Learning Academy provides a number of other learning programs to support our people in areas such as digital and project management. Our Leader Portal on our intranet has been refreshed with new materials and resources, complemented by functionality in other internal systems to better support all leaders.

In recognition of the importance of the Team Leader role, changes have been made to the allocation of effort to the people management activities. The allocation has been increased to 20 per cent of time (up from 10 per cent) and has been reflected in updated role profiles and project management software.

Healthy and safe people and environment

We remain committed to ensuring our people's health and wellbeing and that everyone goes home safely, every day.

Our 4-year Health, Safety and Environment (HSE) plan is tracking well with continued focus on finalising procedures and documentation of the HSE management system. We continue to focus our efforts to empower our people in being personally accountable for their own health and safety and to minimise environmental impacts.

We continue to build the HSE management system to support our commitment to working safely, looking out for the safety, health and wellbeing of those around us and minimising our impact on the environment. The system empowers our people by helping them to make informed decisions in their science and in their business. It fosters a positive culture by acting as the mechanism where decisions are informed by an appraised assessment of the HSE risks and opportunities associated with how we conduct our activities and our business.

The interactive HSE risk dashboards continue to provide visibility across CSIRO and enable improved engagement around hazards and risks, potential exposure and effectiveness of controls. User acceptance testing for the 'Donesafe' forms and templates module has commenced.

Our Total Recordable Injury Frequency Rate (TRIFR) dropped from 3.2 to 2.7. Medical treatment injuries have decreased this year (16) compared with last year (26), but there have been more lost time injuries (20 compared with 14 last year).

Regulatory notifiable incidents reported to Comcare and other regulators increased from 3 to 8. All incidents prompted rapid investigation with corrective and preventive actions put into place. We continue to share HSE alerts and lessons learned arising from incidents across the organisation.

HSE contacts and hazard reporting continues to improve with 1,125 hazards reported compared with 771 last year and 3,186 HSE contacts, up from 2,385 last year.

The enforceable undertaking we are delivering with Comcare, as a result of a health and safety incident in 2017, has been completed and the undertaking discharged in June 2023. This year work on the final initiative was completed, delivering a Virtual and Augmented Reality Risk Management training package that will enable staff to walk through scenarios in the workplace. The full undertaking and general information about our Enforceable Undertaking is available at comcare.gov.au.

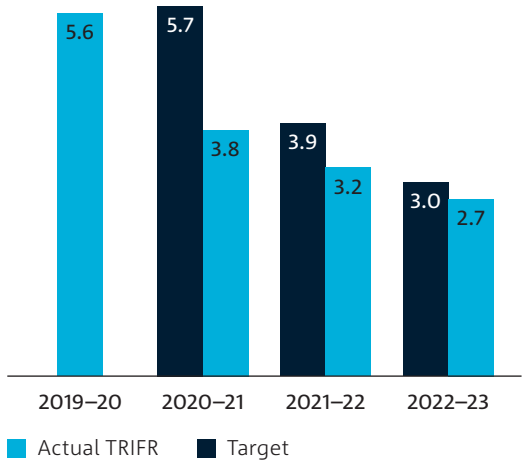


Figure 3.1: Historical TRIFR targets and results 2020–23

Making safety personal for HS-Me Day

The opportunity

Our people work in complex environments with diverse risk profiles, reflecting the broad range of our research and expertise. Ensuring the ongoing health and safety of our most valuable asset, our people, means we need to invest in building trust, improving collaboration, fostering a positive work environment and sense of accountability, and promoting overall wellbeing and productivity.

The solution

HS-Me Day, an annual event launched in 2018, is an organisation-wide initiative to encourage our people to stop (the everyday) work and come together to focus on education, conversation and action around HSE. The theme of HS-Me Day 2022 was 'Speak up if it doesn't feel right'. We attended an all-staff panel discussion and online webinars, conducted 'hazard hunts', joined sports and wellbeing activities, and reflected on how we can keep ourselves and each other safe. Given recent years' events had to accommodate concerns associated with COVID-19, HS-Me day 2022 actively promoted being together on site to share the day and on-site activities.

The impact

Many activities on the day were designed to increase people's use and knowledge of Donesafe, our HSE management system. Since HS-Me Day 2022, we've seen a steady rise in reporting and resolution of HSE issues in this system and continue to provide education and incentives for staff to adopt a positive reporting mindset.

Teams across CSIRO have also been encouraged to initiate new health and safety conversations and activities. Here are some examples of those that have kicked off over the last 6 months:

- 'Just One Thing' is a new campaign to promote safety conversations. It encourages weekly conversations about 'just one thing' that an individual, their manager or others might do to improve HSE in the workplace.
- HS-Me 'mini days' are quarterly or half-yearly days dedicated to localised HSE activities and conversations.
- A regular 'HSE walk' is held, designed to allow Program Leaders to check-in on people and any HSE matters of concern in a safe space.
- Regular HSE hazard reporting is being encouraged with a bit of healthy competition. Prizes are on offer for people who actively report. This encourages people to consider potential hazards and solutions in their workspace, improves engagement with our 'Donesafe' safety reporting tool and increases site attendance and activity.
- Site-specific training has been prioritised with various sites delivering training in mental health awareness, use of heavy vehicles, First Aid and automated external defibrillator (AED).
- Some sites have started regular social gatherings with a focus on safety, regular yoga and meditation sessions, frequent site inspections or site clean-up days. E-bikes are also being explored on a few sites as a method of healthy transport.

Each annual HS-Me Day event and subsequent initiatives will aid in promoting a culture of safety and wellbeing, broaden education, and ultimately reduce incidents and injuries for our people.

3.2 World-class talent

We are

pursuing

and attracting the best global science and technology talent by providing tailored opportunities to qualified researchers with innovative skills

nurturing

our future leaders in the innovation system – enhancing research capability and equipping graduates to pursue careers in research

bridging

the gap between education and industry – providing students with opportunities to develop industry-relevant research skills

strengthening

Australia's STEM pipeline by providing curriculum-aligned and culturally responsive learning experiences

Attract and develop outstanding talent

Impossible Without You: attracting the next generation

Our 'Impossible Without You' recruitment campaign aimed to attract Australia's next generation of inventors, innovators and changemakers. Instead of recruiting for specific roles, we were searching for people with a broad scope of talent, diverse skillset and experience to engage across our research areas. We aim to maximise the impact of our science by recruiting the right people to help us deliver on our strategic priorities and missions.

We created 200 early- to mid-career researcher roles and 50 roles for Aboriginal and Torres Strait Islander graduates, the latter making up 20 per cent of our 'Impossible Without You' campaign roles, tracking to exceed our initial target of 3 per cent. As at 30 June 2023, 6 per cent of new starters identified as Aboriginal and Torres Straight Islanders and our focus on diversity and inclusivity resulted in new starter appointments of 51 per cent men and 48 per cent women, consistent with gender diversity targets of at least 40 per cent men and at least 40 per cent women.

The campaign was a landmark program to build our future research capabilities and develop our brand as a destination employer. Our innovative advertising appealed to talented, purpose-oriented individuals who could see themselves contributing their research potential to our strategic objectives, particularly through our missions programs, as well as building capability in our Future Science Platforms (FSPs) to solve the challenges of the future. We implemented a candidate-focused recruitment process, selecting qualified researchers with innovative skills and offered them customised roles to maximise their potential in advancing our research objectives.

In the final quarter of 2022–23, we launched our graduate programs to refresh our professional support services and create supported pathways for Indigenous scientists and engineers to develop research careers.

Our campaign generated unprecedented interest in careers with us, attracting early- to mid-career researchers of diverse backgrounds from around the country and including Australians returning home from overseas. The advertising and recruitment process was deliberately inclusive of people from diverse backgrounds and demographics and emphasised further when we tweaked the campaign to 'Impossible without Diversity' to link with Diversity Month, the Sydney Mardi Gras and International Women's Day in March.

As the successful recruits have been starting in their new roles, we have been piloting an enhanced orientation program to create interconnected cohorts, to catalyse boundary-spanning collaboration that builds our multidisciplinary capability. This will help to address the challenges of the future that might otherwise be impossible!

ResearchPlus

The ResearchPlus portfolio of internal grants enables strategic investments in CSIRO science and engineering excellence and reinforces a culture of impact and innovation. The ResearchPlus grants grow and develop talent, from postgraduate students to early- to mid-career researchers – building STEM pipelines and career pathways. Other programs facilitate opportunities to explore cutting-edge science and engineering challenges by supporting vibrant discussions on emerging global topics across scientific, academic and business communities. The ResearchPlus portfolio is overseen by the CSIRO Science Council. CSIRO Science Council members include the Chief Scientist and senior leaders across business units, with outcomes and impact reported in the annual CSIRO Science Health and Excellence Report.

In general, competitive rounds for each program are held each year. New grants awarded in 2022–23: 43 PhD top-ups, 46 CERC Fellowships, 10 Julius Career Awards and 5 Cutting Edge Symposia. In addition to the current 9 CSIRO Science Leaders, 4 new priority research areas were identified and/or are open for recruitment.

The portfolio and programs undergo continuous review to ensure they remain relevant to our needs and the business units, as well as consider changes in the internal and external ecosystem. For example, recently the CERC Fellow program was expanded to include Team Sport CERC Fellowships where 2 or 3 CERC Fellows work closely together with the aim of delivering significant scientific and translational impact on a broad multidisciplinary research topic; and more overt recognition of engineering skills through Engineering Fellowships.

CSIRO Early Research Career (CERC) Postdoctoral and Engineering Fellows: Future leaders

Our CERC program provides a differentiated learning, development and training program to develop future leaders of the innovation system.

These Fellowships enhance the research capability of PhD and Engineering master graduates so that they are better able to pursue a career in research either within CSIRO or beyond.

As an impact-driven research organisation, a background and skill set in engineering disciplines is important to us. As a result, an early career researcher pathway for engineering graduates has been established within the CERC Fellow learning, development and training program.

Figure 3.2 shows the number of CERC Fellows as at 30 June each year. While CERC Fellow numbers declined in 2020 and 2021, which was attributed to uncertainty and border restrictions relating to COVID-19, the number of CERC Fellows engaged has continued to increase from 2022. As a result of the 'Impossible Without You' recruitment campaign targeted at attracting early career research talent within Australia, the CERC Fellow numbers have increased to a new high of 449 positions (37 per cent increase from 2021–22).

This pipeline of early career talent will provide valued succession planning for CSIRO. As Fellows have concluded their terms and new Fellows have been appointed during the year, a total of 536 different Fellows have been employed throughout the year.

Our university and industry engagement Postdoctoral Fellows being employed at universities has reduced, with 13 Affiliate Postdoctoral Fellows engaged at the end of June. This reflects the preference for our CERCs to be engaged through our organisation.

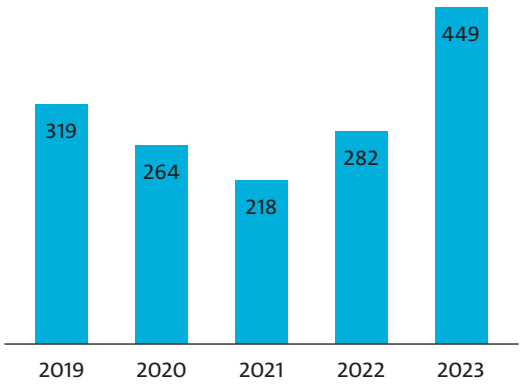


Figure 3.2: Historical trend of CERC Fellows 2019–23

Tertiary students: helping to shape top talent

We collaborate with universities, industry and other stakeholders to provide postgraduate studentships, undergraduate traineeships and undergraduate vacation studentships.

The student experience is important to us with an emphasis on providing an increased collaboration with industry, as well as supporting postgraduate students looking for careers outside of academia.

As part of the tertiary student programs, students work on research projects that provide learning and development opportunities, which supports the increasing demand for Australia's STEM capability.

In 2022–23, we supported 1,359 undergraduate and postgraduate students through our programs. Table 3.4 demonstrates student engagement over the past 5 years. The number of students fluctuates within a year and across years, as students start and finish programs at different times of the year. Our student numbers have remained steady since 2021–22.

Table 3.5 provides a breakdown of the number of students that we supervised, or both supervised and sponsored. These numbers represent a point in time as at 30 June 2023, as distinct from the total number of students over the course of the whole year.

Table 3.4: Our students over the past 5 years

TYPE OF ENGAGEMENT	2018–19	2019–20	2020–21	2021–22	2022–23
Tertiary level					
Undergraduate students	565[1]	500[2]	408[3]	371[4]	388[5]
Postgraduate students	1,448	1,380	1,094	1,021	971
Total	**2,013**	**1,880**	**1,502**	**1,392**	**1,359**

1: includes 164 vacation students. 2: Includes 165 vacation students. 3: includes 201 vacation students.
4: includes 194 vacation students. 5: includes 203 vacation students.

Table 3.5: Our supervised and sponsored students at 30 June each year

	2019	2020	2021	2022	2023
Sponsored and supervised postgraduates					
PhD	459	471	435	411	410
Masters	6	8	17	18	18
Subtotal	465	479	452	429	428
Supervised postgraduates (not sponsored)					
PhD	372	312	244	211	189
Masters	126	77	65	51	67
Subtotal	498	389	309	262	256
Subtotal postgraduates	963	868	761	691	684
Undergraduates					
Undergraduate trainees	117	45	52	39	49
Honours students	44	41	39	20	32
Subtotal	**161**	**86**	**91**	**59**	**81**
Total tertiary students	**1,124**	**954**	**852**	**750**	**765**

Undergraduate Research Opportunities Program (UROP)

The UROP facilitates paid placements for undergraduate students at biomedical research organisations in Victoria. A record number of applications were received for Round 1 of 2022, with 16 placements established overall across both rounds at organisations such as CSL, Murdoch Children's Institute, Australian Regenerative Medicine Institute, The Florey Institute, Peter MacCallum Cancer Centre and us.

In 2022, we conducted research to gain a clearer understanding about the extent UROP has influenced participants' long-term education and career pathways. Feedback from past students (participating from 2004–19) indicated an overwhelmingly positive perception of the program, with most participants stating that UROP had a significant impact on their education and/or career decisions.

Industry PhD (iPhD) Program

The CSIRO iPhD program commenced in 2022–23 after a successful pilot program from 2017. The program has 2 primary aims: (1) to develop researchers with the skills to work in and with industry; and (2) to deepen collaboration between industry and the research sector. The program provides domestic students the opportunity to undertake a PhD identified and jointly supervised by an industry partner, an Australian university and us.

Throughout the completion of the PhD research, the student regularly engages with their industry partner and receives additional training to help develop their industry-relevant research skills.

Over the past year, we have engaged extensively with Australian universities to support identifying new projects and implementing the program.

The first round of the program identified 16 projects with 15 industry partners, mainly small- to medium-sized enterprises (SMEs), and 11 universities. In addition to the 13 students who commenced through the newly funded national program, 19 students worked towards their PhD through the pilot program, including 7 who graduated. Round 2 commenced in early 2023 with more than 40 projects across 24 universities identified for student recruitment, which will be conducted late 2023 and into 2024.

PhD student Elizabeth O'Connor commenced in early 2023, undertaking her iPhD with Wanless Waste Management, Queensland University of Technology and CSIRO, to address regulatory barriers impacting recycling and circular economy development in Australia. The aim is to identify policy reform options and investigate potential mechanisms, processes, and organisations through which legislative change can ideally be influenced and achieved.

After a successful project in the pilot program, small business Biosensis has commenced a second iPhD project with CSIRO and the University of Adelaide. This new project, being undertaken by PhD student Nicholas Graham, supports the development of protein biomarker assays for saliva to help detect early brain changes from Alzheimer's disease.

STEM Education: Starting Australia's pipeline early

Our STEM programs provide learning experiences for primary, high school and tertiary students, teachers and the community. In collaboration with industry and our partners, we put STEM into the hands of over 200,000 students nationally each year. Our programs are curriculum aligned, culturally responsive and use best practice STEM learning methods. We promote the importance and application of our research to the community and increase Australia's STEM capability.

We delivered more than 17 education programs, which increased interest, engagement and achievements in STEM. This year more than 200,000 primary and secondary students took part in STEM education programs from more than 1,600 schools. Over 5,500 teachers participated in professional learning programs and experiences.

STEM Professionals in Schools

STEM Professionals in Schools brings real-world STEM into Australian classrooms by partnering STEM professionals with teachers. By individually matching teachers with STEM professionals, they can work together to increase both the teachers' and students' STEM skills, knowledge and confidence through a range of bespoke activities. Each partnership is unique and is determined by what works best based on their combined expertise, the curriculum and the students' needs. Supported by the Australian Government, this program in 2022–23 has created 810 partnerships in 632 schools by connecting 718 teachers and 698 STEM professionals from more than 286 organisations across Australia. Over 42 per cent of partnered STEM professionals are women, providing visibility of positive female role models in STEM, and 29 per cent of partnerships were in regional and remote areas.

Catholic and independent schools participated, with a well-balanced mix of primary and secondary schools involved in the program. Approximately 28 per cent of all participating schools were in regional and remote areas. The program hosts a variety of online events to support participants with opportunities to connect, share ideas and hear from others in the program.

Generation STEM

Generation STEM is a 10-year initiative that attracts, supports, retains and trains NSW secondary and tertiary students in STEM into further education and employment. A $25 million endowment from the NSW Government to the Science and Industry Endowment Fund (SIEF) supports this program.

Throughout 2022, more than 2,200 Year 9 and 10 students participated in the STEM Community Partnerships Program (STEM CPP), providing opportunities for 2,208 industry-student interactions across 89 activities and events, including work experience, site visits and showcases. In 2023, the program expanded to Year 7 and 8 and a total of 1,940 students had participated in the first half of the year. In 2022–23, Deadly in Generation STEM engaged 25 students and 41 teachers from 15 schools and 15 STEM professionals in teacher professional learning and immersion days to increase participation of NSW Aboriginal and/or Torres Strait Islander students in STEM through Culture and on Country activities. In 2022–23, as part of Generation STEM Links, 32 tertiary students completed paid internships in STEM businesses to support their transition to employment.

In 2022, the Generation STEM initiative was active in 13 Western Sydney councils and the Central West, Illawarra-Shoalhaven, Central Coast, New England, Orana, Jerrabomberra and Riverina regions.

Feedback was sought about the STEM CPP program from students, teachers and industry stakeholders, including through online surveys (220 Year 9 and 10 students responded). Key findings included:

- students' self-reported interest and attitudes towards STEM increased, particularly in how STEM is useful in everyday life
- the inquiry-learning project and showcase events had the biggest impact on students' interest in STEM
- a strong majority of students felt that STEM subjects were important to their future study and career
- students and teachers felt that STEM CPP had contributed to increased student confidence in problem-solving and working in teams
- participating schools and industry mentors spoke positively about their experience with STEM CPP and want to stay involved in the program, including 97 per cent of industry contacts willing to recommend the program to colleagues.

Young Indigenous Women's STEM Academy

The Young Indigenous Women's STEM Academy provides high-quality STEM extension and engagement activities to young Aboriginal and/or Torres Strait Islander women. The program currently supports 324 high school students and 122 students undertaking various tertiary pathways across Australia. The Academy delivered a range of STEM experiences tailored to the young women's areas of interest, including STEM camps, panel sessions with female Indigenous STEM professionals, hands-on STEM activities, industry tours and wellbeing activities. Two STEM experience highlights from 2023 involved the Academy being:

- engaged by the United States Embassy to host an event in Perth for Pamela Melroy, NASA's Deputy Administrator
- guests of the Australian Space Agency at the launch of the National Indigenous Space Academy, where the young women had a closed conversation with Katherine Bennell-Pegg, Australia's first woman to train as an astronaut.

Fifteen Aboriginal and/or Torres Strait Islander women from the Academy have graduated from university, with 3 students going onto higher level studies, and 12 commencing their STEM careers, including one who has joined the CSIRO Graduate Program. In 2023, we commenced recruiting 2 new cohorts of young women from across Queensland and New South Wales.

Virtual Work Experience Program

Our Virtual Work Experience Program (VWEP) expanded in 2022 to include 2 new streams under new agreements with the Australian Department of Defence through the National Defence Industry Skilling Office (NDISO) and Defence Science and Technology Group (DSTG). Overall, 137 high school students from 91 schools participated across 26 STEM project groups. The program expansion brings the VWEP streams on offer to 4: CSIRO, Defence Industry, DSTG and Generation STEM.

In 2022–23, CSIRO professionals hosted 61 students from 52 schools across 10 groups. Several businesses across the defence industry hosted 34 students from 30 schools across 7 groups. DSTG hosted 16 students from 13 schools across 2 groups. Generation STEM supervisors from the University of New South Wales hosted 26 students from 7 schools across 7 groups.

Students worked on topics ranging from mathematical modelling, computer science, cyber security, engineering and fabrication, marine equipment manufacturing, systems engineering, molecular biology and genetics, to authoring articles for CSIRO's *Double Helix* magazine, observing pulsars using the Parkes radio telescope and many more.

Digital Careers

To increase interest in digital careers, programs are run through the Digital Careers initiative funded by Department of Industry, Science and Resources (DISR).

- The Bebras Australia challenge promotes computational thinking skills for students in Years 3–12. It is part of an international challenge intended to present computer science skills to students in a digestible and adaptable manner. Over 25,506 students from 423 schools participated in the August 2022 round, with 32,063 students from 417 schools participating in May 2023.
- CyberTaipan, a cyber security competition adapted from the CyberPatriot competition in the United States, educates and inspires students to consider careers in cyber security. It engaged 69 coaches and 52 technical mentors, with 146 teams made up of 795 students competing from across the country. CyberTaipan is delivered in partnership with Northrop Grumman Australia.
- We engaged the Australian Council for Education Research to conduct a research project into the factors affecting young women's uptake of digital technology education and careers. Suggested actions from this project were delivered in March 2023, and enhancements to programs will be made progressively.

Creativity in Research, Engineering, Science and Technology (CREST)

The CREST program builds teacher capacity for facilitating open inquiries. This year CREST engaged 206 schools and 3,062 students completed investigations in science, technology and engineering projects. A Silver CREST award student from NSW won the Australian Stockholm Junior Water Prize with her CREST project and will represent Australia at the Stockholm Junior Water Prize in Sweden.

3.3 Greater adaptiveness

We are

operating

in a more adaptable, resilient and responsive way with a focus on enhancing our people's experience

reimagining

our enterprise services functions to improve staff experiences, increase accountability and achieve greater value for money

supporting

performance development and building capacity in our people

creating

an environment that attracts talent and enables our people to do the best science

Our adaptiveness programs

Key programs of work have progressed our goal of being more adaptive. We invested in reimagining our enterprise services functions to improve staff experiences with increased automation, self-service and accessibility of information. Work also commenced on 'The CSIRO Way', aimed at supporting multidisciplinary teams to work in an agile manner. The Powering Collaboration Playbook is also well underway, providing a set of agile-inspired practices and tools to establish common ways of working that make collaboration and teamwork simpler.

Finance Transformation

As part of our Finance Transformation, we have trialled a Finance Service Desk for business units, partially automated our credit card management system, and launched a new portal for procurement, purchasing, invoicing and payments. This will provide an improved experience, helping to achieve greater value for money and capturing our commitments.

Indigenous Procurement Policy

We are developing an Indigenous Procurement Policy and continue to support opportunities towards the Australian Government's Indigenous Procurement Policy, spending $10,437,976 this year with Aboriginal and Torres Strait Islander-owned enterprises.

Supporting performance

In 2022–23, we launched our new Annual Performance Agreement (APA) system to help us align our impact focus, capture collaboration better and be empowered to take our performance into our own hands. For leaders, this form has more flexibility, allowing them to use new functionality like obtaining feedback at a time that works best for everyone, ensuring work planning and reporting can be captured in the APA as part of daily work.

People transformation

As part of transforming our people function, we launched a new 'People Connect' platform in November 2022, providing an integrated 'one-stop-shop' portal for all our people services.

A better way to connect people

The opportunity

Across our internal platforms, information and support on people processes such as payroll, new starters, cessations, rewards, leave and recruitment was dispersed and hard to navigate. The People Transformation program of work was designed to improve the way we support staff and leaders. Providing outstanding people services and experiences plays a key role in creating an environment that attracts world-class talent and enables our people to do the best science of their lives.

The solution

We launched our People Connect portal to streamline support on a wide range of human resources topics. The portal uses a digital platform to consolidate a high volume of information into a better customer experience, including improved searchability and organisation of more than 500 frequently asked questions.

It also uses a single point of contact to lodge queries so they can be assigned to the right experts without having to navigate organisational structures or multiple contacts. Recognising the range of ways people like to work, the portal is still supported by a phone number so employees can speak to a member of the team, if preferred.

The impact

By automating certain straightforward processes there is more capacity to provide support and services requiring human interaction, such as coaching leaders and talking through complex team situations.

Research Engineer Hans Lohr, Research Scientist Cherry Chen and CERC Post doctorate Fellow Mingshi Song at CSIRO's Lab 22 developing metal additive manufacturing technologies to support Australian and international industries.

Objective 4

Build collaborative networks

4.1 Shared national labs

We are

developing

new precincts, research hubs, ecosystems and ways of working

collaborating

with other key players across the national innovation system

continuing

to progress key landmark infrastructure upgrades and new builds

sharing

our world-class infrastructure with industry, universities and governments to strengthen Australia's sovereign research capability

Innovation hubs, ecosystems and precincts

We place high priority on collaboration and the establishment of our specialist hubs and precincts is one way we are increasing collaboration between industry and research to boost Australia's innovation performance.

The benefits of multidisciplinary precincts are numerous. Tenancy at one of our hubs provides membership to an innovative community and access to specialist facilities, expertise and support.

Lindfield Collaboration Hub: supporting Australian manufacturing start-up industry

The Lindfield Collaboration Hub (LCH) is now an innovation incubator providing dedicated space for start-ups and SMEs to develop unique, high-tech products and devices. Early stage and established companies can access our facilities, science know-how, experience, business networks and commercialisation savvy.

LCH was established in 2016, with the support of the NSW Government Boosting Business Innovation program, to create a specialised space to support the Australian manufacturing sector's start-up ecosystem in building, testing and iterating prototypes and products.

Located 10 kilometres north of Sydney's CBD, LCH offers a 1,300 square metre footprint of co-working office and laboratory space and access to specialist equipment and machinery and our network of scientists. The LCH business model enhances collaborative networks, develops innovation-based commercial opportunities, and increases the competitiveness of SMEs and start-up companies with which we engage. In the 7 years since inception, LCH has supported over 40 start-up companies, creating more than 150 new jobs. There are 10 businesses currently on site, with 3 new companies being established in the last 12 months.

Connect@Lindfield, a pre-accelerator program for hardware start-ups and SMEs looking to grow and scale their business and make a real impact, was also relaunched this year at LCH, providing 8 companies thus far access to world-class researchers, industry networks and mentoring from experienced entrepreneurs. The long-term vision for LCH is to continue to support start-ups in the deep-tech space. The future strategy will be re-shaped based on the future transition to the new Bradfield CSIRO site in 2028, where there will be the potential for more research collaboration between the Lindfield Hub start-ups and our staff.

National Space Mission for Earth Observation (NSMEO)

In June 2023, the Australian Government announced the decision to discontinue the NSMEO program, and we will support relevant close-out activities next year. However, our work on Earth observation will continue as an integral part of our space research, facilities and technologies program. We will continue to build on our globally recognised track record in Earth observation by focusing on our world-leading capability in areas such as our AquaWatch Australia Mission, the activities of the CSIRO Centre for Earth Observation, offering access to the NovaSAR-1 satellite as a national facility, and our role in the Open Data Cube. We will continue to work closely with domestic and international partners on Earth observation, including facilitating calibration and validation of satellite data and contributing to the Copernicus Data Hub.

In 2022–23, we undertook activities as part of the first phase of implementation of the national Earth Observation from Space Roadmap 2021, led by the Australian Space Agency. Building on our existing satellite calibration and validation capabilities, we supported the certification of current ground-sites to global quality assurance standards and established one new national satellite calibration and validation ground-site. These ground-sites ensure satellite data captured from future new satellites are aligned with physical standards and the process of validation is comparable to ground measurements. This capability is critical in establishing the accuracy of satellite data that underpins reports, assessments and decision making regarding important national and global issues. In addition, we also evaluated future technical options to store and deliver historical archives and new satellite Earth observation data via high performance and cloud computing platforms.

The National Artificial Intelligence Centre (NAIC): enhancing Australia's AI and digital ecosystem

The NAIC is led by us on behalf of the Australian Government to further develop Australia's AI and digital ecosystem. Our leading capability in AI research and technology development is assisting organisations to develop their AI capacity and adoption. In 2022–23, NAIC delivered the following:

Think Tanks and AI Leadership Summit

Experts across businesses of all sizes and sectors, government and universities are part of the NAIC's Think Tank initiative, which fosters a collaborative approach to solving the shared challenges of AI adoption and innovation.

Responsible Artificial Intelligence Network (RAIN)

This world-first cross-ecosystem program has been established to support Australian companies in using and creating AI ethically and safely. It will create a national community of practice, guided by world-leading expert partners, and equip Australian businesses with curated advice and best practice guidance on Responsible AI within 6 actionable pillars: Law, Standards, Principles, Governance, Leadership and Technology.

Release of the AI Ecosystem Momentum report and Discoverability Platform

Federal Industry and Science Minister the Hon Ed Husic MP launched the National AI Centre's AI Ecosystem Momentum report on 14 March 2023. The report finds that the top 3 benefits of implementing AI were improved security, greater revenue growth and increased cyber safety. Paired with this, NAIC launched the AI Discoverability Platform in beta, with 53 AI vendors on the platform at launch.

Landmark infrastructure upgrades

Australian Centre for Disease Preparedness (ACDP) Part-Life Refit

The ACDP Part-Life Refit project, the primary objective of which is to refresh the existing facility, progressed the design of the development in 2022–23. Members of the Parliamentary Standing Committee on Public Works visited ACDP on 6 April in preparation for the submission of project information later in the year. The planned works will ensure we continue to meet our regulatory compliance requirements for the facility, as well as extend and refresh the existing facility and infrastructure services. The refit will ensure CSIRO can continue to prevent and respond to exotic and emerging animal and zoonotic diseases, as well as building Australia's sovereign capability in vaccine development.

Pawsey Supercomputing upgrade: Quantum Brilliance

In a pioneering milestone, the Pawsey Supercomputing Research Centre operated by us in Perth is home to the first room-temperature diamond-based quantum computer in a supercomputing facility, anywhere in the world.

Developed by German-Australian start-up Quantum Brilliance, the 2-qubit diamond quantum 'accelerator' uses synthetic diamonds and runs at room temperature in any environment. Pawsey now has Quantum Brilliance's rack-mounted diamond accelerator installed. The next phase tested Quantum Brilliance's diamond accelerator system by pairing it with Pawsey's new state-of-the-art supercomputer, Setonix (see more on Setonix on page 85). A 'hello world' algorithm between Setonix and the diamond accelerator was successfully achieved in April 2023.

The Pawsey team will work with Quantum Brilliance to collect and improve maintenance data, demonstrate classical and quantum co-processing, and integrate the system with Setonix. At the same time, we will be learning more about operating in a quantum environment.

This latest development could help pave the way for a future where quantum and classical computing can work together, complement each other and, importantly, continue our work in enabling science and accelerating discovery.

National Research Collections building: raising the bar

Our new National Research Collections building at our Black Mountain site in Canberra is progressing and is due for completion in December 2023. The building brings together the Australian National Herbarium, the Australian National Wildlife Collection and the Australian National Insect Collection, allowing optimised integration of research and curation workflows. The state-of-the-art facility includes climate-controlled specimen vaults that will obviate the need for harmful preservative chemicals, substantially increase the lifespan of specimens and provide space for future expansion of the Collections.

Square Kilometre Array (SKA)

The Square Kilometre Array (SKA) project is an international collaboration to build the world's largest and most advanced radio telescopes in Australia and South Africa. Over the next decade, the SKA-Low telescope will be constructed alongside existing facilities at Inyarrimanha Ilgari Bundara, our Murchison Radio-astronomy Observatory in Western Australia.

This year we executed a series of agreements to allow the telescope to be built. These agreements included a new Indigenous Land Use Agreement with the Wajarri Yamaji, the Traditional Owners and native title holders of the observatory land. Under this agreement, the Wajarri Yamaji have gifted us with a traditional name for the site: Inyarrimanha Ilgari Bundara, which means 'sharing sky and stars'.

We also signed a partnership agreement with the SKA Observatory to operate the SKA-Low telescope in Australia for the next 50 years. In addition, we are leading several contracts for construction of the SKA. The official start of construction was celebrated with ceremonies in Australia, South Africa and the UK.

Construction starts on SKA-Low telescope

The opportunity

As one of the most ambitious and long-term projects in global radio astronomy, the international SKA Observatory needs a large expanse of radio-quiet land on which to build their SKA-Low telescope in Australia. Establishment of the telescope – the first mega science project to be hosted by Australia – also needs to benefit the Traditional Owners of the site, the Wajarri Yamaji.

The action

We have worked closely with the Australian and Western Australian Governments to establish the site that will host the SKA-Low telescope.

In December 2022, we helped launch construction of the SKA-Low telescope at Inyarrimanha Ilgari Bundara, our Murchison Radio-astronomy Observatory on Wajarri Country in Western Australia. This telescope is a key element of the SKA Observatory (SKAO), an intergovernmental organisation bringing together nations from around the world to build and operate cutting-edge radio telescopes.

The commencement of construction follows the finalisation of an Indigenous Land Use Agreement (ILUA) with the Wajarri Yamaji in early November. Through the ILUA, we are partnering with the Wajarri Yamaji community to ensure cultural heritage is protected during construction activities on site and over the SKA-Low telescope's 50-year operating life. CSIRO team members have walked shoulder to shoulder with Wajarri heritage guides to survey telescope construction areas, ensuring heritage sites are documented and protected. Construction is estimated to conclude in 2028; however, research will be enabled prior to the telescope's completion.

The impact

The SKA-Low telescope will explore the Universe in more detail than ever before. It will spread across 74 kilometres at the observatory site alongside existing instruments, including our ASKAP radio telescope, delivering unprecedented insight into the cosmos.

CSIRO's Rebecca Wheadon, Site Entity Lead for Inyarrimanha Ilgari Bundara, our Murchison Radio-astronomy Observatory, with Wajarri Yamaji knowledge holder and senior heritage services provider representative Julie Ryan at the celebration for the signing of the new Indigenous Land Use Agreement, 5 November 2022.

4.2 Exponential networks

We are

harnessing

the exponential power of our partnerships to amplify our impact and increase the benefit we deliver

building

and facilitating relationships with government, businesses, universities, the broader research sector, the community and internationally

contributing

to areas of national strategic focus and aligning our research to critical areas of importance

engaging

with the community through media, citizen science and discoveries linking Australians to their heritage

Strategic partnerships program

Solving the greatest challenges through innovative science and technology cannot be done by one organisation alone. We can only deliver on our purpose if we collaborate with our partners. That's why we work with governments, businesses of all sizes, Australian and international universities, the wider research sector, the community and internationally.

Relationships with our Minister

As at 30 June 2023, the responsible Minister for CSIRO was the Hon Ed Husic MP, Minister for Industry and Science.

Under the SIR Act, the Minister has power to:

- expand the purposes for which CSIRO carries out its scientific research
- provide to the CSIRO Board, in writing, directions and guidelines with respect to the performance of the functions, or the exercise of the powers, of the Board or of CSIRO (SIR Act, section 13(1)).

Our responsible Minister and the Minister for Finance may provide the CSIRO Board with Directions with respect to the performance of the functions, or the exercise of the powers of the Board or the organisation.

No such Ministerial Directions were received in 2022–23. During 2022–23, we kept our responsible Minister and the Minister for Finance informed of our activities through our Board and in accordance with section 19(1)(a) of the PGPA Act.

On 9 December 2022, Minister Husic issued a Statement of Expectations to us to provide greater clarity about relevant government policy priorities. Focus areas in the Statement included advancing First Nations science; achieving net zero emissions and becoming a renewable energy superpower; delivering a future made in Australia through the National Reconstruction Fund; research translation and commercialisation; supporting the health of Australians; managing research infrastructure and national facilities; promoting STEM and STEM careers; and communication of CSIRO's science and research.

This document is available at csiro.au/en/about/corporate-governance/minister-and-board/statement-of-expectations.

Relationships with government

Contribution to areas of national strategic focus

In 2022–23, we provided submissions to over 20 government consultation processes. These covered topics as wide-ranging as biodiversity, batteries, cyber security and dust storms.

We also respond to requests by government to develop and apply decision-making tools, such as models and data analytics, to support policymakers directly or to make them available to sectors of the community (such as farmers) as part of government programs. We can also be called upon to run programs on behalf of government, where programs require a specialist expertise and connection. For example:

- the Australian eHealth Research Centre hosted by us will receive $9.2 million over 2 years for the establishment of a community-led process to enable open data exchange and sharing capabilities for Australia's health system
- we have been asked to update the Sustainable Yields Project to support decision making related to the Murray Darling Basin Plan
- we are running a new Australian quantum graduates program funded by government that is providing up to 20 PhD research scholarships, encouraging collaboration on quantum research across Australian universities
- six senior CSIRO researchers are members of industry advisory groups for the National Reconstruction Fund
- senior CSIRO leaders are members of various ministerial and government advisory panels, including Chief Scientist Professor Bronwyn Fox who chairs the National Robotics Strategy Advisory Committee
- a total of 48 researchers attended Science Meets Parliament in March 2023, of which 15 met with Parliamentarians to share their research.

Alignment of our research to critical areas of importance to the government is essential for us to deliver on the SIR Act.

For example, in May 2023, Minister Husic launched the list of critical technologies in the national interest, which are expected to play crucial roles in Australia's economic prosperity, national security and social cohesion. We have conducted research on 52 (or 82.5 per cent) of 63 individual critical technologies from the list and are one of the most specialised or high publication output institutions in Australia for 19 (30 per cent) of these.

In addition, Table 3.6 demonstrates that our high quality knowledge, disseminated through academic publications, targets all the essential industry growth sectors for Australia.

Contributing to other government departments

Listed in our PBS are the critical departments we engage and work with to ensure we deliver on our purpose and the Statement of Expectations and support their objectives and outcomes. Below are the key areas we contribute to these departments.

Department of Industry, Science and Resources (DISR)

We support economic growth, productivity and job creation for all Australians by investing in science, technology and commercialisation; growing innovative and competitive businesses, industries and regions; and supporting resources.

Department of Climate Change, Energy, the Environment and Water (DCCEEW)

We contribute to the Department's Outcome 1 by undertaking science and research in the areas of greenhouse gas emissions and effective global action on climate change and supporting technological innovation in clean and renewable energy.

Table 3.6: Alignment of CSIRO's research publications to Australian industry growth sectors

SECTOR	OUTPUT	% CSIRO OUTPUT	% AUSTRALIAN OUTPUT	OUTPUT RANK	CITATION RANK
Food agribusiness	2,484	13.3%	10.2%	3	5
Mining equipment technology services	1,724	9.2%	9.3%	1	5
Medical devices pharmaceuticals	457	2.4%	1.3%	24	6
Oil gas and energy	1,397	7.5%	6.6%	4	12
Advanced manufacturing	1,758	9.4%	5.0%	11	23
Cyber security	1,705	9.1%	7.6%	4	5

Data source: InCites (acquired 27 July 2022); Articles, Reviews and Proceedings Papers, 2017–21.

We also contribute to the Department's Outcome 2 through the delivery of research to support the implementation of the Reef 2050 Plan to protect, restore and manage the Great Barrier Reef.

In addition, we lead the Climate Systems Hub and are a partner in other hubs in the National Environmental Science Program. We collaborate in the delivery of the Geological and Bioregional Assessments program, contributing expertise in ecology, ecotoxicology, hydrology, hydrogeology, informatics and risk analysis. Finally, we undertake scientific research and monitoring in the Southern Ocean and at Australia's Antarctic stations as part of the Australian Antarctic program.

Department of Agriculture, Fisheries and Forestry (DAFF)

DAFF contributes to the operating costs of the Australian Centre for Disease Preparedness for animal disease diagnosis, prevention and research.

Bureau of Meteorology (The Bureau)

The Bureau works with us to undertake research as part of the Climate Systems Hub through the National Environmental Science Program. The Bureau also partners with us to deliver world-leading climate and natural disaster science, information and expertise through the Australian Climate Service.

Geoscience Australia (GA)

We partner with GA to progress the Australian Space Agency's Earth Observation from Space Technology Roadmap as part of the Advancing Space: Australian Civil Space Strategy 2019–28.

Relationships with industry

Large corporations

Our July 2022 publication of the *Our Future World* report detailing Global Megatrends resulted in substantial interest from industry, including large corporates seeking to understand the opportunities – and the risks – the report identified or implied. Our teams have engaged at numerous levels – up to and including an executive team to workshop with one of Australia's largest commercial entities – to identify opportunities to support Australian business as the Megatrends unfold.

We also support large corporates via dedicated innovation programs to address industry or market challenges. These highly successful programs have led to internal solutions for our partners and to the establishment of our IP-based start-up companies focused on market gaps and opportunities that extend beyond any one corporate player.

We utilise several commercialisation pathways to translate our research into the market. Our IP forms the basis of start-up companies (some of which have attracted large corporate investors). Our IP has been licensed or sold to industry and we provide research for equity that ultimately leads to commercialisable IP.

Recent examples of corporate partnerships commenced include:

- working on circular economy and future protein research projects with GrainCorp to add value to their products and to develop new food products for human and livestock markets
- successfully partnering with Australian and international biotech companies such as Nuseed and Nufarm to license and commercialise our IP
- a longstanding partnership with BHP devoted to enhancing STEM education in Australia. Renewed in 2022, STEM Together incorporates active involvement from industry and communities to help Years 5–10 students strengthen their confidence, capability and connection with STEM (csiro.au/en/education/programs/stem-together/our-partnership).

Our relationships with large corporates also form the basis for more strategic engagements through our missions program. Areas such as the hydrogen economy are attracting interest from large corporates that both want access to more sustainable energy solutions in the future, while also being attracted to the opportunities within the hydrogen industry itself.

Small- to medium-sized enterprises (SMEs)

The SME Collaboration Initiative supports SMEs to pursue their R&D ambitions with improved and simplified access to innovation services and skills, training and funding. It offers significant opportunities for rebuilding Australia's economy from COVID-19 through industry growth and job creation to improve the competitiveness and resilience of Australian SMEs.

The initiative aims to double the number of SMEs that engage with publicly funded R&D in Australia by connecting and expanding existing SME facilitation programs; simplifying engagement; and increasing awareness of collaborative opportunities through SME training and researcher placements.

Highlights from the initiative this year include research with the University of Queensland (UQ), Queensland University of Technology (QUT) and the Royal Melbourne Institute of Technology (RMIT) to develop and launch a collaboration readiness tool that helps SMEs understand their readiness to collaborate with universities and research organisations and provides resources and suggestions for improvement. Another highlight was launching the first national community of practice on SME Research collaboration with members from 17 universities, to share programs and insights into SME research collaboration.

Industry organisations engaged in education programs

STEM Together

STEM Together is a national, 5-year program delivered by us in partnership with the BHP Foundation. It aims to increase participation of primary and secondary students in STEM, particularly those who identify as Aboriginal and/or Torres Strait Islander; those who identify as female; and those who are from schools in low opportunity or regional areas. The program focuses on strengthening confidence, capability and connection in real-world STEM with students in Years 5–10 and the people who support them.

In 2022, the STEM Together program model was developed, including group learning experiences, professional learning and tools for educators. Eighty-five educators and 66 students participated in 13 events and workshops in 2022, exploring strengths-based approaches in STEM with the support of our Responsible Innovation Future Science Platform and the Ending Plastic Waste Mission.

In 2023, the program continues to bring together cross-disciplinary perspectives, resources and tools to support educators further in creating inclusive STEM classrooms through the successful delivery of guest speakers series and teacher professional learning centred on a strength-based approach to engagement, inquiry learning and responsible innovation.

The program has continued to connect directly with participants through the launch of its recognition program 'Future Shapers', selecting 26 students from Years 5–10 and 5 supporters to take their interests in STEM further with tailored experiences and resources throughout the remainder of 2023.

GFG Foundation Student Programme

The GFG Foundation Student Programme, an after-school package for Years 9 and 10 students, is a collaboration between the GFG Foundation, CSIRO and Prince's Trust Australia, supported by industry. It engages local school students in regional areas of Australia in extra-curricular, inquiry-based STEM projects and life skills. In 2022, the program expanded to include a cohort in George Town, Tasmania, in addition to those in Whyalla, South Australia and Newcastle, New South Wales. Of the 85 students across all cohorts, 75 graduated from the program. A pilot program for Years 7 and 8 students was also launched in Whyalla and, of the 32 students recruited, 30 graduated. Twenty-three industry mentors from GFG Foundation businesses supported the students during the program delivery.

In 2023, the program expanded to include a Years 9 and 10 program in Tahmoor and a Years 7 and 8 program in Newcastle both in NSW. Students, parents, teachers and STEM mentors were surveyed in 2022 on their perceptions and feedback on the program. The majority of respondents agreed that the program had contributed to improvements in student skills, confidence, interest and awareness of STEM.

Relationships with research sector: widening the pool

Connection to the wider scientific community, through interactions and collaborations between researchers, opens research up to a wider pool of knowledge, expertise, equipment and resources. Research collaboration also increases the exposure that publications receive and the impact that they make, so it is both an indicator and a driver of reputation and impact. One measure of the extent of these interactions is joint publication numbers.

Our levels of collaboration with domestic partners have been relatively stable, hovering between 67 per cent and 70 per cent. This year domestic collaboration saw a slight rise of 2.4 per cent (after falling slightly last year).

Across the period 2017–21, an average of 68 per cent of our publications were produced with a domestic collaborator (the same rate as the previous period). Overall, 95 per cent of 2021 publications were produced in collaboration with authors from other institutions, Australian or international. For the period 2017–21, the average was 94 per cent, up 0.7 per cent from 2016–20.

University collaboration

Table 3.7 below shows collaborative scientific publication with 10 Australian universities in those fields of research over the last 5 years (2018–22). With a few exceptions, the total collaborative publication output has remained consistent, or slightly lower, across these universities and discipline areas over the last 12 months. An exception to this trend is the significant increase in publications in the field of space sciences (164 more than in the last reporting period) with the University of Western Australia.

We have strong collaborative relationships with several other Australian universities such as James Cook University (in environment and ecology and in plant and animal sciences) and the Royal Melbourne Institute of Technology (in material sciences and chemistry). We also work with Swinburne University of Technology and Western Sydney University in space sciences.

While we have now developed iPhD projects with 24 universities, several of these top 10 universities have partnered with us over several years to develop multiple projects across both our pilot program and our new federally-funded program. In addition to iPhD, our collaborations with Australian universities contribute more broadly to training and developing Australia's research workforce by co-supervising a wide range of Higher Degree by Research students. Table 3.7 also shows the total number of Higher Degree by Research students (mainly PhD candidates) we have co-supervised with the top 10 publishing universities over the last financial year (2022–23).

Table 3.7: Highlighting our most active university collaborations

UNIVERSITY	TOTAL NUMBER OF COLLABORATIVE PUBLICATIONS (2018–22)	AGRICULTURAL SCIENCES	ENVIRONMENT AND ECOLOGY	GEOSCIENCES	PLANT AND ANIMAL SCIENCES	SPACE SCIENCES	COMPUTER SCIENCES	MATERIAL SCIENCES	CHEMISTRY	TOTAL CO-SUPERVISED HIGHER DEGREE BY RESEARCH CANDIDATES IN 2022–23
University of Western Australia	1,349	80	224	98	171	333	10	16	23	26
University of Queensland	1,274	105	277	66	261	9	25	35	78	60
University of Melbourne	1,135	92	163	115	121	39	34	52	35	30
University of Tasmania	1,101	71	271	208	303	80	13	0	25	45
Monash University	1,078	13	79	99	14	25	49	238	45	57
Australian National University	1,056	40	193	92	217	111	68	29	33	76
University of New South Wales	976	23	110	167	54	37	163	72	24	63
University of Sydney	831	57	79	24	75	167	68	21	25	25
Curtin University	755	21	49	176	49	222	26	12	9	14
University of Adelaide	639	118	120	57	91	15	25	18	34	26

Source: Web of Science Australian Relational Database.

James Cook University and CSIRO: Building Indigenous Research Capacity program

This year we continued our longstanding collaboration with James Cook University (JCU), aligning strategic priorities to foster significant partnerships, amplify our impact and increase the benefit we deliver. An enduring feature of our JCU relationship is a shared focus on the 'Building Indigenous Research Capacity' (BIRC) program – a student-centred initiative to build JCU Indigenous students' research capacity and research career pathways.

As a key priority of the BIRC initiative to make research opportunities available for students, the partnership has enabled an initial intake of 5 placements for JCU Indigenous students on the following CSIRO and JCU research projects:

- the regulatory environment for extensive prawn farming in northern Australia
- eDNA approaches to supplement faeces surveillance to detect Avian Flu around Townsville
- predator (shark) populations
- physical oceanography to assess coastal restoration needs
- research experience in machine learning and design thinking.

The partnership with JCU is also creating place-based initiatives to grow and apply research capabilities and capacities in north-eastern Australia to achieve regional community outcomes. Seed funding is enabling our researchers to work together on:

- a sustainable biosecurity program co-designing mutually beneficial, sustainable approaches to biosecurity in northern Australia to reduce biosecurity risks of exotic infectious disease outbreaks. The program will enable Indigenous people and communities to participate in identifying risks and research questions and pursue economic opportunities through risk prevention and mitigation
- a program transitioning small- to medium-sized enterprises (SMEs) to net zero, which leverages our combined capabilities in diverse science, research and development areas to broker for SMEs in the region. It will assist participants with accessing knowledge, integrating, and utilising the region to minimise consequences of rapid structural change to reach their net zero goals.

Several students under the BIRC program have been awarded JCU Indigenous STEM awards celebrating the science achievements of Indigenous students and building trust-based STEM career pathways. The collaboration and placement program educates both organisations on what is needed to create safe, effective placements and pathways in research for Aboriginal and Torres Strait Islander students and embeds Indigenous knowledge and leadership in research projects on Country. The place-based initiatives will assist us collectively to work toward achieving a science landscape in respectful partnership with Indigenous Australia delivering innovative, sustainable, holistic solutions to meet our greatest national challenges.

'I would recommend this program to other Indigenous students. Lots of support is provided and the supervisors are super helpful. It was a good experience for me, both personally and academically.'

Amarah Fiori
Kamilaroi descent – undergraduate vacation scholarship with our Aquaculture team

Amarah built research skills and improved her writing and presentation skills through her Indigenous studentship.

Cooperative Research Centres (CRC)

The Cooperative Research Centres (CRC) program supports collaborations between researchers, industry and the community to foster high-quality research and development. The program enables research teams to connect across institutions and industries to inform research priorities and take up research outputs to maximise impact. CRC grants provide successful applicants with access to grant funds for up to 10 years. Since the CRC program commenced, the Australian Government has funded 236 CRCs; 24 were active in 2022–23 and we participated in 19 of these.

We are the single biggest research organisation involved in CRCs and have contributed to more than 150 CRCs over time. When CRC research results in commercialisation, a separate legal entity is established and our share of the new entity is treated as a subsidiary, joint venture or associate.

In 2022–23, we became a member of the One Basin CRC, established to address climate, water and environmental threats in the Murray-Darling Basin.

CRC Projects

CRC Projects are smaller collaborations with timelines of up to 3 years and grants of up to $3 million. They develop important new technologies, products and services that deliver tangible outcomes. Since the CRC-Ps program commenced, the Australian Government has funded 209 CRC-Ps. In 2022–23, 91 CRC-Ps were active and we participated in 15 of these. This year our total cash and in-kind contribution to CRCs and CRC Projects (for example, staff and use of assets) was $14.67 million.

Rural Research and Development Corporations

Australia's Rural Research and Development Corporations (RDCs) help drive agricultural innovation. They assist the Australian government and primary producers to co-invest in research and development to benefit industry and regional communities. There are currently 15 RDCs.

During the 2022–23 financial year, we engaged with all 15 RDCs in new and ongoing commercial and research and development contracts valued at $229.3 million. This year we executed 45 new contracts with 14 RDCs worth $87.2 million in total, including key partnerships with the Grains RDC (GRDC), Meat & Livestock Australia (MLA), Horticulture Innovation Australia, Wine Australia and the MLA Donor Company.

Since the mid-2000s, we have had productive partnerships with RDCs, which have delivered significant innovation to reduce production risks for farming enterprises. We partner with GRDC on several multi-state, long-term projects to improve production and futureproofing of Australian agriculture. New projects commenced this year include integrating long coleoptile wheat (deep sown crops) into Australian farming systems to improve germination in a dry season; reducing risks to canola establishment through an integrated understanding of genetics, management and environment; ways to increase soil organic carbon in grain production systems; and optimising genetic control of wheat rusts (disease) through resistance genes.

Along with RDCs, we undertake significant research on post-farm gate initiatives critical to their industries, such as supply chain resilience and biosecurity. For example, MLA is developing the Australian AgriFood Data Exchange, a significant collaboration on food supply chain optimisation as part of our Trusted Agrifood Exports Mission, and Horticulture Innovation Australia is supporting research into modernising phytosanitary risk management for biosecurity and safe trade.

Relationships with the community

Community engagement

We deliver communications that engage, inform and inspire the community, demonstrating the important role we play in helping Australia solve its greatest challenges. This year communications activities contributed to strong awareness, trust and knowledge results in our annual Community and Business Sentiment Survey. These results are further discussed on pages 49 and 112.

The launch of our megatrends report *Our Future World* reached an audience of 20+ million including appearances by Dr Larry Marshall at the National Press Club and on the ABC's Q+A program.

Media coverage of our newly launched missions reached an audience of over 20 million Australians, with additional international coverage through outlets such as CBS news affiliates, the New York Times and Bloomberg.

Our Everyday AI podcast drew together experts and adopters from across the globe to unpack AI in a relevant, engaging way to provide clear, science-informed information to our communities. It reached number #2 on the highly competitive Australian science podcast charts, and the accompanying campaign reached an audience of approximately 6.1 million.

The *State of the Climate 2022* report was released on 23 November 2022 by the Bureau of Meteorology and us. Published every 2 years, the report draws on the latest climate monitoring, science and projection information to detail Australia's changing climate now and into the future. The report's release led to over 600 media mentions with a reach of 20.6 million people. On social media there were more than 2,000 mentions reaching more than 38 million people. State of the Climate 2022 was the 7th report in a series published biennially by the Bureau of Meteorology and CSIRO, which together play an integral role in monitoring, measuring and reporting on weather and climate.

We confirmed the location of the MV *Blythe Star* shipwreck and delivered a community engagement program to ensure that key stakeholders and partners were consulted and kept informed about this significant discovery. The story was featured widely in national TV, radio and online stories across all networks, with highlights including a feature on ABC and 7:30.

Our activations in the community continued to grow this period. Highlights include the hundreds of thousands of people who saw CSIRO at the World Pride Mardi Gras Fair Day and Parade in Sydney, as well as at the Avalon Airshow in Melbourne. These events help to develop enduring emotional connections between CSIRO and members of the public.

CSIRO Discovery Centre

The CSIRO Discovery Centre in Canberra offers an interactive journey through Australian science history and showcases our innovative science and technology. More than 420 schools, 23,200 students and 2,300 teachers participated in programs, mostly from New South Wales, Victoria and Australian Capital Territory. In addition, around 1,500 community members visited the Centre.

Linking Australians to their heritage

CSIRO's research vessel (RV) *Investigator*, part of our Marine National Facility, offers a highly flexible platform that can accommodate multiple research projects on a single voyage. In providing this unique service, we are helping to uncover our maritime heritage alongside other crucial research, such as mapping the seafloor in our region.

Uncovering history: confirming the resting place of MV *Blythe Star*

The opportunity

The MV *Blythe Star*, a 44-metre freighter that disappeared off the coast of Tasmania in 1973, is one of an estimated 8,000 shipwrecks around the Australian coastline. These vessels hold immeasurable stories of the trials and tragedies of living on an island continent. Locating and protecting underwater cultural heritage is a significant challenge that requires specialised equipment, unique expertise and time.

By facilitating a 'piggyback' project on a research voyage off southwest Tasmania in April 2023, RV *Investigator* has helped to confirm the final resting place of MV *Blythe Star.*

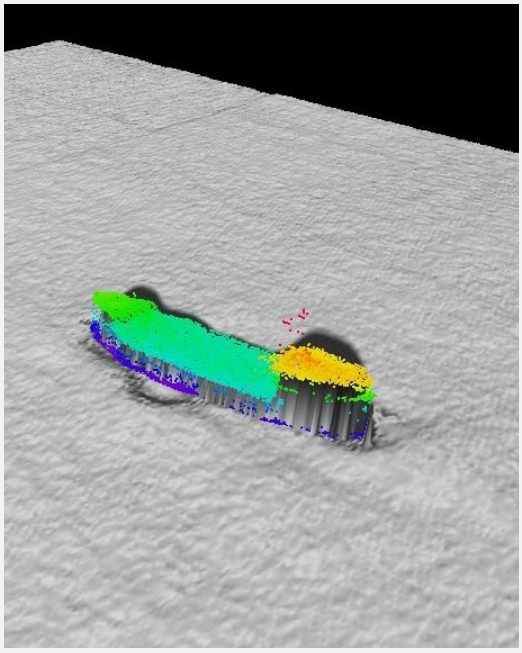
The solution

RV *Investigator* is equipped with shallow, mid-water and full ocean depth seafloor mapping systems and specialised underwater camera systems.

Following a systematic survey of a wreck (pinpointed by local fishing vessels and a previous sea floor survey) and visual inspection with 2 underwater camera systems, data and vision collected by the CSIRO project team confirmed the identity of the MV *Blythe Star*. This ended a 50-year mystery, bringing closure to a community that included the last remaining survivor from the tragedy.

The impact

While often additional to primary voyage objectives, the unique capability for locating shipwrecks and other underwater cultural heritage work demonstrates the significant benefit that RV *Investigator* delivers for Australia. We are proud to contribute to the protection and preservation of our maritime heritage, with such discoveries providing closure, connecting communities and bringing families back together.



Bathymetry (seafloor mapping) of MV *Blythe Star*. The wreck is intact, upright and lying in 150 metres of water.

MV *Blythe Star* at Prince of Wales Bay, Hobart in 1973. Image: Maritime Museum of Tasmania.

The Great Eggcase Hunt

We used traditional and social media to call on citizen scientists to help researchers learn more about sharks, skates and chimaeras by finding and recording egg cases washed up on Australian beaches or seen while diving. The Great Eggcase Hunt, an initiative of United Kingdom-based charity The Shark Trust, was launched in Australia in March 2023 in partnership with CSIRO's Australian National Fish Collection.

This citizen science project is providing new data for scientists studying the taxonomy and distribution of *oviparous chondrichthyans* (egg-laying sharks, skates and chimaeras). Egg cases are important for understanding the biology of *oviparous chondrichthyans*, matching egg cases to the species that laid them, discovering where different species live and locating their nurseries.

We created tailored identification guides for each state and territory to enable citizen scientists to identify egg cases based on their unique morphology. Egg cases range from approximately 4 to 25 centimetres, in colours including cream, butterscotch, amber and brown, and have diverse features such as ridges and tendrils.

During the first 10 weeks, citizen scientists uploaded sightings of more than 1,000 egg cases via the Shark Trust citizen science mobile phone app and project website, with the egg cases of Port Jackson Sharks comprising around 40 per cent of the sightings.

Citizen scientists young and old can get involved in The Great Eggcase Hunt. The children are holding a Draughtboard Shark egg case.

Relationships with international partners

Our growing global strategic partnerships help the nation and our region to connect into the international innovation ecosystem. This opens many opportunities and continues to build impactful pathways for greater translation and adoption of our solutions. Insight into some of our international programs of work are provided below.

US and Canada 705

We continue to build and strengthen key relationships with NASA, Department of Energy, the National Science Foundation, National Research Council of Canada, US National Laboratories, universities and industry, on space, energy, critical minerals, quantum, AI plastics, climate tech, biotechnology and future proteins.

India 104

We received $43.2 million from the Australian Government to partner with India for 5 years in the areas of green steel, critical minerals, and an innovation and technology challenge program to fast-track cutting-edge research and technology into real-world outcomes and create social, economic and environmental solutions.

Japan 160

We are strengthening and building new partnerships with JAXA, JOGMEC, RITE, CRIEPI, AIST, RIKEN, universities and industry in the areas of decarbonisation technologies, energy, Artificial Intelligence, space and robotics.

Chile 47

We continue to build relationships with Chilean government agencies and industry leaders in the critical minerals and mining field, data science and Earth observation, plastic waste and green hydrogen initiatives.

Republic of Korea 68

We continue to work with research institutes under the National Research Council of Science and Technology in mineral resources research, renewable energy and Artificial Intelligence. We are forging new partnerships with industry and research institutes in advancing technologies for hydrogen supply for mobility, low emissions steel and iron ore, and carbon capture, utilisation and storage.

Joint publications

France 257

We continue to focus on environmental and agricultural research in Europe with USDA, INRAE, L'institut Agro, CIRAD, IRD, CNRS and MUSE University partners to create solutions to global biosecurity, agricultural and health issues at our European Laboratory.

Appointment of CSIRO US and Canada Science Counsellor

Dharmini Robertson was appointed as the new science counsellor for the United States and Canada in 2022. Prior to joining CSIRO, she led a team developing Australia's low emissions technology strategy and associated government policies, supporting Dr Alan Finkel AC in his role as the Australian Government's special advisor on low emissions technologies. She also advised the Australian Government on innovation policies to assist in commercialising Australia's research and development. Based in the Australian embassy in Washington DC, Dharmini has hit the ground running and led strategic partnership engagements with key partners such as NREL and NSF, promoting Australia science and innovation and deepening Australia's North American partnerships with government, science institutions and industry.

2023 American Association for the Advancement of Science (AAAS) Annual meeting in Washington DC: Brent Miller, USA National Science Foundation (NSF) Science Advisor (left), Professor Alejandro Adem, Natural Sciences and Engineering Research Council of Canada President (middle) and Dharmini Robertson, Australia's National Science Agency USA and Canada Science Counsellor (right).

Capability

Investment in the future

This year we have progressed our investment in our future science, talent, infrastructure and data capabilities, which all underpin our ability to continue to deliver on our purpose.

Science and talent: development of emerging areas

The current Future Science and Technology (FS&T) plan was developed in 2019, which has been distributed within CSIRO, Australian government departments and other stakeholders. In September 2022, the Executive Team decided to bring forward the refreshing of this plan due to the significant changes in global and domestic contexts and science needs and opportunities.

The purpose of this work is to ensure that our organisational capabilities remain future-ready to address the changing needs of our national challenges and that CSIRO continues to maximise opportunities in FS&T.

The key objectives:

1. Identify the emerging science areas we should focus on longer term and why, given changes in science needs and opportunities in a post-pandemic era.
2. Confirm the critical cross-cutting capabilities (CCCs) and other organisational capabilities required to ensure we are well positioned.

The desired outcome is for the revised plan to inform and align longer-term organisational decisions and investments on key areas such as Future Science Platforms, workforce planning and career development pathways, science infrastructure and capital investment, as well as our strategy.

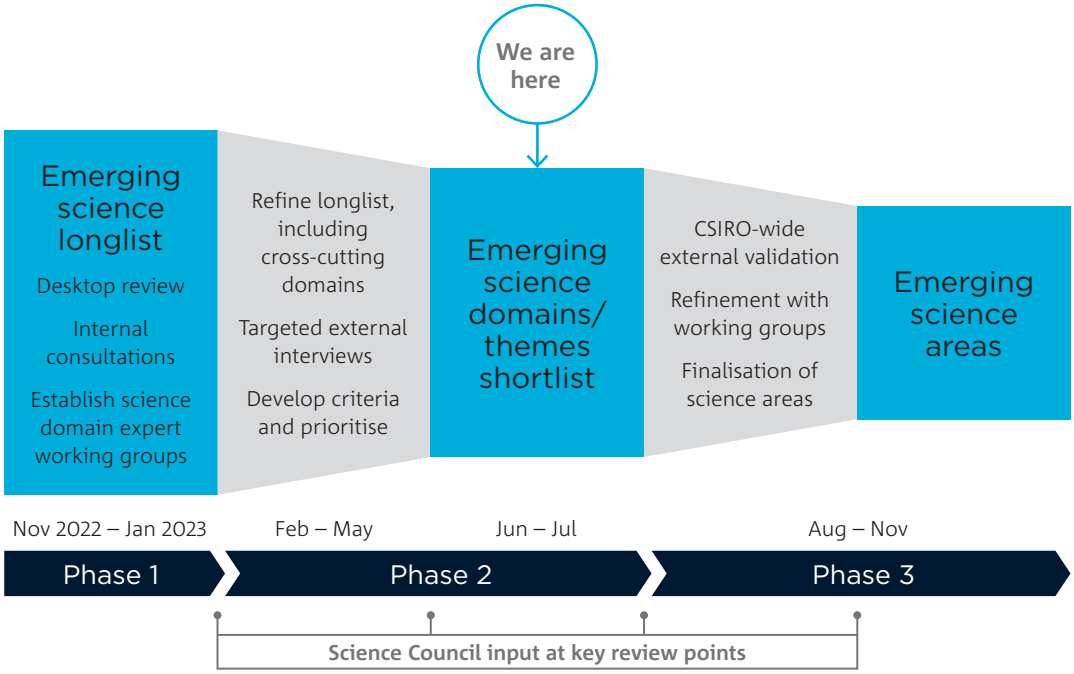


Figure 3.3: Timeline to refreshing our FS&T Plan

Building Indigenous relationships

Indigenous Employment Strategy

Our Indigenous Employment Strategy was launched in May 2023 as part of National Reconciliation week. The strategy provides strategic direction to the organisation and supports us in achieving a 3 per cent employment rate of Aboriginal and Torres Strait Islander staff and stretches this rate to 5 per cent to align with the Commonwealth's employment targets.

The strategy focuses on holistic, strength-based models of employment that build capability from innovation and accountability. This was demonstrated by the development and implementation of a unique and bespoke Indigenous Graduate program and the establishment of a CSIRO Indigenous STEM undergraduate and postgraduate scholarship scheme at 11 Australian universities.

At 30 June 2023, 116 staff identify as Aboriginal and/or Torres Strait Islander. Although narrowly missing our incremental target of 126 staff, our Aboriginal and Torres Strait Islander staff representation increased by 25 per cent from the previous year.

Reconciliation Action Plan (RAP) 2021–23

Indigenous Science and Engagement Program Director Chris Bourke said, 'Change is the result of many intentional and creative actions, iterations piled one on top of another coupled with real determination to achieve a better outcome. That's the thinking that underpins our Reconciliation Action Plan (RAP).'

Our RAP contains 17 core actions (across 90 deliverables) to build stronger relationships with Aboriginal and Torres Strait Islander peoples through knowledge sharing, education, employment opportunities and mutually beneficial partnerships. At 30 June 2023, 79 per cent of our RAP actions/deliverables are in progress and on track, 12 per cent require action and 9 per cent have been achieved.

Infrastructure: sustainable property portfolio

Our 2019–29 Property Strategy provides investment and divestment principles to ensure our property portfolio provides fit-for-purpose infrastructure that is efficient, affordable and sustainable.

Progress against the 2019–29 Property Strategy this year included:

- Divestment of Lot Fourteen, SA, Geelong – Waurn Ponds (Vic) and our Silicon Valley site in the United States. This is equivalent to a reduction in our property footprint by almost 10,000 square metres and in our operating costs by approximately $500,000 annually. Furthermore, it equates to a reduction of approximately 0.81 kilotonnes of CO_2 emissions annually.
- Entering into a contract for the sale of our Parkville (Vic) site with settlement due 3 July 2023. Our Atherton (Qld) site was advertised with ongoing negotiations occurring for the divestment.
- Increasing our focus on Activity Based Work (ABW) across our sites to better utilise our office footprint in response to the needs of our people and as hybrid working is the new norm.
- Opening our new cotton breeding research facilities at our Myall Vale site in northern NSW, replacing ageing infrastructure that was no longer fit for purpose.
- Consolidating our Melbourne sites and completing staff relocations from Parkville, Docklands, and Blackburn Road to Clayton were completed, with master planning of the Clayton site commencing during the period to help inform future investment and enable further consolidation.
- The first stage of our Perth sites consolidation, in line with our sustainability goals to provide more efficient and fit-for-purpose facilities, is on track be completed by the end of 2023.
- Construction continues of a new National Collections facility to house the Australian National Wildlife Collection, the Australian National Insect Collection, the Ethanol Collection and the Dadswell Wood Collection at our Black Mountain site in Canberra. The facility, including cryogenics and molecular and digitisation labs, is supported by National Collaborative Research Infrastructure Strategy (NCRIS) funding. Read more about our national collections on pages 83 and 103.
- Divestment of Ginninderra (ACT) and Belmont (Vic) is progressing.
- Continuing negotiations with the Western Parkland City Authority for CSIRO to be an anchor tenant at the Bradfield Aerotropolis in Western Sydney, enabling the majority of our Sydney operations to consolidate there in 2026–27.
- The Part Life Refit Project of the Australian Centre for Disease Preparedness (ACDP) at Geelong (Vic) includes construction of an extension, refurbishment of several of the facility's laboratory suites and replacing end-of-life services infrastructure to meet future research demands. Work is scheduled for completion in 2028.

Work to ensure our offices remain vibrant, safe and sustainable is a priority as staff return to sites or continue hybrid work-from-home arrangements.

Significant progress has been made in the management of our assets and prioritisation of the 4-year capital budget, with the creation of an Executive Team sub-committee focused on a revised capital allocation process and the release of capital bid templates in early April. There are constraints within the capital budget, and further work is planned as part of the long-term action plan developed through the asset management review. We will continue to develop and adapt our strategic capital management plan.

Data capabilities

Information Management Technology (IMT)

The CSIRO Digital Support for Labs program focuses on the uplift of digital capabilities across all areas of laboratory and research and supporting the Labs of the Future initiative (see more on Labs of the Future on pages 86–87). The program will run until June 2025, delivering projects to enable us to use innovative technologies safely and securely, within our complex scientific and regulatory environments.

Security controls

Our security controls are vital to our role as a trusted science partner and advisor. This year we invested in all our security controls to ensure that as the environment changes, we keep our people and research safe.

Governance

We ran a review into our security governance to examine our security posture and define our next steps to ensure our approach remains fit for purpose into the future. Implementation of the recommendations is well underway, including setting up a refreshed Security Committee, a sub-committee of our Leadership Team, to focus on how we should best adjust to changing security needs.

Foreign interference

Foreign interference is of increasing concern across the research sector. Our in-house tool is considered best practice across government, the Australian research sector and internationally. Throughout 2022–23, we worked with our researchers to embed the process, support change management and obtain feedback to improve the tool.

Due diligence on prospective research partners continues to be a challenge for researchers right across the sector, as we learned during our outreach to university and publicly funded research agency colleagues. In our discussions on countering foreign interference, we identified difficulties common to many research agencies and collaborated with the Department of Home Affairs to run a series of workshops aimed at demystifying the due diligence process, to support our researchers and the wider Australian research sector. We look forward to delivering the outcomes of these workshops in early 2023–24.

Personnel

In 2022–23, we prioritised improving our support to CSIRO people on Australian Government Security Clearances, delivering better guidance and support systems. Additionally, we introduced a new process to enhance our pre-employment background checks, using an external provider. In combination, these 2 improvements provide greater assurance of the integrity of our people and put us in a strong position to protect sensitive information.

Physical

This year we improved the security of CSIRO sites by modernising the access control system for our most populous sites. Work will continue on this project, which is delivering a centralised audit and a more seamless experience for users. We also provided centralised expertise to review site security plans, documentation and procedures, improving the consistency of advice across our organisation. Additionally, we improved our incident response capability to support our people in handling a range of activities and incidents, including foreign delegation visits and criminal activity.

Cyber

The Cyber Security Uplift Program futureproofs delivery of secure information technology services that safeguard our IMT managed systems and the data they contain from unauthorised access, harm or misuse. This year the program continued to align our IMT practices with industry baselines and standards, including the Australian Cyber Security Centre's Information Security Manual and Essential Eight (E8) strategies. This enables a mature cyber culture that will help keep research safe and support the continuity of our science business operations.

The program is delivering through 7 streams:

1. Governance, risk and compliance management (GRC)
2. Information protection
3. System and network security
4. Identity and access management
5. Threat and vulnerability management
6. IT service continuity
7. Information security event management

Part 4

Our operations

Management and accountability

Our functions are established through the provisions of the *Science and Industry Research Act 1949* (SIR Act). Our primary functions are to carry out scientific research to:

- assist Australian industry and further the interests of the Australian community
- contribute to national and international objectives and responsibilities of the Commonwealth
- encourage or facilitate the application and use of the results of CSIRO scientific research.

Our secondary functions include international scientific liaison, training of research workers, publishing research results, making available scientific facilities, technology transfer of other research, providing scientific services, and disseminating information about science and technology.

We are a Corporate Commonwealth Entity under the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), which sets out requirements for how we manage and account for our use of public resources and report on our performance.

Pursuant to section 19 (1) (e) of the PGPA Act, we reported zero instances of significant non-compliance with finance law in 2022–23.

During the reporting period, an overpayment to David Knox was identified. As at 11 July 2023, Mr Knox had repaid the overpayment to CSIRO. The parties are working with the relevant fund to recover the corresponding superannuation contributions.

We also provide administrative support services to the Trustee of the Science and Industry Endowment Fund (SIEF) consistent with the *Science and Industry Endowment Act 1926*. SIEF has its own governance structure. Read more about SIEF in Part 6.

There were no government policy orders to CSIRO during 2022–23.

Our governance

The complex challenges we solve require us to be an ethically governed and sustainable organisation. We apply best practice standards for governing and managing all areas of our operation, which is required to successfully deliver the key activities specified in our Corporate Plan.

CSIRO Board

The CSIRO Board is responsible under the SIR Act and the PGPA Act for the overall strategy, governance and performance of our organisation. Section 12 of the SIR Act sets out the functions of the Board. The Board Charter and other details are available on our website at csiro.au/en/about/corporate-governance/minister-and-board/board-charter.

The Board comprises 7 part time, non-executive members including the Chairman and a full-time Chief Executive. At 30 June 2023, there are 2 vacancies on the Board. All non-executive Board members are appointed by the Governor-General. The Chief Executive is appointed by the CSIRO Board, in consultation with the Minister pursuant to s10B of the SIR Act.

In 2022–23, our Board operated in part through 3 standing committees:

1. **The Audit and Risk Committee** assists the Board in fulfilling its corporate governance responsibilities regarding financial reporting, audit and risk oversight, reporting obligations, and internal controls and compliance with relevant laws and policies.
2. **The People and Safety Committee** assists the Board to meet its governance responsibilities relating to people, health and safety strategies, obligations, performance and culture.
3. **The Science Excellence Committee** assists the Board to fulfil its governance responsibilities regarding science, capability and strategic plans to ensure CSIRO maintains its reputation for scientific excellence and capacity to respond to national challenges and opportunities.

In accordance with section 17 of the PGPA Rule, all members of the Audit and Risk Committee are not employees of CSIRO. The functions of the Audit and Risk Committee are set out in the Committee's charter available at Appendix D and on our website: csiro.au/en/about/corporate-governance/minister-and-board/barc. Members are selected based on their expertise and ability to discharge the Committee's functions in line with the charter. Read more about the Committee members and meeting attendance at Appendix C and Appendix E.

Board members are appointed for their expertise and provide an extensive range of skills, knowledge and experience to assist CSIRO to deliver on its purpose and deliver science impact for Australia.

On appointment, Board members are formally inducted in the organisation's functions, operations and activities and in their duties and responsibilities as members of the Board of a Corporate Commonwealth entity. Board members are provided with a comprehensive set of documents, including the PGPA Act, SIR Act, Corporate Plan, Risk Management Framework, and key plans and policies.

Members maintain their professional development and participate in CSIRO site visits, as well as governance and business briefings, and they engage with staff and external stakeholders. Members may seek independent professional advice and liaise with CSIRO senior management in keeping with their duties, responsibilities and obligations as Board members.

Under its Charter and Operating Guidelines, the CSIRO Board examines its performance, composition and skill base regularly to ensure it is operating efficiently and effectively and following the principles of good corporate governance. Board performance is usually reviewed at least every 18 months, with the most recent being a self-assessment in February 2022.

The Board holds 6 formally scheduled meetings and a strategy session each year, with additional meetings held as required. In 2022–23, 9 Board meetings were held. Members of the Executive Team (pages 123 and 214) and subject matter experts attend Board meetings as required to report on matters related to their areas of responsibility and expertise. The Secretary of the Department of Industry, Science and Resources attends scheduled Board meetings at the invitation of the Chair as an observer. Details of remuneration are reported in Note 3.3 of the financial statements in Part 5. Details of Board meeting attendance are in Appendix E.

CSIRO Executive Management

The Chief Executive is accountable for managing the affairs of the organisation according to our strategy, plans and policies approved by the Board as well as the Board Directions to the Chief Executive (section 10A (3) SIR Act).

The Executive Team (ET) supports our Chief Executive. As a team and through their individual roles, ET members lead, direct, coordinate and control our operations and performance in line with the Executive Team Terms of Reference, available on our website: csiro.au/en/about/Corporate-governance/Chief-Executive-and-Executive-Team/Reference.

ET's responsibilities include development of the Corporate Plan, Financial Plan and annual budgets, Annual Audit and Risk Plans, Annual Science and Operational Plans, and our Organisational Risk Profile. Newly appointed ET members undergo a formal induction process to ensure they are aware of their responsibilities.

ET is assisted by the Major Transaction Committee, the Security Committee, the Audit, Risk and Compliance Committee, Sustainability Steering Committee, and CSIRO's Leadership Team.

- The **Major Transactions Committee** (MTC) is responsible for managing our involvement in major transactions (as prescribed by the level of risk, type of transaction or value of the transaction over $5 million) and related matters and investment, to ensure the soundness, strategic alignment and potential risk of such transactions. MTC reviews proposed transactions and advises the ET on matters related to proper and efficient performance of business development, intellectual property management and technology transfer activities. During 2022–23, the MTC met a total of 26 times.
- The **CSIRO Security Committee** is responsible for ensuring the effectiveness of our security strategies, programs and measures to protect our people, information and assets. After a comprehensive review in the second half of 2022, the reinvigorated Security Committee has held 2 meetings in 2023. There were 7 items for approvals in this financial year.
- The **Audit, Risk and Compliance Committee** (ARCC) provides objective advice and assistance to the ET in fulfilling its corporate governance responsibilities by overseeing and monitoring the organisation's corporate governance financial reporting, risk and internal control frameworks, legislative and policy compliance and internal audit function requirements. ARCC met 5 times in 2022–23.
- The **Sustainability Steering Committee** (SSC) oversees the effectiveness of our strategy to manage social and environmental risks, including management and governance processes. The SSC met 3 times over the reporting period on topics including responsible sourcing and human rights, energy and emissions, and the Smart Buildings Roadmap.
- Our **CSIRO Leadership Team** (CLT) is made up of our business unit directors, enterprise services directors and science directors and provides a forum for sharing and discussing issues relating to CSIRO's management and future strategy.

Advisory mechanisms

Our advisory groups advise our researchers on how we can achieve our long-term strategic objectives, and research and development priorities, and how to meet the research, technical and business needs of customers and communities. We are supported by the following 9 groups, with information on membership available at csiro.au/en/about/Corporate-governance/Advisory-Group-Charter:

1. Agriculture and Food Advisory Group
2. Energy Advisory Group
3. Health and Biosecurity Advisory Group
4. Manufacturing Advisory Group
5. Mineral Resources Advisory Group
6. Land and Water Advisory Group
7. Oceans and Atmosphere Advisory Group
8. Data61 Advisory Board
9. Indigenous Advisory Group

The groups comprise representatives from industry, government, non-government organisations and other stakeholders.

Building better practice governance arrangements

Building on our existing arrangements, we are committed to ensuring our future governance remains contemporary, fit for purpose, and serves as a driver and enabler of our science.

Child Safe Office

In 2022, we established a Child Safe Office to provide dedicated support to our operations as a child safe organisation.

Through our continuous commitment to the National Principles for Child Safe Organisations and the Commonwealth Child Safe Framework, we are maturing as a child safe organisation. The CSIRO Board and leadership are committed to building and maintaining, through good governance, a culture of child safety to lower the risk of harm to children. Our key initiatives include the following:

- We have partnered with Child Wise to develop new E-learning modules to improve awareness and compliance with the Commonwealth Child Safe Framework and the National Principles.
- We have established procedures and processes for child safety training, risk assessments, third-party procurement, mandatory reporting and other legislative reporting requirements, and management of our Working with Children and Vulnerable Person checks.
- Our Child Safe Office is improving our systems to increase compliance and developing evidence-based education and training for our people and third-party providers.

Identifying and managing our risks and opportunities

We are implementing a best practice approach to risk achieved through alignment with the International Standard ISO 31000 Risk Management Principles and Guidelines as well as the Commonwealth Risk Management Policy.

During 2022–23, planning occurred towards aligning our risk framework to the revised Commonwealth Risk Management Policy that took effect from 1 January 2023. This included participating in the Comcover Benchmarking Survey 2023, with the results to further inform our level of risk maturity, risk culture and framework that suit our needs into the future.

Our insurance arrangements with Comcover include cover for Directors and Officers Liability, General Liability and Professional Indemnity along with other normally insurable risks. The annual premium attributed to Directors' and Officers' insurance for 2022–23 was $433,253. Our workers' compensation liability is covered through Comcare for which an annual premium is also paid. There were no instances in 2022–23 that CSIRO sought approval from Comcover for an indemnity outside of the Australian Government policy on issuing and managing indemnities.

Internal controls

Ethics and Code of Conduct

The responsible conduct of our research is vital to maintaining our trusted status, and our Science and Delivery Policy and Code of Conduct enshrine our adoption of the National Health and Medical Research Council's Australian Code for the Responsible Conduct of Research (2018). Our CSIRO Code of Conduct aligns with our values and sets out the standard of behaviour expected of our people and others working in the organisation. It is the subject of mandatory training for all our staff and affiliates.

We have procedures for Ethical Conduct in Human Research and Animal Welfare that ensure compliance with national codes and legislative requirements. We operate several committees to provide independent, expert advice on the appropriate engagement of people and communities in social and interdisciplinary science, health and medical-related research; the use of human data; the care and wellbeing of animals used during research; and compliance with regulatory requirements. In 2022, our 2 Human Research Ethics Committees reviewed 306 new projects and provided ongoing monitoring and support for over 772 active projects. Our 4 Animal Ethics Committees reviewed 101 new projects and provided ongoing support and monitoring for more than 229 projects.

We proactively monitor organisational alignment with research integrity standards and provide mandatory training for research staff, committee members and senior leaders in research integrity. We also provide training on specific research conduct issues, access to a network of Research Integrity Advisors, online resources and individual advice to support best practice. A major priority in 2022 was implementing recommendations from the Ethics in Research Audit (2021), which focused on improvements to policies, processes, guidance, recordkeeping and training (*process delayed due to COVID-19).

Compliance

We are strengthening our compliance maturity through the establishment and review of high-risk compliance plans to ensure the accuracy and currency of compliance objectives and metrics, including training targets. This includes an annual compliance due diligence exercise to identify and record instances of potential or actual non-compliance with the PGPA Act. The approach involves broad engagement with business units and enterprise service functions to identify:

- potential or actual non-compliance
- any issues of non-compliance that collectively might indicate internal control failings and/or amount to significant systemic non-compliance.

A report is prepared to provide the Board Audit and Risk Committee with assurance. We also facilitate a self-reporting process to manage and monitor identified exposures on a quarterly basis.

Fraud control

As a Corporate Commonwealth entity, we comply with section 10 of the PGPA Rule by establishing and maintaining an effective fraud control framework. Our Fraud and Corruption Control framework comprises strategies to maintain an organisational foundation to prevent, detect, respond, and report fraud and corruption affecting us. These are complemented by our plans, policies and procedures, systems and internal controls, financial management and assurance activities, and an Enterprise Risk Framework.

We adhere to the Australian Government's Fraud Control Framework 2017's 'Fraud Rule' and endeavour to apply the Fraud Policy and Fraud Guidance in line with best practice. We are committed to nurturing and promoting an anti-fraud culture, which is predicated on preventing, detecting and responding to fraud and corruption affecting our organisation.

Our fraud control program involves continuing our Cyclical Fraud Risk Assessment and delivering mandatory training to increase fraud awareness and education. In 2022–23, the program maintained a concerted drive to establish an engaged organisational fraud control culture and has continued to yield positive impacts through increased engagement and training completion rates.

Our Fraud and Corruption Control Plan outlines expectations relating to fraud control foundations, prevention, detection and response and sets a standard for the effective management of organisational fraud risks. This plan is under review and will be updated in line with current and emerging binding requirements and best practice considerations.

Our Fraud Control Team maintain a strong engagement and presence with Australian Government departments and agencies, including but not limited to the Attorney-General's Department and the Australian Government's Fraud Prevention Centre. The team partakes voluntarily in the Australian Institute of Criminology Fraud Census and contributes to the future state of Commonwealth fraud control by providing feedback when opportunities arise, such as the PGPA Fraud Rule update.

Modern Slavery Statement

Prior to December 2023, CSIRO will submit its third Modern Slavery Statement to the Attorney-General via the Online Register for Modern Slavery Statements and, thereby meet our reporting obligations under the *Modern Slavery Act 2018* (Cth). The statement reports on the risks of modern slavery in the operations and supply chains of the organisation and identifies actions to manage, lessen and remove those risks where possible. It is also available on our website: csiro.au/en/about/Policies/modern-slavery-statement.

Policy Framework

Our Policy Framework comprises policies, principles, procedures and guidance materials to establish our responsibilities and commitments, performance requirements and mandatory actions in conducting tasks. It ensures that staff have access to clear documentation that explains their obligations and how to fulfil them lawfully. The Policy Framework is integral to our governance. Details available at: csiro.au/en/about/Policies.

The policies approved by our Board reflect our commitment to:

- research and technology
- science and delivery
- governance
- risk
- health, safety and environmental sustainability
- people
- child safety
- finance and shareholding
- privacy.

Our ongoing Policy Reform Project supports streamlining and integration of our policies, principles and procedures. It aims to drive improved transparency, accountability, efficiency and effectiveness in the daily work of all our people.

Remuneration

Enterprise agreements

Enterprise agreements set the terms and conditions of employment for our employees. Two enterprise agreements are in operation: the CSIRO Enterprise Agreement 2020–23 and the CSIRO Canberra Deep Space Communication Complex (CDSCC) Enterprise Agreement 2018–21.

The CSIRO Enterprise Agreement 2020–23 came into operation on 15 November 2020. It reaches its nominal expiry date on 16 November 2023.

The CDSCC Enterprise Agreement 2018–21 came into operation on 21 February 2019 and reached its nominal expiry date on 20 February 2022. In 2021, CDSCC staff supported a determination under our enabling legislation to provide pay increases over the next 3 years rather than bargaining for a new agreement. The determination was effective from 22 December 2021.

Remuneration Framework

The Chief Executive evaluates and determines the appropriate level of pay for executive positions in line with our executive remuneration policy. The base salary is a fixed component determined on a range of factors, including work value assessments, individual performance, competence and skill, internal relativities and external market rates.

Annual remuneration review

Remuneration levels for executives are reviewed annually by the Chief Executive and the Board People and Safety Committee, which assesses any increases for the next financial year.

The annual remuneration review for 2022–23 considered:

- market competitiveness
- individual performance
- organisation performance and affordability
- Public Sector Workplace Relations Policy.

Market-related remuneration package arrangements may increase because of contract provisions aligned with enterprise agreement salary increases or by market-related adjustments, which are determined annually by the CSIRO Board People and Safety Committee.

The Committee makes recommendations to the CSIRO Board on the Chief Executive's remuneration and performance, including possible key result areas and performance targets. The CSIRO Board determines the Chief Executive's remuneration and any applicable performance payment within the range set by the Remuneration Tribunal after the Tribunal's annual determination of the reference rate.

Remuneration policy, strategy and governance

Our remuneration policy considers applicable remuneration provisions within both the CSIRO Enterprise Agreement 2020–23 and the CSIRO Canberra Deep Space Communication Complex (CDSCC) Enterprise Agreement 2018–21. Clause 11 and 12 of the CSIRO Enterprise Agreement 2020–23 provides for market-related remuneration and individual flexibility arrangements. The remuneration policy also considered the Government's Public Sector Workplace Relations Policy.

Key management personnel, executives and other highly paid staff are remunerated in accordance with their contracts of employment and relevant governing provisions. Our remuneration policy has also considered the Performance Bonus Guidance, including transition arrangements to remove performance bonuses in line with the principles within the Guidance.

The Chief Executive position sits within the Commonwealth Principal Executive Officer structure. The Remuneration Tribunal sets the Total Remuneration reference rate and the maximum achievable performance payment.

Remuneration and allowances payable to members of the CSIRO Board are determined by the Australian Government Remuneration Tribunal for Part Time Office Holders. Determinations of the Remuneration Tribunal are established under the *Remuneration Tribunal Act 1973*.

The CSIRO Board People and Safety Committee assists the Board to fulfil its governance responsibilities for organisational development, people-related activities, and health and safety. In relation to remuneration and performance, this Committee:

- makes recommendations to the Board on the remuneration and performance of the Chief Executive, including possible key result areas and performance targets
- reviews the Chief Executive's decisions regarding the remuneration and performance assessment of Executive Team members and ratifies these recommendations as appropriate
- exercises oversight of CSIRO's executive remuneration policy, including the senior executive banding structure (focus on positions, not individuals) and with references to the market
- specifically oversees negotiations with the Chief Executive or nominee regarding terms and conditions of appointment.

Remuneration of key management personnel, executives and other highly paid staff

Remuneration details are provided as required under the Public Governance, Performance and Accountability Rule 2014 (PGPA Rule). Remuneration of key management personnel, senior executives and other highly paid staff is reported in detail in note 3.2 of the financial statements in Part 5. Annual reportable remuneration includes base salary, benefits and allowances, performance payments, superannuation, termination benefits, long service leave, and other short-term and long-term benefits. The remuneration reported has been calculated on an accrual basis and does not equal actual remuneration paid in 2022–23.

Disclosure of interests and entity transactions

Board members and the Chief Executive declare material interests as required under the SIR and PGPA Acts. The Board Governance document has processes for managing conflicts of interest, including a requirement that members remove themselves from discussions and voting where they have declared a material personal interest, or where a potential or actual conflict of interest or duty arises.

There was one (1) instance in the reporting period where a Board member declared an interest in an item for consideration. The Board member was not provided access to the relevant paper and excused themselves from participating in discussion and the decision process.

We comply with the Commonwealth Procurement Rules. Our system of delegated powers and authorisations for all procurement transactions ensures thorough consideration of all transactions. In accordance with the CSIRO Delegations, the CSIRO Board, as the accountable authority, approves transactions (commercial, property, procurement) when the overall value (total of all contributions from all parties) is above $20 million or when high-risk transactions are sensitive in nature and/or are long-term strategic commitments by the organisation.

Transactions below $20 million and greater than $5 million are approved by the Chief Executive after the Major Transactions Committee has reviewed the transactions against our policies and recommended them for Board or Chief Executive approval. All transactions under $5 million are approved by the suitable delegate in accordance with our procedures and Delegations and authority schedules as well as Government regulations.

During the reporting period, there were 58 transactions involving entities related to us above $10,000, which came to a total combined value of $106.3 million. Nineteen transactions were paid to subsidiaries to the value of $88 million, and 39 transactions were received from subsidiaries to the value of $18.3 million.

Service charter

Our service charter describes the standards of service that we aim to deliver to our customers and our commitment to ensuring these standards are maintained. In summary:

- we believe our customers and partners are essential to our success
- we maintain relevance in our work through input from the public, government, industry and the research community
- we communicate with our customers in a courteous, helpful and professional manner:
  - we respect customer confidentiality
  - we evaluate our services to ensure continuous improvement of our service delivery.

Our complete service charter is available on our website: csiro.au/en/work-with-us/working-with-csiro/service-charter.

We welcome feedback on our performance. Contact CSIRO Enquiries:

Private Bag 10
Clayton South Vic 3169
1300 363 400
csiro.au/contact

Administrative Law

Judicial decisions

During 2022–23, there were no judicial decisions or decisions of administrative tribunals that have had, or may have, a significant effect on our operations.

Freedom of Information

The *Freedom of Information Act 1982* (FOI Act) provides members of the public with a general right to obtain access to documents held by Australian Government agencies, including us.

The general right of access to documents is limited by exceptions to protect essential public interests and the privacy or business affairs of those who give information to the agency.

In the reporting year to 30 June 2023, we received 75 requests for documents, or requests from other agencies to consider the release of documents relating to CSIRO, under the FOI Act.

General information about our FOI procedures, including how to make an FOI request, is available on our website.

Part V of the FOI Act provides a right to request CSIRO to amend a document to which lawful access has been granted, where the applicant claims that information in the document:

- relates to his or her personal affairs
- is incomplete, incorrect, out of date or misleading
- has been used, is being used or is available for use by the agency or Minister for an administrative purpose.

During 2022–23, we received no requests for amendments of personal information under the FOI Act.

Information Publication Scheme

We are required to publish information under the Information Publication Scheme that promotes open and transparent communication of government information. This requirement, in Part II of the FOI Act, replaces the former requirement to publish a section 8 statement in an annual report. We provide a plan showing what information we publish in keeping with the Information Publication Scheme requirements on our website: csiro.au/en/about/Corporate-governance/Access-to-information/Information-Publication-Scheme.

Members of the public may access scientific and technical publications from CSIRO Publishing and the ePublish Repository. Research data used by CSIRO is routinely published on the CSIRO Data Access Portal: publish.csiro.au.

Archives, privacy and administrative decisions

Our archives collection includes material from the Council for Science and Industrial Research, the predecessor of CSIRO, dating from 1926. In accordance with the *Archives Act 1983* (Cth) (Archives Act), certain CSIRO records are held by the National Archives of Australia. Disposal arrangements for CSIRO records follow the Archives Act, and access to records more than 20 years old is provided in accordance with that Act.

We are bound by the Australian Privacy Principles under the *Privacy Act 1988* (Cth) (the Privacy Act) and have measures in place to manage compliance including our Privacy Management Plan and Data Breach Response Plan. During 2022–23, CSIRO had no Notifiable Data Breaches under the Notifiable Data Breaches Scheme.

The *Administrative Decisions (Judicial Review) Act 1977* (Cth) (ADJR Act) enables a person aggrieved by certain classes of administrative decisions made by Australian Government agencies, including CSIRO, to obtain reasons for or to challenge those decisions. During 2022–23, we received no challenges or requests for statements of reasons under the ADJR Act.

Contact

All enquiries under the above legislation (including FOI requests) should be directed to:

FOI Officer/Privacy Officer
CSIRO
GPO Box 1700
Canberra ACT 2601
02 6276 6431
FOI@csiro.au
privacy@csiro.au

Public Interest Disclosure

We have implemented internal procedures to comply with the *Public Interest Disclosure Act 2013* (Cth) (PID Act) through a Public Interest Disclosure Scheme (the PID Scheme).

The PID Scheme promotes integrity and accountability by encouraging the disclosure of information about suspected wrongdoing, protecting people who make disclosures and ensuring we take appropriate action. We contributed to the Commonwealth Ombudsman's annual report on the PID, as required by section 76(3) of the PID Act. In 2022–23, we received 4 public interest disclosures pursuant to section 26 of the PID Act.

Consultancy services

We engage consultants where we lack specialist expertise or when independent research, review or assessment is required. Consultants are typically engaged to investigate or diagnose a defined issue or problem; carry out defined reviews or evaluations; or provide independent advice, information or creative solutions to assist in our decision making.

Before engaging consultants, we consider the skills and resources required for the task, the skills available internally and the cost effectiveness of engaging external expertise. The decision to engage a consultant adheres to the Commonwealth Procurement Rules, CSIRO procurement procedures, the *Public Governance, Performance and Accountability Act 2013*, and the CSIRO Delegations and Authority Schedules.

Our policy on selection and engagement of consultants is based on the principles of:

- value for money
- open and effective competition
- ethics and fair dealing
- accountability and reporting
- national competitiveness and industry development
- support for other Australian Government policies.

CSIRO utilises the Department of Finance Procurement Publishing and Reporting Obligations (RMG 423) to determine consultants.

A consultancy is defined as the engagement of temporary services:

- that involves developing an intellectual output that assists with decision making
- where the intellectual output represents the independent view of the service provider.

Tables 4.1–4.3 summarise the consultancies let and the annual spend, the reason for the consultancy and the procurement method. All values include goods and services tax.

Table 4.1: Annual spend on consultancies

YEAR	SPENT ($)	LET ($) (EST. WHOLE OF LIFE)
2017–18	1,648,413	1,625,864
2018–19	1,553,566	1,700,668
2019–20	1,690,411	1,856,563
2020–21	1,068,235	1,419,019
2021–22	583,023	1,225,936
2022–23	133,452	429,736

Table 4.2: Summary by reason code for 2022–23

CATEGORY CODE	REASON FOR CONSULTANCY	NUMBER OF CONSULTANCIES	VALUE ($)
IS	Need for independent study/evaluation	3	20,647
PA	Professional assistance to manage and facilitate change and its consequence	3	66,550
SS	Specialist skills were not otherwise available	2	46,255
Total		**8**	**133,452**

Table 4.3: Summary by procurement method code for 2022–23

CATEGORY CODE	PROCUREMENT METHOD	NUMBER OF CONSULTANCIES	VALUE ($)
OT	Tenders sought from the marketplace	2	33,550
PM	An existing panel member	2	17,875
ST			
RQ	Purchasing was undertaken in accordance with Division 1 of the CPRs and procurement did not require application of Division 2 of the CPRs	1	2,772
EX	Exemption applied that saw CSIRO undertake the procurement as a Limited Tender as defined in Division 2 of the CPRs	3	79,255

Our sustainable operations and practices

This year we continued to drive our commitment to a sustainable CSIRO, progressing actions under our Sustainability Strategy, which forms the basis of our management approach.

The strategy centres around 6 key focus areas:

1. Governance and transparency – increasing transparency around sustainability performance through improved governance processes.
2. Excellent science – working more closely with our scientists to apply CSIRO technical expertise to our operational challenges.
3. Our people – creating a culture of sustainability and building capacity of our workforce.
4. Sustainable property portfolio – ensuring a sustainable property portfolio that stimulates excellent science and supports our people's health and wellbeing.
5. Transition to a clean energy future – improve energy management and efficiency on the path to net zero emissions.
6. Responsible value chain – managing the environmental and social impacts of our procurements and embedding circular economy principles and responsible resource use.

Major initiatives for 2022–23 included:

- publication of our first public Sustainability Report in October 2022
- progress towards developing a new Sustainability Data Management System, which will support our reporting needs for the near- to medium-term and support the monitoring and management of our net zero targets
- progress towards a CSIRO carbon offsetting strategy with further investigation into the framework, governance and risk issues
- undertaking an independent modern slavery risk assessment, increasing stakeholder engagement and communication on modern slavery issues, including developing training and education for the workforce, and publishing our 2022 Modern Slavery Statement
- progressing sustainable procurement practices, including developing a tool to assist with managing sustainability-related risk through tenders
- a renewed focus on waste management through engaging a new waste services provider and the starting to develop a new CSIRO waste strategy to enable CSIRO to achieve its 80 per cent waste diversion from landfill target by 2030
- improving governance around climate-related risk
- commencement of installation of CSIRO's first carpark-mounted solar/photovoltaic (PV) array at our Newcastle Energy Centre that will contribute to the site's net zero emissions by 2025 target.

A comprehensive review of our sustainability performance will be published in our Sustainability Report 2023 to be published by late 2023.

HIGHLIGHT

Publishing our first Sustainability Report

The opportunity

As Australia's national science agency, we are committed to 'walking the talk' on implementing innovations that drive sustainability. The complexity and diversity of our operations pose challenges to implementing best practice, but we are committed to achieving bold goals.

The solution

To benchmark performance and showcase our progress against our Sustainability Strategy, last year we published our first annual Sustainability Report, which includes reporting on our progress against our Sustainability Strategy 2020–30.

One of our greatest sustainability challenges is our significant property footprint, including remote sites and diverse assets like RV *Investigator*, supercomputing facilities, and PC4 biosecurity facility at the Australian Centre for Disease Preparedness in Geelong.

Despite this, we have ambitious targets to reach net zero emissions by 2030 (applicable to Scopes 1 and 2 emissions[9]) which will be achieved in part through harnessing world-class innovation from us and our partners.

The impact

Our 2022 Sustainability Report highlighted our sustainability achievements, including reductions in our property footprint by over 50,000 square metres; reducing our greenhouse gas emissions by more than 50 per cent compared to 2020–21; achieving Australian Workplace Equality Index (AWEI) Silver accreditation to May 2022 and Science and Gender Equity (SAGE) accreditation to 2026; publishing our third Innovate Reconciliation Action Plan (RAP) 2021–23; and improving our sustainable procurement practices.

Environmental reporting

Section 516A of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires that we report annually on how we accord with and contribute to ecologically sustainable development (ESD) including our environmental performance – covering the impact our activities have on the natural environment, how these are mitigated and how they will be further managed. These are covered in detail in our Sustainability Report, with a snapshot provided below.

Energy and emissions

As part of our annual compliance reporting obligations, we submit energy and emissions data to the Clean Energy Regulator under the *National Greenhouse and Reporting Act 2007* (NGER) and to the portfolio minister in line with the Energy Efficiency in Government Operations (EEGO) Policy. Our energy and emissions have been reported in accordance with each program's organisational boundaries and methodologies. However, for the purposes of this report we have adopted the EEGO boundary for our energy and emissions footprint. Four of our sites are also required to report under the National Pollutant Inventory (National Environment Protection Measure), which is administered by state and territory environmental protection agencies. This year we again reported under the Clean Energy Regulator's Corporate Emissions Reduction Transparency Report (CERT Report).[10]

9 Scope 1 = direct emissions resulting from consumption of energy sources such as gas and fuels on site. Scope 2 = indirect emissions from the generation of purchased electricity.
10 cleanenergyregulator.gov.au/Infohub/Markets/cert-report

During the reporting year, the Australian Government introduced APS Net Zero 2030, the Government's policy for the Australian Public Service (APS) to reduce its greenhouse gas emissions to net zero by 2030. This requires all government entities (including Corporate Commonwealth Entities such as CSIRO) to transparently report and actively reduce their emissions, consistent with Australia's international commitments to contribute to the Paris Agreement targets.[11]

The Greenhouse Gas Emissions Inventory presents greenhouse gas emissions over the 2022–23 period, results are presented on the basis of carbon dioxide equivalent (CO_2-e) emissions. Greenhouse gas emissions reporting has been developed with methodology that is consistent with the whole-of-Australian Government approach as part of the APS Net Zero 2030 policy. Further information related to the APS Net Zero 2030 policy can be found at: finance.gov.au/government/aps-net-zero-emissions-2030

Table 4.4 sets out our 2022–23 performance under the new APS Net Zero 2030 policy. This is the first year that government entities will report under this policy, and our reporting will continue to evolve as this process matures.[12]

Figure 4.1 indicates the general downward trend of our location-based Scopes 1 and 2 emissions over the previous years. Data for 2022–23 will be published in our 2023–24 Annual Report.

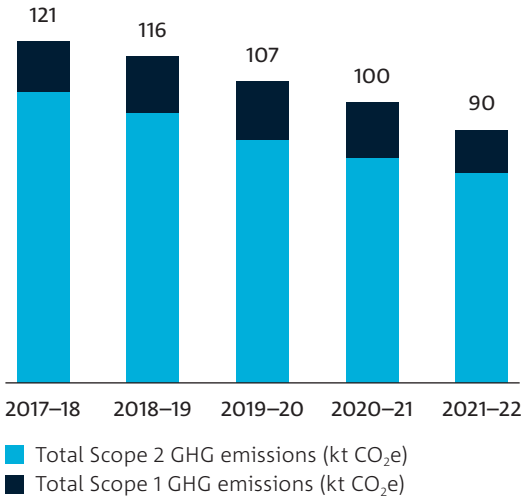


Figure 4.1: Historical trend – Scopes 1 and 2 location-based emissions

Table 4.4: CSIRO's performance in accordance with APS Net Zero 2030

EMISSION SOURCE	SCOPE 1 kg CO_2-e	SCOPE 2 kg CO_2-e	SCOPE 3 kg CO_2-e	TOTAL kg CO_2-e
Electricity (location-based approach)	N/A	59,606,194	5,610,786	65,216,981
Natural gas	9,018,907	N/A	1,155,852	10,174,760
Fleet vehicles	9,842,171	N/A	2,421,676	12,263,847
Domestic flights	N/A	N/A	5,462,197	5,462,197
Other energy	785,638	N/A	251,047	1,036,685
Total kg CO_2-e	**19,646,717**	**59,606,194**	**14,901,558**	**94,154,469**

*Other energy includes non-transport fuel and *RV Investigator* diesel consumption.

11 un.org/en/climatechange/paris-agreement
12 Note that the emissions data reported in this Annual Report is based on the best available at the submission deadline (30 June) and may differ slightly to the data reported in CSIRO's upcoming 2022–23 Sustainability Report, which has a later submission deadline, allowing for greater accuracy.

Waste and water

A key pillar of our Sustainability Strategy includes a focus on sustainable and efficient resource use, with an initial focus on improving our waste and water management practices.

During the reporting year, we appointed a new full-time staff member to review our waste management policies and operations and established the Waste Avoidance and Resource Recovery Steering committee. This committee will oversee the development of the new operational waste strategy to achieve our 2030 waste target to divert 80 per cent of our waste from landfill in accordance with Australia's National Waste Policy Action Plan.[13] We also appointed a new waste contractor to support the majority of our Australian waste operations.

We are working with our waste contractor to improve data collection processes and will recommence waste reporting from 2023–24. Working collaboratively with our facilities management team and the wider organisation, the new waste strategy will be completed by the end of 2023.

This year we also started improving the quality of our water monitoring systems and began developing our new water management strategy to help us manage better our water resources. Both strategies will build upon the results of our recent waste audits and water audits, which reviewed practices at some of our major sites. These results will be validated through extensive and ongoing data capture and analysis and stakeholder consultation.

Our water use for this financial year is set out in Table 4.5 below.[14]

Table 4.5: Our 2022–23 water use

RESOURCE AND OPERATIONAL METRICS	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
Mains water usage (ML)	321	320	345	277	230	223

13 dcceew.gov.au/environment/protection/waste/publications/national-waste-policy-action-plan

14 Note that this water data is accrual-based and may differ slightly to the data reported in our upcoming 2022–23 Sustainability Report, which has a later submission deadline, allowing for greater accuracy.

Part 5
Financial statements

INDEPENDENT AUDITOR'S REPORT

To the Minister for Industry and Science

Opinion

In my opinion, the financial statements of the Commonwealth Scientific and Industrial Research Organisation (the Entity) and the Consolidated Entity (the Entity and its subsidiaries) for the year ended 30 June 2023:

(a) comply with Australian Accounting Standards – Simplified Disclosures and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and

(b) present fairly the financial positions of the Entity and the Consolidated Entity as at 30 June 2023 and their financial performance and cash flows for the year then ended.

The financial statements of the Entity and the Consolidated Entity, which I have audited, comprise the following as at 30 June 2023 and for the year then ended:

- Statement by the Chair of the Board, Chief Executive and Chief Finance Officer;
- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity - Consolidated;
- Statement of Changes in Equity - CSIRO
- Cash Flow Statement; and
- Notes to and forming part of the financial statements, comprising a summary of significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Entity and the Consolidated Entity in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

The Board's responsibility for the financial statements

As the Accountable Authority of the Entity, the Board is responsible under the *Public Governance, Performance and Accountability Act 2013* (the Act) for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Simplified Disclosures and the rules made under the Act. The Board is also responsible for such internal control as the Board determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board is responsible for assessing the ability of the Entity and the Consolidated Entity to continue as a going concern, taking into account whether the entities' operations will cease as a result of an administrative restructure or for any other reason. The Board is also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the assessment indicates that it is not appropriate.

GPO Box 707, Canberra ACT 2601
38 Sydney Avenue, Forrest ACT 2603
Phone (02) 6203 7300

Auditor's responsibilities for the audit of the financial statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity and the Consolidated Entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity or the Consolidated Entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Entity or the Consolidated Entity's to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation; and
- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Consolidated Entity to express an opinion on the financial report. I am responsible for the direction, supervision and performance of the Consolidated Entity audit. I remain solely responsible for my audit opinion.

I communicate with the Accountable Authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office

Bola Oyetunji

Group Executive Director

Delegate of the Auditor-General

Canberra

11 September 2023

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION
Financial Statements

for the period ended 30 June 2023

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION
STATEMENT BY THE CHAIR OF THE BOARD, CHIEF EXECUTIVE AND CHIEF FINANCE OFFICER

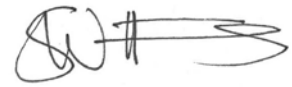
In our opinion, the attached financial statements for the period ended 30 June 2023 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013 (PGPA Act),* and are based on properly maintained financial records as per subsection 41(2) of the *PGPA Act*.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and its subsidiaries will be able to pay their debts as and when they fall due.

This statement is made in accordance with a resolution of the directors.

Kathryn Fagg
Chair of the Board
7 September 2023

Kirsten Rose
Chief Executive and Board Member (Acting)
7 September 2023



Stewart Walters
Chief Financial Officer
7 September 2023

CONSOLIDATED FINANCIAL STATEMENTS
STATEMENT OF COMPREHENSIVE INCOME
For the period ended 30 June 2023

		Consolidated		CSIRO	
		2023	2022	**2023**	2022
NET COST OF SERVICES	**Notes**	**$'000**	$'000	**$'000**	$'000
Expenses					
Employee benefits	1.1A	**883,018**	753,506	**879,994**	751,008
Suppliers	1.1B	**525,341**	436,370	**561,718**	450,663
Depreciation and amortisation	2.2A	**168,357**	173,984	**168,279**	173,425
Finance costs	1.1C	**2,551**	1,506	**2,214**	1,438
Write-downs and impairment loss on financial instruments	1.1D	**1,807**	245	**1,807**	245
Write-downs and impairment of other assets	1.1E	**16,544**	10,590	**16,544**	10,590
Loss on revaluation of investment properties	2.2B	**4,606**	-	**4,606**	-
Losses from asset sales	1.1F	**3,397**	-	**3,397**	-
Foreign exchange losses		**668**	-	**669**	-
Total expenses		**1,606,289**	1,376,201	**1,639,228**	1,387,369
Own-Source Income					
Own-source revenue					
Revenue from contracts with customers	1.2A	**497,604**	470,485	**508,236**	477,324
Bank and term deposits interest	1.2B	**27,922**	3,623	**22,469**	2,881
Rental income	1.2C	**6,665**	6,850	**6,665**	6,850
Other revenues	1.2D	**28,603**	14,715	**34,214**	14,072
Total own-source revenue		**560,794**	495,673	**571,584**	501,127
Gains					
Gains from sale of equity investments and IP		**9,173**	409	**9,173**	409
Gains from asset sales	1.1F	**-**	113	**-**	113
Gains on valuation of equity investments	4.2B	**124,337**	191,563	**71,104**	35,909
Gain on revaluation of investment properties	2.2B	**-**	1,731	**-**	1,731
Other gains	1.2E	**13,938**	17,847	**13,938**	17,847
Foreign exchange gains		**-**	292	**-**	173
Total gains		**147,448**	211,955	**94,215**	56,182
Total own-source income		**708,242**	707,628	**665,799**	557,309
Net cost of services		**(898,047)**	(668,573)	**(973,429)**	(830,060)
Revenue from Government	1.2F	**991,134**	949,037	**991,134**	949,037
Surplus/(deficit)		**93,087**	280,464	**17,705**	118,977
OTHER COMPREHENSIVE INCOME					
Changes in asset revaluation reserves	1.3A	**107,032**	22,781	**107,032**	22,781
Changes in other reserves	1.3B	**47**	(11)	**-**	-
Total other comprehensive income		**107,079**	22,770	**107,032**	22,781
Total comprehensive income/(loss)		**200,166**	303,234	**124,737**	141,758
Discontinued Operations					
Profit/(loss) after tax for the year from discontinued operations		**(717)**	-	**-**	-
Profit for the year		**199,449**	303,234	**124,737**	141,758
Surplus/(deficit) for the year is attributable to:					
Non-controlling interest		**40,988**	98,414	**-**	-
CSIRO		**52,099**	182,050	**17,705**	118,977
Total surplus/(deficit)		**93,087**	280,464	**17,705**	118,977
Total comprehensive income for the year is attributable to:					
Non-controlling interest		**40,988**	98,414	**-**	-
CSIRO		**159,178**	204,820	**124,737**	141,758
Total comprehensive income/(loss)		**200,166**	303,234	**124,737**	141,758

The above Statement should be read in conjunction with the accompanying notes.

CONSOLIDATED FINANCIAL STATEMENTS
STATEMENT OF FINANCIAL POSITION
as at 30 June 2023

		Consolidated		CSIRO	
		2023	2022	**2023**	2022
	Notes	**$'000**	$'000	**$'000**	$'000
ASSETS					
Financial Assets					
Cash and cash equivalents	2.1A	**801,306**	681,601	**608,910**	538,855
Trade and other receivables	2.1B	**127,259**	103,756	**125,896**	103,698
Other investments	2.1C	**1,011,532**	796,818	**371,634**	267,995
Assets directly related to discontinued operations		**1,343**	-	**-**	-
Total financial assets		**1,941,440**	1,582,175	**1,106,440**	910,548
Non-Financial Assets[1]					
Land and buildings	2.2A	**1,634,884**	1,540,912	**1,634,884**	1,540,723
Heritage and cultural	2.2A	**10,160**	9,952	**10,160**	9,952
Plant and equipment	2.2A	**563,218**	563,542	**563,218**	563,505
Intangibles	2.2A	**17,020**	18,502	**17,020**	18,502
Investment properties	2.2B	**46,141**	50,747	**46,141**	50,747
Inventories		**1,284**	1,290	**1,284**	1,290
Other non-financial assets	2.2C	**30,596**	11,886	**30,354**	11,644
Total non-financial assets		**2,303,303**	2,196,831	**2,303,061**	2,196,363
Assets held for sale		**41,720**	40,530	**41,720**	40,530
Total assets		**4,286,463**	3,819,536	**3,451,221**	3,147,441
LIABILITIES					
Payables					
Suppliers	2.3A	**386,147**	311,032	**385,068**	310,036
Other payables	2.3B	**22,559**	18,357	**23,076**	18,097
Deposits	2.3C	**17,011**	18,897	**17,321**	19,729
Liabilities directly associated with discontinued operations		**1,126**	-	**-**	-
Total payables		**426,843**	348,286	**425,465**	347,862
Interest Bearing Liabilities					
Lease liabilities	2.4	**58,287**	63,653	**58,287**	63,529
Total Interest bearing liabilities		**58,287**	63,653	**58,287**	63,529
Provisions					
Employee provisions	3.1A	**248,206**	226,452	**248,104**	226,190
Provision for remediation	2.5	**64,606**	65,366	**64,606**	65,366
Total provisions		**312,812**	291,818	**312,710**	291,556
Total liabilities		**797,942**	703,757	**796,462**	702,947
Net assets		**3,488,521**	3,115,779	**2,654,759**	2,444,494
EQUITY					
Contributed equity		**416,912**	331,384	**416,604**	331,076
Asset revaluation reserves		**1,702,538**	1,595,506	**1,702,538**	1,595,506
Other reserves		**(253)**	(300)	**-**	-
Retained surplus		**816,357**	764,975	**535,617**	517,912
Non-controlling interest		**552,967**	424,214	**-**	-
Total equity		**3,488,521**	3,115,779	**2,654,759**	2,444,494

The above Statement should be read in conjunction with the accompanying notes.

[1]Right-of-use ('ROU') assets are included in Land and buildings and Plant and equipment.

CONSOLIDATED FINANCIAL STATEMENTS
STATEMENT OF CHANGES IN EQUITY – CONSOLIDATED
For the period ended 30 June 2023

	Retained earnings		Asset revaluation reserve		Other reserves		Contributed equity/capital		Non-controlling interest		Total equity	
	2023	2022	**2023**	2022	**2023**	2022	**2023**	2022	**2023**	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000
Opening balance	**764,975**	582,925	**1,595,506**	1,572,725	**(300)**	(259)	**331,384**	327,384	**424,214**	214,017	**3,115,779**	2,696,792
Comprehensive income												
Other comprehensive income[1]	**-**	-	**107,032**	22,781	**47**	(11)	**-**	-	**-**	-	**107,079**	22,770
Surplus/(deficit) for the period	**52,099**	182,050	**-**	-	**-**	-	**-**	-	**40,988**	98,414	**93,087**	280,464
Total comprehensive income/(loss)	**52,099**	182,050	**107,032**	22,781	**47**	(11)	**-**	-	**40,988**	98,414	**200,166**	303,234
Other movements	**(717)**	-	**-**	-	**-**	(30)	**-**	-	**-**	-	**(717)**	(30)
Contributions by owners												
Equity injection	**-**	-	**-**	-	**-**	-	**85,528**	4,000	**87,765**	111,783	**173,293**	115,783
Closing balance	**816,357**	764,975	**1,702,538**	1,595,506	**(253)**	(300)	**416,912**	331,384	**552,967**	424,214	**3,488,521**	3,115,779

The above Statement should be read in conjunction with the accompanying notes.

[1] Refer to Note 1.3.

Accounting Policy

Equity Injections

Amounts that are designated as equity injections for a year are recognised directly in contributed equity in that year.

Non-controlling interests

Non-controlling interests refer to equity in a subsidiary that is not attributable (directly or indirectly) to CSIRO as parent. CSIRO recognises non-controlling interests in the CSIRO Innovation Fund subsidiary entities.

CONSOLIDATED FINANCIAL STATEMENTS
STATEMENT OF CHANGES IN EQUITY – CSIRO
For the period ended 30 June 2023

	Retained earnings		Asset revaluation reserve		Other reserves		Contributed equity/capital		Non-controlling interest		Total equity	
	2023	2022	**2023**	2022	**2023**	2022	**2023**	2022	**2023**	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000	**$'000**	$'000
Opening balance	**517,912**	398,935	**1,595,506**	1,572,725	**-**	-	**331,076**	327,076	**-**	-	**2,444,494**	2,298,736
Comprehensive income												
Other comprehensive income[1]	**-**	-	**107,032**	22,781	**-**	-	**-**	-	**-**	-	**107,032**	22,781
Surplus/(deficit) for the period	**17,705**	118,977	**-**	-	**-**	-	**-**	-	**-**	-	**17,705**	118,977
Total comprehensive income/(loss)	**17,705**	118,977	**107,032**	22,781	**-**	-	**-**	-	**-**	-	**124,737**	141,758
Other movements	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-	**-**	-
Contributions by owners												
Equity injection	**-**	-	**-**	-	**-**	-	**85,528**	4,000	**-**	-	**85,528**	4,000
Closing balance	**535,617**	517,912	**1,702,538**	1,595,506	**-**	-	**416,604**	331,076	**-**	-	**2,654,759**	2,444,494

The above Statement should be read in conjunction with the accompanying notes.

[1]Refer to Note 1.3.

Accounting Policy

Equity Injections

Amounts that are designated as equity injections for a year are recognised directly in contributed equity in that year.

Non-controlling interests

Non-controlling interests refer to equity in a subsidiary that is not attributable (directly or indirectly) to CSIRO as parent. CSIRO recognises non-controlling interests in the CSIRO Innovation Fund subsidiary entities.

CONSOLIDATED FINANCIAL STATEMENTS
CASH FLOW STATEMENT
For the period ended 30 June 2023

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
OPERATING ACTIVITIES				
Cash received				
Receipts from Government	**991,134**	949,037	**991,134**	949,037
Sale of goods and rendering of services	**606,879**	582,312	**586,255**	585,454
Interest	**18,942**	2,774	**14,539**	2,062
Net GST received	**24,780**	17,653	**24,224**	17,057
Total cash received	**1,641,735**	1,551,776	**1,616,152**	1,553,610
Cash used				
Employees	**856,542**	789,093	**853,253**	786,579
Suppliers	**580,353**	457,310	**577,678**	468,575
Interest payments on lease liabilities	**2,122**	1,381	**2,120**	1,360
Finance costs	**429**	125	**94**	78
Deposits	**1,886**	2,903	**2,408**	3,740
Total cash used	**1,441,332**	1,250,812	**1,435,553**	1,260,332
Net cash from operating activities	**200,403**	300,964	**180,599**	293,278
INVESTING ACTIVITIES				
Cash received				
Proceeds from sales of equity investments and intellectual property	**15,746**	442	**15,746**	442
Proceeds from sales of property, plant and equipment	**1,259**	1,405	**1,259**	1,405
Total cash received	**17,005**	1,847	**17,005**	1,847
Cash used				
Purchase of property, plant and equipment	**148,749**	130,381	**148,749**	130,300
Purchase of equity investments	**102,798**	126,845	**45,003**	17,038
Other selling costs	**28**	40	**28**	40
Total cash used	**251,575**	257,266	**193,780**	147,378
Net cash used in investing activities	**(234,570)**	(255,419)	**(176,775)**	(145,531)
FINANCING ACTIVITIES				
Cash received				
Contributed equity	**173,293**	115,783	**85,528**	4,000
Total cash received	**173,293**	115,783	**85,528**	4,000
Cash used				
Principal payments of lease liabilities	**19,421**	17,363	**19,297**	16,764
Total cash used	**19,421**	17,363	**19,297**	16,764
Net cash from financing activities	**153,872**	98,420	**66,231**	(12,764)
Net increase (decrease) in cash held	**119,705**	143,965	**70,055**	134,983
Cash and cash equivalents at the beginning of the reporting period	**681,601**	537,636	**538,855**	403,872
Cash and cash equivalents at the end of the reporting period	**801,306**	681,601	**608,910**	538,855

The above Statement should be read in conjunction with the accompanying notes.

[1.] The net impact of discontinued operations on cash was a net outflow of $0.2m during the year, and a balance of $0.6m as at 30 June 2023.

CONSOLIDATED FINANCIAL STATEMENTS
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

CONSOLIDATED FINANCIAL STATEMENTS
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

Overview

Objectives of CSIRO and its Subsidiaries (the Group)

CSIRO is an Australian Government controlled not-for-profit entity and is classified as a Corporate Commonwealth entity under the *Public Governance, Performance and Accountability Act 2013*. CSIRO, together with its subsidiaries, is a research enterprise that aims to deliver scientific and innovative solutions for industry, society and the environment (referred to as 'the Group') and deliver on these objectives in accordance with the *Science and Industry Research Act 1949*.

CSIRO is structured to meet the following outcome:

> Innovative scientific and technological solutions to national challenges and opportunities to benefit industry, the environment and the community, through scientific research and capability development, services and advice.

The Basis of Preparation

The financial statements are required by section 42 of the *Public Governance, Performance and Accountability Act 2013* and are general purpose financial statements.

CSIRO and the Group's Consolidated Financial Statements have been prepared in accordance with:

- *Public Governance, Performance and Accountability (Financial Reporting Rule) 2015* (FRR); and
- *Australian Accounting Standards and Interpretations* – including simplified disclosures for Tier 2 Entities under *AASB 1060* issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position. The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Key Judgements and Estimates

In the process of applying the Group's accounting policies, management has made a number of judgements and applied estimates and assumptions to future events. Information around judgements and estimates which are material to the financial statements are found in the following notes:

- Note 2.5 Provision for Remediation
- Note 3.1A Employee Provisions
- Note 4.3A Fair Value Measurement

Consolidation

The consolidated financial statements comprise the financial statements of the CSIRO and its subsidiaries. The subsidiaries of CSIRO are the Science and Industry Endowment Fund (SIEF), the CSIRO Chile Research Fundación (Fundación), National ICT Australia (NICTA), the Innovation Fund and the US Office. Refer to Note 3.4 for further information.

The consolidated financial statements incorporate the assets and liabilities of all entities controlled by CSIRO as at 30 June 2023 and the results of the controlled entities for the year then ended. Subsidiaries are consolidated from the date on which control is obtained through to the date on which control ceases.

The non-controlling interest in the results and equity of subsidiaries is shown separately in the statement of comprehensive income, statement of financial position and statement of changes in equity of the consolidated Group.

Foreign Currency Translation

The functional currency of CSIRO and its Australian subsidiaries is Australian dollars. The Group has three overseas subsidiary entities, the Fundación and the US Office entities, with their functional currency being Peso CLP and US dollars respectively. On consolidation, those entities':

- Assets and liabilities are translated into Australian dollars at the rate of exchange prevailing at the reporting date; and
- The statement of comprehensive income is translated at average exchange rate.

The exchange rate differences arising are recognised in the net cost of services.

New Australian Accounting Standards

Two amending standards (AASB 2021-2 and AASB 2021-6) were adopted earlier than the application date as stated in the standard, with adoption taken in the 2022-23 reporting period. These standards did not have any material impact on the financial statements:

Standard/ Interpretation	Nature of change in accounting policy, transitional provisions, and adjustment to financial statements
AASB 2021-2 Amendments to Australian Accounting Standards – Disclosure of Accounting Policies and Definition of Accounting Estimates	AASB 2021-2 amends AASB 7, AASB 101, AASB 108, AASB 134 and AASB Practice Statement 2. The amending standard requires the disclosure of material, rather than significant, accounting policies, and clarifies what is considered a change in accounting policy compared to a change in accounting estimate.
AASB 2021-6 Amendments to Australian Accounting Standards – Disclosure of Accounting Policies: Tier 2 and Other Australian Accounting Standards	AASB 2021-6 amends the Tier 2 reporting requirements set out in AASB 1049, AASB 1054 and AASB 1060 to reflect the changes made by AASB 2021-2. The details of the changes in accounting policies and adjustments are disclosed below and in the relevant notes to the financial statements.

All other new, revised and/or amending standards and/or interpretations that were issued prior to the signing of these statements and are applicable to the current reporting period did not have a material effect on the financial statements of the Group. There has been no other early adoption of accounting standards applicable to future years.

Taxation

In accordance with Section 53 of the *Science and Industry Research Act 1949*, CSIRO is exempt from all forms of Australian taxation except the fringe benefits tax (FBT) and the goods and services tax (GST). The Group pays applicable taxes in overseas countries.

Revenues, expenses, assets and liabilities are recognised net of GST except:

- where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- for receivables and payables.

The SIEF is exempt from income tax in Australia. The Innovation Fund entities are subject to all applicable taxes in Australia. The Fundación is subject to all applicable taxes in Chile. The US Office is subject to taxes in the United States of America. NICTA is exempt from income tax however NICTA's subsidiaries (including NICTA IPR Pty Ltd) are subject to applicable taxes in Australia. The amounts of income and other tax payable by the Group's subsidiaries is not material to the consolidated statements.

Events after the Reporting Period

At the time of signing of the financial statements, the Group is not aware of any significant events occurring after the reporting date.

Future Events

CSIRO continues to explore future commercial opportunities for the Ginninderra Field Station, a 701 hectares area of land CSIRO owns in north Canberra. Due to the rapid urban growth in the surrounding area, the site has become under-utilised and the field station has been relocated to a more rural setting. As part of its focus on exploring the future possibilities for this site, CSIRO successfully requested the National Capital Authority (NCA) to include the site as 'Urban Area' on the General Policy Plan for Metropolitan Canberra in the National Capital plan draft Amendment 86. The Amendment became effective in November 2016.

The initial step in rezoning the land allows CSIRO to explore avenues to divest the Ginninderra land in a commercially beneficial way. CSIRO proposes to divest Ginninderra east via a conditional sale. The conditions of the sale are necessary to meet community expectations that the land will be a development with a significant component of sustainability. When sale of the land occurs, there is potential that changes in the valuation of the land will have occurred and gains on sale recognised.

1. Financial Performance

This section analyses the financial performance of CSIRO for the year ended 30 June 2023.

1.1. Expenses

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 1.1A: Employee Benefits				
Wages and salaries	**652,412**	594,462	**650,041**	592,378
Superannuation				
Defined contribution plans	**70,072**	58,059	**70,072**	58,059
Defined benefit plans	**38,663**	40,016	**38,611**	39,914
Leave and other entitlements	**118,158**	58,270	**117,994**	58,037
Separation and redundancies	**6,656**	6,382	**6,656**	6,382
Gross employee benefits	**885,961**	757,189	**883,374**	754,770
Less:				
Employee cost recovery	**68**	(311)	**(369)**	(390)
Capitalised labour	**(3,011)**	(3,372)	**(3,011)**	(3,372)
Total employee benefits	**883,018**	753,506	**879,994**	751,008

Accounting Policy

Accounting policy for employee related expenses is contained in Section 3. People and Relationships.

Note 1.1B: Suppliers				
Goods supplied	**132,685**	119,839	**132,365**	118,950
Services rendered	**387,534**	306,229	**424,642**	321,646
Total goods and services supplied or rendered	**520,219**	426,068	**557,007**	440,596
Other suppliers				
Short-term leases and leases of low-value assets	**154**	6,243	**35**	6,244
Audit Fees	**1,078**	344	**820**	154
Workers compensation expenses	**3,890**	3,715	**3,856**	3,669
Total other suppliers	**5,122**	10,302	**4,711**	10,067
Total Suppliers	**525,341**	436,370	**561,718**	450,663

The above lease disclosures should be read in conjunction with the accompanying notes 1.1C, 1.2C, 2.2A and 2.4.

Accounting Policy

Short-term leases and leases of low value assets

The Group has elected not to recognise right-of-use assets and lease liabilities for leases of assets that have a lease term of 12 months or less or leases of low value assets (less than $10,000). The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

Audit Fees

The Group is audited by the Australian National Audit Office. Fees for audit of financial statements for the year was $168,180 for CSIRO and $526,310 for the Group exclusive of GST. Audit fees above also includes the cost of internal audit work by other providers.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 1.1C: Finance Costs				
Interest on lease liabilities	**2,122**	1,381	**2,120**	1,360
Other interest payments	**429**	125	**94**	78
Total Finance costs	**2,551**	1,506	**2,214**	1,438

The above lease disclosures should be read in conjunction with the accompanying notes 1.1B, 1.2C, 2.2A and 2.4.

Note 1.1D: Write-downs and impairment loss on financial instruments				
Asset write-downs and impairments from:				
Bad debts written off	**2,404**	178	**2,404**	178
Impairment of trade and other receivables	**(597)**	67	**(597)**	67
Total write-downs and impairments on financial instruments	**1,807**	245	**1,807**	245
Note 1.1E: Write-downs and impairment of other assets				
Asset write-downs and impairments from:				
Land and Buildings	**16,544**	7,342	**16,544**	7,342
Property, plant and equipment	**-**	3,248	**-**	3,248
Total write-downs and impairment of other assets	**16,544**	10,590	**16,544**	10,590
Note 1.1F: Gain/(loss) from asset sales				
Land and buildings				
Proceeds from sale	**-**	**565**	**-**	**565**
Carrying value of assets sold	**-**	**(479)**	**-**	**(479)**
Selling expense	**-**	**(17)**	**-**	**(17)**
Net gain/(loss) from sale of land and buildings	**-**	**69**	**-**	**69**
Plant and equipment				
Proceeds from sale	**2,175**	784	**2,175**	784
Carrying value of assets sold	**(5,544)**	(717)	**(5,544)**	(717)
Selling expense	**(28)**	(23)	**(28)**	(23)
Net gain/(loss) from sale of plant and equipment	**(3,397)**	44	**(3,397)**	44
Total gain/(loss) from asset sales	**(3,397)**	113	**(3,397)**	113

1.2. Revenue and Gains

Own Source Revenue

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 1.2A: Revenue from contracts with customers				
Sale of goods	**11,055**	11,628	**11,055**	11,628
Rendering of services	**436,859**	409,183	**447,491**	416,022
Royalties and licence fees	**49,690**	49,674	**49,690**	49,674
Total revenue from contracts with customers	**497,604**	470,485	**508,236**	477,324

Disaggregation of revenue from contracts with customers

CSIRO derives its revenue under AASB 15 *Revenue from Contracts with Customers* from two main sources, being the sale of goods and rendering of services. Revenue has been disaggregated based on the line of business and further disaggregated based on the types of contracts that exist within the line of business. This disaggregation is considered most appropriate as it enables users of the Group's financial statements to understand the nature, timing and uncertainty of income and cash flows.

Revenue from contracts with customers - line of business:				
Impact Science				
Coinvestment	**241,654**	235,278	**250,104**	242,117
Consulting & Services	**58,868**	59,020	**58,868**	59,020
Royalties and licence fees	**49,297**	49,099	**49,297**	49,099
Total Impact Science	**349,819**	343,397	**358,269**	350,236
National Facilities & Collections				
Coinvestment	**68,560**	56,009	**68,560**	56,009
Consulting & Services	**43,677**	32,899	**43,677**	32,899
Royalties and licence fees	**99**	325	**99**	325
Total National Facilities & Collections	**112,336**	89,233	**112,336**	89,233
CSIRO Services				
Coinvestment	**12,335**	9,286	**12,335**	9,286
Consulting & Services	**19,115**	18,542	**19,115**	18,542
Royalties and licence fees	**293**	250	**293**	250
Publishing revenue	**2,120**	2,374	**2,120**	2,374
Total CSIRO Services	**33,863**	30,452	**33,863**	30,452
Enterprise Support Services				
Coinvestment	**1,288**	5,836	**1,288**	5,836
Consulting & Services	**298**	1,567	**2,480**	1,567
Total Enterprise Support Services	**1,586**	7,403	**3,768**	7,403
Total	**497,604**	470,485	**508,236**	477,324

Accounting Policy

Revenue from the sale of goods is recognised when control has been transferred to the buyer. A contract falls within the scope of AASB 15 *Revenue from Contracts with Customers* when the criteria for accounting for a contract with a customer is met as per paragraph 9 of the standard. Performance obligations are required by an enforceable contract with the satisfaction of these performance obligations either measured over time or a point in time.

The transaction price is the total amount of consideration to which CSIRO expects to be entitled in exchange for transferring promised goods or services to a customer. The consideration promised in a contract with a customer may include fixed amounts, variable amounts or both. Payment terms are specified in contracts, but are generally 30 days after the customer has been billed.

The following is a description of principal activities from which CSIRO generates its revenue:

Disaggregation	**Nature**	**Timing**
Coinvestment	CSIRO conducts research and facilitates the uptake of scientific technology solutions with a partner or customer to deliver a positive impact to Australia.	Performance obligations are typically satisfied over time, as the customer simultaneously receives and consumes the benefits associated with CSIRO conducting scientific research or CSIRO is creating/enhancing an asset (usually Intellectual Property) that an end customer controls as the asset is created or enhanced. The progress towards the completion of a performance obligation are typically measured using either milestones reached or time elapsed. In the absence of an observable output method, an input method is used to measure the progress towards the completion of the performance obligations.
Consulting & Services	Consulting services are where CSIRO applies existing research to a customer's data or assets to enhance the customer's intellectual property or processes. CSIRO is a provider of a range of specialised laboratories, scientific and testing equipment, and other research facilities. Services revenue includes facility management fees, and testing and calibrations services.	Performance obligations are satisfied at a point in time or over time depending on the nature of services provided. The methods used to measure the progress towards completion of a performance obligation are dependent on the services provided and generally follow either a milestones reached or time elapsed assessment.
Royalties & Licensing	CSIRO provides a license to a customer which gives the customer a right to access or a right to use CSIRO intellectual property.	If the licence provides the customer with the right to access CSIRO intellectual property as it exists throughout the license period, performance obligations are satisfied and revenue recognised over time. If the license provides the customer with the right to use CSIRO intellectual property when the license is granted, performance obligations and revenue is recognised at a point in time.
Publishing revenue	CSIRO Publishing publishes and distributes scientific, technical and health science books, magazines and journals from Australia to a worldwide audience.	Performance obligations are satisfied at a point in time as the customer purchases and receives the goods.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 1.2B: Bank and term deposits interest				
Bank and term deposits	**27,922**	3,623	**22,469**	2,881

Accounting Policy

Interest revenue is recognised using the effective interest method as set out in AASB 9 *Financial Instruments*.

Note 1.2C: Rental Income				
Operating lease				
Lease income	**6,665**	6,850	**6,665**	6,850
Total Rental Income	**6,665**	6,850	**6,665**	6,850

Operating Leases

CSIRO has operating lease income receivables from the sub-leasing of offices and scientific research accommodation. The amounts below are GST inclusive.

Maturity analysis of operating lease income receivables

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Within 1 year	**5,891**	6,243	**5,891**	6,243
One to two years	**1,750**	2,019	**1,750**	2,019
Two to three years	**1,225**	1,901	**1,225**	1,901
Three to four years	**813**	1,616	**813**	1,616
Four to five years	**460**	768	**460**	768
More than 5 years	**1,277**	1,729	**1,277**	1,729
Total undiscounted lease payment receivable	**11,416**	14,276	**11,416**	14,276

The above lease disclosure should be read in conjunction with the accompanying notes 1.1B, 1.1C, 2.2A and 2.4.

Note 1.2D: Other revenues				
Sale of primary produce	**2,312**	1,843	**2,312**	1,843
Donation	**29**	67	**29**	67
Capital contributions	**22,128**	9,936	**27,750**	9,936
Education programs and subscriptions	**264**	71	**264**	71
Other	**3,870**	2,798	**3,859**	2,155
Total other revenues	**28,603**	14,715	**34,214**	14,072

Accounting Policy

Capital contributions includes income recognised from external parties when (or as) CSIRO has satisfied its obligation from the transfer of a financial asset.

Other includes the sale of CSIRO publications and products, conferences and funding for costs of suppliers and external service providers.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 1.2E: Other gains				
Assets received free of charge	**13,938**	17,847	**13,938**	17,847
Total other gains	**13,938**	17,847	**13,938**	17,847

Accounting Policy

Assets Received Free of Charge

Contributions of assets at no cost of acquisition or for nominal consideration are recognised as gains at their fair value when the asset qualifies for recognition, unless received from another Government entity as a consequence of a restructuring of administrative arrangements.

Note 1.2F: Revenue from Government				
Corporate Commonwealth Entity payment	**991,134**	949,037	**991,134**	949,037

Accounting Policy

Revenues from Government

Revenues from Government were received from the Australian Government Department of Industry, Science, Energy and Resources (appropriated to CSIRO as a Corporate Commonwealth Entity payment item).

1.3. Other Comprehensive Income

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Items that will not be classified to net cost of services				
Note 1.3A: Change in asset revaluation reserves				
Revaluation of land and buildings	**107,032**	-	**107,032**	-
Revaluation of plant and equipment	**-**	22,781	**-**	22,781
Revaluation of heritage and cultural assets	**-**	-	**-**	-
Net increase in asset revaluation reserves	**107,032**	22,781	**107,032**	22,781
Items that may be reclassified to net cost of services				
Note 1.3B: Change in other reserves				
Net change arising from foreign exchange movements on conversion of subsidiary accounts	**47**	(11)	**-**	-
Net (decrease) in other reserves	**47**	(11)	**-**	-

2. Financial Position

This section analyses CSIRO's assets used to generate financial performance and the operating liabilities incurred as a result. Employee related information is disclosed in the People and Relationships section.

2.1. Financial Assets

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.1A: Cash and Cash equivalents				
Cash at bank and on hand	**270,506**	204,701	**150,110**	128,105
Term deposits	**530,800**	476,900	**458,800**	410,750
Total cash and cash equivalents	**801,306**	681,601	**608,910**	538,855

Accounting Policy

Cash is recognised at its nominal value. Cash and cash equivalents includes:

a) cash on hand;

b) demand deposits in bank accounts with an original maturity of 12 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

Note 2.1B: Trade and other receivables				
Goods and services receivable				
Goods and services	**84,011**	73,881	**82,397**	72,570
Interest	**10,564**	1,584	**9,314**	1,384
Contract assets	**32,638**	22,049	**32,638**	22,049
GST receivable	**-**	6,288	**-**	6,045
Other receivables	**614**	1,120	**1,706**	2,406
Total trade and other receivables (gross)	**127,827**	104,922	**126,055**	104,454
Less: expected credit loss allowance	**(568)**	(1,166)	**(159)**	(756)
Total trade and other receivables (net)	**127,259**	103,756	**125,896**	103,698
Trade and other receivables (gross) aged as follows				
Not overdue	**116,027**	94,209	**114,255**	94,151
Overdue by				
0 to 30 days	**8,575**	6,140	**8,575**	6,140
31 to 60 days	**1,731**	420	**1,731**	420
61 to 90 days	**590**	147	**590**	147
More than 90 days	**904**	4,006	**904**	3,596
Total receivables (gross)	**127,827**	104,922	**126,055**	104,454
Reconciliation of impairment loss allowance				
Opening balance	**1,166**	1,099	**756**	689
Increase /(decrease) recognised in net surplus	**(598)**	67	**(597)**	67
Closing balance	**568**	1,166	**159**	756

Contract assets are associated with services that have been transferred to the customer by CSIRO but there are remaining services to be performed in order to invoice the customer. Refer to Note 2.3A for information relating to contract liabilities.

Accounting Policy

Financial assets

Trade receivables, loans and other receivables that are held for the purpose of collecting the contractual cash flows where the cash flows are solely payments of principal and interest, that are not provided at below-market interest rates, are subsequently measured at amortised cost using the effective interest method adjusted for any loss allowance. Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any impairment.

Accounting Policy (cont'd)

Impairment of Financial assets

The simplified approach for trade, contract and lease receivables is used. This approach always measures the loss allowance as the amount equal to the lifetime expected credit losses. A write-off constitutes a de-recognition event where the write off directly reduces the gross carrying amount of the financial asset.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.1C: Other Investments				
Listed companies	**109,221**	83,480	**109,221**	83,480
Unlisted companies	**124,796**	92,523	**113,288**	76,865
Innovation Fund	**771,102**	610,863	**142,712**	97,698
Uniseed Investment	**6,413**	9,952	**6,413**	9,952
Total investments	**1,011,532**	796,818	**371,634**	267,995

Movements within each of the above categories between the 2023 and 2022 financial years are attributed to either purchases or disposal of investments or changes in the fair value of investments.

Accounting Policy

CSIRO has investments in a number of unlisted start-up companies over which it does not have significant influence or control. These companies have been established for the purpose of commercialisation of CSIRO's intellectual property. CSIRO also has some investments in companies which have been listed on the Australian Stock Exchange and in the Uniseed trust. CSIRO, as part of the National Innovation and Science Agenda, has also established and invested in an Innovation Fund to invest in the development of early stage technology opportunities. Refer to Note 3.4 Related Party Disclosures for more information.

CSIRO's other investments are accounted for in accordance with AASB 9 *Financial Instruments*. See note 4.2 and 4.3 for further information.

2.2. Non-Financial Assets

Note 2.2A: Reconciliation of the opening and closing balances of Land and Buildings, Plant and Equipment and Intangibles

(a) Reconciliation of the opening and closing balances of Land and Buildings, Plant and Equipment and Intangibles for 2023 - Consolidated

	Land $'000	Buildings $'000	Total land and buildings $'000	Plant and equipment $'000	Heritage and cultural $'000	Intangibles $'000	Total $'000
As at 1 July 2022							
Gross book value	**415,857**	**3,029,676**	**3,445,533**	**1,380,256**	**150,061**	**62,623**	**5,038,473**
Accumulated depreciation and amortisation	**-**	**(1,864,091)**	**(1,864,091)**	**(816,714)**	**(140,109)**	**(44,121)**	**(2,865,035)**
Net book value as at 1 July 2022	**415,857**	**1,165,585**	**1,581,442**	**563,542**	**9,952**	**18,502**	**2,173,438**
Additions:							
By purchase	**-**	**79,696**	**79,696**	**81,396**	**-**	**1,595**	**162,687**
Right-of-use assets	**-**	**13,456**	**13,456**	**69**	**-**	**-**	**13,525**
Assets first recognised through a gain in net cost of services	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Reclassification	**5,927**	**13,654**	**19,581**	**(298)**	**208**	**-**	**19,491**
Revaluations recognised in other comprehensive income	**-**	**107,032**	**107,032**	**-**	**-**	**-**	**107,032**
Impairments recognised in net cost of services	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Write-offs and impairments on right-of-use assets recognised in net cost of services	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Depreciation expense	**-**	**(71,102)**	**(71,102)**	**(76,008)**	**-**	**(3,077)**	**(150,187)**
Depreciation on right-of-use assets	**-**	**(17,351)**	**(17,351)**	**(819)**	**-**	**-**	**(18,170)**
Total depreciation and amortisation	**-**	**(88,453)**	**(88,453)**	**(76,827)**	**-**	**(3,077)**	**(168,357)**
Disposals	**-**	**(16,545)**	**(16,545)**	**(4,627)**	**-**	**-**	**(21,172)**
Disposals of Right-of-Use Assets	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Other movements	**-**	**(111)**	**(111)**	**(37)**	**-**	**-**	**(148)**
Assets held for sale or in a disposal group held for sale	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Other movements of right-of-use assets	**-**	**(19,494)**	**(19,494)**	**-**	**-**	**-**	**(19,494)**
Net book value as at 30 June 2023	**421,784**	**1,254,820**	**1,676,604**	**563,218**	**10,160**	**17,020**	**2,267,002**
Net book value as at 30 June 2023 represented by:							
Gross book value	**421,784**	**3,188,990**	**3,610,774**	**1,412,685**	**150,269**	**64,218**	**5,237,946**
Accumulated depreciation and amortisation	**-**	**(1,934,170)**	**(1,934,170)**	**(849,467)**	**(140,109)**	**(47,198)**	**(2,970,944)**
Total as at 30 June 2023	**421,784**	**1,254,820**	**1,676,604**	**563,218**	**10,160**	**17,020**	**2,267,002**
Carrying amount of right-of-use assets	**-**	**106,768**	**106,768**	**1,208**	**-**	**-**	**107,976**

All revaluations were conducted in line with the revaluation policy stated with this note.

(b) Reconciliation of the opening and closing balances of Land and Buildings, Plant and Equipment and Intangibles for 2023 - CSIRO

	Land $'000	Buildings $'000	Total land and buildings $'000	Plant and equipment $'000	Heritage and cultural $'000	Intangibles $'000	Total $'000
As at 1 July 2022							
Gross book value	**415,857**	**3,027,973**	**3,443,830**	**1,379,482**	**150,061**	**62,623**	**5,035,996**
Accumulated depreciation and amortisation	-	**(1,862,577)**	**(1,862,577)**	**(815,977)**	**(140,109)**	**(44,121)**	**(2,862,784)**
Net book value as at 1 July 2022	**415,857**	**1,165,396**	**1,581,253**	**563,505**	**9,952**	**18,502**	**2,173,212**
Additions							
By purchase	-	**79,696**	**79,696**	**81,396**	-	**1,595**	**162,687**
Right-of-use assets	-	**13,456**	**13,456**	**69**	-	-	**13,525**
Assets first recognised through a gain in net cost of services	-	-	-	-	-	-	-
Reclassification	**5,927**	**13,654**	**19,581**	**(298)**	**208**	-	**19,491**
Revaluations recognised in other comprehensive income	-	**107,032**	**107,032**	-	-	-	**107,032**
Impairments recognised in net cost of services	-	-	-	-	-	-	-
Write-offs and impairments on right-of-use assets recognised in net cost of services	-	-	-	-	-	-	-
Depreciation expense	-	**(71,102)**	**(71,102)**	**(76,008)**	-	**(3,077)**	**(150,187)**
Depreciation on right-of-use assets	-	**(17,273)**	**(17,273)**	**(819)**	-	-	**(18,092)**
Total depreciation and amortisation	-	**(88,375)**	**(88,375)**	**(76,827)**	-	**(3,077)**	**(168,279)**
Disposals	-	**(16,545)**	**(16,545)**	**(4,627)**	-	-	**(21,172)**
Disposals of Right-of-Use Assets	-	-	-	-	-	-	-
Other movements	-	-	-	-	-	-	-
Assets held for sale or in a disposal group held for sale	-	-	-				-
Other movements of right-of-use assets	-	**(19,494)**	**(19,494)**	-	-	-	**(19,494)**
Net book value as at 30 June 2023	**421,784**	**1,254,820**	**1,676,604**	**563,218**	**10,160**	**17,020**	**2,267,002**
Net book value as at 30 June 2023 represented by:							
Gross book value	**421,784**	**3,188,990**	**3,610,774**	**1,412,685**	**150,269**	**64,218**	**5,237,946**
Accumulated depreciation and amortisation	-	**(1,934,170)**	**(1,934,170)**	**(849,467)**	**(140,109)**	**(47,198)**	**(2,970,944)**
Total as at 30 June 2023	**421,784**	**1,254,820**	**1,676,604**	**563,218**	**10,160**	**17,020**	**2,267,002**
Carrying amount of right-of-use assets	-	**106,768**	**106,768**	**1,208**	-	-	**107,976**

All revaluations were conducted in line with the revaluation policy stated with this note.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Contractual commitments for fixed assets:				
Capital commitments comprise outstanding payments for buildings under construction and commitments for purchase of plant and equipment. Commitments are reported inclusive of GST.				
Land and buildings	**135,085**	124,218	**134,284**	124,218
Plant and equipment	**11,089**	14,710	**11,089**	14,710
Intangible Assets	**1,186**	-	**1,186**	-
Total commitments payable	**147,360**	138,928	**146,559**	138,928
Within 1 year	**100,206**	132,036	**99,735**	132,036
Between 1 to 5 years	**38,462**	6,892	**38,132**	6,892
More than 5 years	**8,692**	-	**8,692**	-
Total commitments payable	**147,360**	138,928	**146,559**	138,928

Accounting Policy

Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Assets acquired at no cost or for nominal considerations are initially recognised as assets and revenues at their fair value at the date of acquisition.

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the Statement of Financial Position, except for purchases costing less than $5,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Lease Right of Use (ROU) Assets

Leased ROU assets are capitalised at the commencement date of the lease and comprise of the initial lease liability amount, initial direct costs incurred when entering into the lease less any lease incentives received. These assets are accounted for by CSIRO as separate asset classes to corresponding assets owned outright, but included in the same column as where the corresponding underlying assets would be presented if they were owned.

Revaluations

Following initial recognition at cost, property, plant and equipment (excluding intangibles and ROU assets) are carried at fair value less accumulated depreciation and accumulated impairment losses. Valuations are conducted with sufficient frequency to ensure the carrying amount of assets do not differ materially from the assets' fair value as at reporting date. Valuations are conducted every three years for assets that fall within the following classes - land, buildings, plant and equipment and heritage and cultural. Investment properties are valued every year.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under asset revaluation reserve, except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised in the surplus or deficit. Revaluation decrements for a class of assets are recognised directly through the statement of comprehensive income except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is restated proportionately with the change in the gross carrying amount of the asset so that the carrying amount of the asset after revaluation equals its revalued amount.

Fair value for each class of asset subject to the fair value model is determined as follows:

- Land, which will continue to be used to further the Group's objectives for research activity, is valued by independent valuers at fair value (highest and best use). Highest and best use is determined from the perspective of market participants. An entity's current use of a non-financial asset is presumed to be its highest and best use unless market or other factors suggest otherwise. Land underwent a full revaluation as at 30 June 2021 by Jones Lang LaSalle (JLL).
- Buildings and leasehold improvements, which will continue to be used to further the Group's objectives, are valued by independent valuers at fair value (highest and best use). Building valuations include plant, fit-outs, fixtures and fittings, which form an integral part of buildings. Buildings underwent a full revaluation as at 30 June 2021 by JLL. A desktop valuation was conducted as at 30 June 2023 by JLL.
- Plant and equipment which will continue to be used to further the Group's objectives, are valued by independent valuers at fair value (highest and best use). Plant and equipment underwent a full revaluation as at 30 June 2022 by JLL.

Accounting Policy (cont'd)

- Properties held for sale are valued at the lower of their carrying amount and fair value less cost to sell. An assessment is undertaken annually of any properties held for sale.
- Heritage and cultural assets are valued by independent valuers at their depreciated replacement cost. Heritage and cultural assets underwent a full revaluation as at 30 June 2021 by JLL.

In addition to independent valuations conducted, CSIRO makes an internal assessment at balance date considering any major events, market changes or indicators of impairment that may impact on fair value.

Depreciation and Amortisation

Depreciable property, plant and equipment assets are written-off to their estimated residual values over their estimated useful lives using, in all cases, the straight-line method of depreciation. Leasehold improvements are depreciated on a straight-line basis over the lesser of the estimated useful life of the improvements or the unexpired period of the lease. Land is not depreciated. The depreciation rates for ROU assets are based on the commencement date to the earlier of the end of the useful life of the ROU asset or the end of the lease term.

Depreciation/amortisation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives for 2022-23 and 2021-22:

Asset Class	Class of Depreciable Asset	
Land and Buildings	Buildings on freehold land	40 to 80 years
Land and Buildings	Leasehold Improvements	Lease term
Right of Use Asset	Buildings under lease	Lease term
Right of Use Asset	Equipment under lease	Lease term
Plant and Equipment	Passenger vehicles	7 years
Plant and Equipment	Agricultural and transport equipment	8 to 20 years
Plant and Equipment	Computer Equipment	2 to 5 years
Plant and Equipment	Scientific Equipment	5 to 20 years
Plant and Equipment	Furniture and office equipment	5 to 15 years
Plant and Equipment	Workshop equipment	20 to 25 years
Plant and Equipment	Research vessel	25 years
Plant and Equipment	Australia telescope	15 to 58 years
Heritage and Cultural	Heritage and Cultural	Indefinite

Impairment

All assets were assessed for impairment as at 30 June 2023. Where indicators of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if the entity were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Heritage and Cultural Assets

Heritage and cultural items include buildings of historical or cultural significance. CSIRO has classified them as heritage and cultural assets as they are primarily used for purposes that relate to their cultural significance and original purpose. Heritage and cultural assets are stored and managed in ways to preserve their heritage and cultural value over time. Where conservation and preservation activities, specified in an asset's Heritage Management Plan, demonstrate that an asset will be maintained for an indefinite period, these items are considered to have indefinite useful lives and therefore, not subject to depreciation. Copies of the Heritage Management Plans may be obtained by contacting enquiries@csiro.au.

Intangibles

Intangibles are internally developed and acquired software for internal use. These assets are carried at cost, less accumulated amortisation and impairment losses, except where the estimated cost of software is less than the $250,000 threshold and expensed in the year of acquisition. Software are amortised on a straight-line basis over their anticipated useful lives. The useful lives are 2 to 10 years (2020-21: 2 to 10 years). All software assets were assessed for indications of impairment as at 30 June 2023.

Accounting Policy (cont'd)

Properties Held for Sale

Properties which are expected to be recovered primarily through sale rather than through continuing use are classified as 'properties held for sale'. Immediately before classification, the properties are remeasured in accordance with the Group's accounting policies. Thereafter, at reporting date the properties are measured at the lower of their carrying amount and fair value less cost to sell.

Impairment losses on initial classification as held for sale and subsequent gains or losses on re-measurement are recognised in the Statement of Comprehensive Income.

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.2B: Investment properties				
Reconciliation of the opening and closing balances of investment properties				
As at 1 July	**50,747**	49,016	**50,747**	49,016
Net gain/(loss) from fair value adjustments	**(4,606)**	1,731	**(4,606)**	1,731
Total as at 30 June	**46,141**	50,747	**46,141**	50,747

Accounting Policy

Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are stated at fair value. Gains or losses arising from changes in the fair values of investment properties are recognised in profit or loss in the year in which they arise.

Investment properties are derecognised either when they have been disposed of or when the investment property is permanently withdrawn from use and no future economic benefit is expected from its disposal. Any gain or losses on disposal of an investment property are recognised in profit or loss in the year of disposal.

Investment properties were valued as at 30 June 2023 by JLL utilising available market evidence, cross referenced capitalisation of net income and discounted cash flows approaches. Rental income from investment properties is included in the lease income disclosed in Note 1.2C and was $3.3m for 2023 (2022: $3.2m). Both investment properties are owned by CSIRO.

Note 2.2C: Other non-financial assets				
Prepayments	**30,596**	11,886	**30,354**	11,644
Total other non-financial assets	**30,596**	11,886	**30,354**	11,644

2.3. Payables

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.3A: Suppliers				
Suppliers payable	**106,167**	65,847	**105,088**	65,559
Contract liabilities	**279,980**	245,185	**279,980**	244,477
Total	**386,147**	311,032	**385,068**	310,036

Refer to Note 2.1B for information relating to contract assets.

Accounting Policy

Contract liabilities are associated with consideration that has been received from the customer but services are yet to be performed by the Group.

Note 2.3B: Other Payables				
Accrued salaries and wages	**22,944**	18,019	**22,853**	17,996
Other creditors and accrued expenses	**143**	338	**126**	101
GST payable to ATO	**(528)**	-	**97**	-
Total other payables	**22,559**	18,357	**23,076**	18,097

Note 2.3C: Deposits				
STEM Academy	**13,876**	16,182	**13,876**	16,182
Other	**3,135**	2,715	**3,445**	3,547
Total deposits	**17,011**	18,897	**17,321**	19,729

Deposits represent monies held on behalf of third parties. If the amounts are not spent for their specified purpose they will be returned to the third party.

2.4. Interest Bearing Liabilities

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.4: Leases				
Lease liabilities				
Buildings	**57,047**	61,661	**57,047**	61,537
Plant and equipment	**1,240**	1,992	**1,240**	1,992
Total Leases	**58,287**	63,653	**58,287**	63,529
Maturity analysis - contractual undiscounted cash flows				
Within 1 year	**15,805**	21,286	**15,805**	18,143
Between 1 to 5 years	**38,706**	43,846	**38,706**	43,846
More than 5 years	**6,381**	4,264	**6,381**	4,264
Total Leases	**60,892**	69,396	**60,892**	66,253

The cash outflow for leases for the year ended 30 June 2023 was $20.6m (2022: $18.1m) for CSIRO and $20.7m for the Group (2021: $18.7m). Both the Group and CSIRO have multiple leasing arrangements relating to land, buildings and equipment.

The above lease disclosures should be read in conjunction with the accompanying notes 1.1B, 1.1C, 1.2C, 2.2A.

Accounting Policy

For all new contracts entered into, CSIRO considers whether the contract is, or contains, a lease. A lease is defined as 'a contract, or part of a contract, that conveys the right to use an asset (the underlying asset) for a period of time in exchange for consideration'.

Once it has been determined that a contract is, or contains a lease, the lease liability is initially measured at the present value of the lease payments unpaid at the commencement date, discounted using the interest rate implicit in the lease, if that rate is readily determinable, or the incremental borrowing rate.

Subsequent to initial measurement, the liability will be reduced for payments made and increased for interest. It is remeasured to reflect any reassessment or modification to the lease. When the lease liability is remeasured, the corresponding adjustment is reflected in the right-of-use asset or profit and loss depending on the nature of the reassessment or modification.

2.5. Other Provisions

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 2.5: Provision for Remediation				
Provision for Remediation	**64,606**	65,366	**64,606**	65,366
Total Provision for Remediation	**64,606**	65,366	**64,606**	65,366
Provision for Remediation Reconciliation				
As at 1 July	**65,366**	62,776	**65,366**	62,776
Additional provisions made	**5,644**	3,567	**5,644**	3,567
Amounts used	**(6,007)**	(1,049)	**(6,007)**	(1,049)
Amounts reversed	**-**	(34)	**-**	(34)
Unwinding of discount	**(397)**	106	**(397)**	106
Total as at 30 June	**64,606**	65,366	**64,606**	65,366

CSIRO currently has provisions for remediation associated with:

- Restoring land and decontaminating land; and
- Restoring leased CSIRO sites to their original condition at the conclusion of the lease, represented in the agreements for the leasing of the premises.

Accounting Judgements and Estimates

The provision for restoring and decontaminating land is based on estimates provided by internal and external qualified experts. The provision is predominately based on externally provided costings, with additional amounts derived from comparable remediation works. The provision is based on the scope of work as it currently stands as at 30 June 2023, where the effect of the time value of money is deemed immaterial. As remediation work progress, the scope and costs may be subject to change. The work is expected to take several years to reach completion.

The provision for the makegood/restoration costs at leased CSIRO sites are based on rates provided by an external valuer.

3. People and Relationships

This section describes a range of employment and post employment benefits provided to our people and our relationship with other key people.

3.1. Employee Provisions

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 3.1A: Employee Provisions				
Annual leave	**71,316**	70,426	**71,214**	70,164
Long service leave	**164,689**	144,580	**164,689**	144,580
Separation and Redundancy	**2,277**	3,414	**2,277**	3,414
Severance pay	**9,924**	8,032	**9,924**	8,032
Total employee provisions	**248,206**	226,452	**248,104**	226,190

Accounting Policy (including Accounting Judgements and Estimates)

Liabilities for short-term employee benefits (as defined in AASB 119 *Employee Benefits*) and termination benefits due within twelve months of the end of the reporting period are measured at their nominal amounts. The nominal amount is calculated with regard to the rate expected to be paid on settlement of the liability.

Other long-term employee benefit liabilities are measured at the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

Leave

The liability for employee benefits includes provisions for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will apply at the time the leave is taken, including the employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The liability at 30 June 2023 for long service leave and annual leave has been determined by the short hand method and reference to the work of the Australian Government Actuary (AGA). The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Separation and Redundancy

Provision is made for separation and redundancy benefit payments. A CSIRO plan of termination is binding when the following criteria are met:

- actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made;
- the plan identifies the number of employees whose employment is to be terminated; and
- the plan established the termination benefits that employees will receive.

Superannuation

Employees of CSIRO are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the PSS accumulation plan (PSSap) or industry schemes. The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported in the Department of Finance's administered schedules and notes.

CSIRO makes employer contributions to the employee superannuation schemes at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of the Group's employees. CSIRO accounts for the contributions as if they were contributions to defined contribution plans.

The liability for superannuation recognised as at 30 June 2023 represents outstanding contributions for the financial year.

3.2 (a) Key Management Personnel Remuneration

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of CSIRO, directly or indirectly, including any director of CSIRO. Those key management personnel along with their remuneration are reported in table below.

		Short Term Benefits			Post Employment Benefits	Other Long Term Benefits		Termination Benefits	Total Remuneration
Name	Position	Base Salary $	Salary at risk payments $	Other Benefits and Allowances $	Super-annuation Contributions $	Long Service Leave $	Other Long Term Benefits $	$	$
Larry Marshall	Chief Executive	713,957	210,681	25,016	25,292	24,683	-	-	999,629
Tom Munyard	Chief Operating Officer	351,592	-	25,016	60,343	12,699	-	-	449,650
Peter Mayfield	Executive Director - Environment, Energy & Resources	515,960	13,914	25,016	75,969	15,745	-	-	646,604
Kirsten Rose	Executive Director - Future Industries	572,011	13,914	25,016	28,970	7,826	-	-	647,737
Elanor Huntington	Executive Director - Digital, National Facilities and Collections	457,080	-	25,016	82,586	5,201	-	-	569,883
Total remuneration		2,610,600	238,509	125,080	273,160	66,154	-	-	3,313,503
CSIRO Subsidiary Key Management Personnel									
Orlando Jimenez	Fundacion CEO	321,039	-	4,877	-	-	-	-	325,916
Total remuneration for Fundacion		321,039	-	4,877	-	-	-	-	325,916
Total Consolidated		2,931,639	238,509	129,957	273,160	66,154	-	-	3,639,419

This note has been prepared on an accrual basis for substantive and long term acting senior management personnel during the period. Base Salary includes annual leave accrued during the period. The Key Management Personnel disclosed are those executive employees who have been determined to be key to developing and implementing the science strategy for CSIRO in accordance with its Corporate Plan and the Chief Operating Officer (as a central coordination executive for strategy).

Short term benefits includes:

- Base salary includes salary paid and accrued, salary paid while on annual leave, salary paid while on personal leave, annual leave accrued and higher duties allowances.
- Salary at risk payments represent remuneration amounts at risk within employment contracts. Actual performance payment amounts are decided by the board following the end of year.
- Other benefits and allowances include monetary benefits such as car allowances.

Superannuation contributions includes the CSIRO's superannuation contributions, including productivity componenents, for the period.

Other long term benefits includes long service leave comprises the amount of leave accrued, leave taken in the period and the impacts of a reduction in the net discount rate. Other long term benefits is the amount of long service leave accrued and deferred.

Termination payments are included in the above table based on the relevant period in which the decision was made to make the payment.

3.2 (b) Senior Executive Staff Remuneration

Senior Executive Staff Remuneration		Short Term Benefits			Post Employment Benefits	Other Long Term Benefits			
Remuneration Band	Number of Senior Executive Staff	Average Base Salary $	Average salary at risk payments $	Average Other Benefits and Allowances $	Average Super-annuation Contributions $	Average Long Service Leave $	Average Other Long Term Benefits $	Average Termination Benefits $	Average Total Remuneration $
$0 - $220,000	4	129,041	-	7,955	19,366	12,473	-	-	168,835
$220,001 - $245,000	1	161,575	8,750	18,254	20,647	25,016			234,242
$320,001 - $345,000	1	263,196	-	25,016	39,098	10,043	-	-	337,353
$345,001 - $370,000	1	261,580	7,750	25,016	48,493	16,220	-	-	359,059
$370,001 - $395,000	4	295,829	-	27,661	43,278	12,860	-	-	379,628
$395,001 - $420,000	2	322,234	-	25,016	50,854	20,133	-	-	418,237
$420,001 - $445,000	1	321,424	-	25,016	58,233	31,485	-	-	436,158
$445,001 - $470,000	1	355,807	-	25,016	68,894	12,586	-	-	462,303
$470,001 - $495,000	1	399,664	13,914	25,016	29,069	5,290	-	-	472,953
$520,001 - $545,000	1	456,245	-	25,016	28,991	14,152	-	-	524,404
$570,001 - $595,000	1	480,429	-	25,016	25,606	43,786	-	-	574,837

This table reports the average total average remuneration of senior executives who received remuneration during the reporting period. This table has been prepared on an accrual basis for substantive and long term acting senior executive personnel during the period.

Short term benefits includes:

- The average base salary includes salary including paid and accrued, salary paid while on annual leave, salary paid while on personal leave, annual leave accrued and higher duties allowances.
- The average salary at risk payments which represent remuneration amounts at risk within employment contracts.
- The average of other benefits and allowances include monetary benefits such as car allowances.

Superannuation contributions includes the average of CSIRO's superannuation contributions, including productivity componenents, for the period.

Other long term benefits includes the average of long service leave comprises the amount of leave accrued, leave taken in the period and the impacts of a reduction in the net discount rate. Other long term benefits is the average amount of long service leave accrued and deferred.

Termination payments are included in the above table based on the average amount and the relevant period in which the decision was made to make the payment.

3.2. (c) Remuneration of highly paid staff

Remuneration of other highly paid staff		Short Term Benefits			Post Employment	Other Long Term Benefits		Average Termination Benefits	Average Total Remuneration
Remuneration Band	Number of Highly Paid Staff	Average Base Salary $	Average salary at risk payments $	Average Other Benefits and Allowances $	Average Super-annuation Contributions $	Average Long Service Leave $	Average Other Long Term Benefits $	$	$
$240,000 - $245,000	17	165,301	638	15,364	26,885	9,935	-	25,068	243,191
$245,001 - $270,000	55	197,013	1,828	9,566	33,881	10,384	-	3,646	256,318
$270,001 - $295,000	42	215,737	5,801	17,942	32,390	9,450	-	-	281,320
$295,001 - $320,000	31	214,540	7,239	20,338	36,455	15,069	-	12,992	306,633
$320,001 - $345,000	15	234,421	9,167	20,910	37,203	15,069	-	15,532	332,302
$345,001 - $370,000	2	271,961	5,770	25,016	42,050	13,130	-	-	357,927
$370,001 - $395,000	3	231,522	3,650	26,961	34,796	11,931	-	72,673	381,533
$395,001 - $420,000	5	291,688	27,572	20,013	47,835	19,263	-	-	406,371
$445,001 - $470,000	1	381,669	-	7,068	57,604	4,441	-	-	450,782

This table reports the average total average remuneration of highly paid staff who received remuneration during the reporting period over the reporting threshold. This table has been prepared on an accrual basis.

Aveerage short term benefits includes:

- The average base salary includes salary including paid and accrued, salary paid while on annual leave, salary paid while on personal leave, annual leave accrued and higher duties allowances.
- The average salary at risk payments which represent remuneration amounts at risk within employment contracts.
- The average of other benefits and allowances include monetary benefits such as car allowances.

Superannuation contributions includes the average of CSIRO's superannuation contributions, including productivity componenents, for the period.

Other long term benefits includes the average of long service leave comprises the amount of leave accrued, leave taken in the period and the impacts of a reduction in the net discount rate. Other long term benefits is the average amount of long service leave accrued and deferred.

Termination payments are included in the above table based on the average amount and the relevant period in which the decision was made to make the payment.

3.3. Remuneration of Board Members

		Short Term Benefits		Post employment benefits	
Board member	Term	Base Salary $	Other benefits and allowances $	Super Contributions $	Total 2022-23 Remuneration $
Michele Allan	Reappointed 05.05.19 - 04.05.24	**77,119**	**16,774**	**9,859**	**103,752**
Alex Brown	Appointed 16.03.23 - 15.03.28	**19,206**	**-**	**2,017**	**21,223**
Drew Clarke	Appointed 24.08.17 - 23.08.22	**11,228**	**1,219**	**1,307**	**13,754**
Edwina Cornish	Reappointed 26.11.20 - 25.11.23	**77,119**	**20,409**	**10,241**	**107,769**
Kathryn Fagg (Chair)	Appointed 14.10.21 - 13.10.26	**154,228**	**-**	**16,194**	**170,422**
David Knox	Reappointed 14.10.21 - 13.10.25	**77,119**	**12,016**	**9,359**	**98,494**
Ian Macfarlane	Appointed 14.10.21 - 13.10.24	**77,119**	**-**	**8,098**	**85,217**
Michelle Simmons	Appointed 17.09.20 - 19.01.2023	**41,071**	**-**	**4,312**	**45,383**
Total remuneration for CSIRO Board Members		**534,209**	**50,418**	**61,387**	**646,014**
Board Members (Chile Fundacion)					
Claudia Bobadilla	Appointed 15.03.17 – 31.12.22	**24,133**	**-**	**-**	**24,133**
Maria Del Rosario Navarro	Appointed 13.09.19 - 13.09.24	**24,133**	**-**	**-**	**24,133**
Total remuneration for Board Members (Chile Fundacion)		**48,266**	**-**	**-**	**48,266**
Total Consolidated Remuneration for CSIRO Group		**582,475**	**50,418**	**61,387**	**694,280**

The remuneration of the Chief Executive, who is also a CSIRO Board Member is reported under Note 3.2 Key Management Personnel Remuneration. Other benefits and allowances included above relate to positions on other subcommittees.

Tanya Monro was appointed as the Chief Defence Scientist since 2019 and continues to be a CSIRO board member but is no longer entitled to remuneration based on the *Remuneration Tribunal Act 1973.*

The Board members of Chile Fundacion receive nil remuneration for their services as Board members, but did receive remuneration for other services provided to Chile Fundacion.

3.4. Related Party Disclosures

(a) Controlled Entities

The Science and Industry Endowment Fund ('SIEF') was established under the *Science and Industry Endowment Act 1926*. The principal activity of the SIEF Trust is to provide assistance to persons engaged in scientific research and in training of students in scientific research. The SIEF Trustee is the CSIRO Chief Executive and SIEF is a wholly controlled entity. The SIEF's separate financial statements are reported in the CSIRO Annual Report.

Chile Research Fundación ('Fundación') was established in October 2013. The Fundación is a controlled entity governed by a Board in accordance with the Constitution of the Fundación. The Fundación is working with industry and leading Chilean Universities to develop cutting-edge technologies to reduce the environmental impact of mining and increase productivity. The Fundación is in the early stages of winding down its operations.

National ICT Australia ('NICTA') is Australia's ICT Research Centre of Excellence and undertakes internationally recognised research in partnership with industry, government and researchers to create national benefit and wealth for Australia. NICTA is the parent entity of NICTA IPR Pty Ltd and a small number of minor proprietary limited companies that exist to hold intellectual property and commercialise research. CSIRO obtained full control of NICTA on 28 August 2015, when the members of the NICTA Board resolved to adopt a revised company constitution which provided CSIRO with effective control over NICTA. The NICTA Board is currently in discussions about the future of NICTA in its current form, with a view to the potential winding down of the Group. This decision has not yet been confirmed but is in planning stages.

CSIRO has established an Innovation Fund with Commonwealth funding support to invest in the development of early stage technology opportunities from the public research sector, to increase their translation into commercial opportunities to be taken up by Australian industry. The Fund has been established through a structure of entities whose purpose is to manage and operate the Fund.

The entities that comprise the Innovation Fund are:

- CSIRO Innovation Fund 1, LP is an incorporated limited partnership formed under the *Partnership Act 1892 (NSW)*. It is unconditionally registered by Industry Innovation and Science Australia as an Early Stage Venture Capital Limited Partnership (ESVCLP). It was established in January 2017.
- CSIRO Management Partnership, LP is an incorporated limited partnership formed under the *Partnership Act 1892 (NSW)*. It was established in January 2017 as a Venture Capital Management Partnership and acts as the general partner of the CSIRO Innovation Fund 1, LP.
- CSIRO General Partner 2 Pty Ltd was established in December 2016 and is a small proprietary company limited by shares, which are solely held by CSIRO. This company acts as the general partner of CSIRO Management Partnership, LP.
- CSIRO Fund of Funds, LP is an incorporated limited partnership formed under the *Partnership Act 1892 (NSW)* and is registered by Industry Innovation and Science Australia as an Australian Venture Capital Fund of Funds. It was established in May 2016 and its limited partner is CSIRO. The Fund is also a limited partner of CSIRO Innovation Fund 1, LP.
- CSIRO Innovation Holding Trust is a trust established in July 2018. Its sole Member is CSIRO and it is also a Member of the CSIRO Innovation Follow-On Fund 1, Main Sequence Parallel Fund and Main Sequence Opportunity Fund 3.
- CSIRO General Partner Pty Ltd was established in May 2016 and is a small proprietary company limited by shares, which are solely held by CSIRO. It acts as the general partner of CSIRO Fund of Funds LP and is also the trustee of CSIRO Innovation Holding Trust. CSIRO General Partner Pty Ltd does not earn any income in the course of its business, as a result, it relies on CSIRO to pay any reasonable expenses it incurs including, audit and regulatory expenses.
- CSIRO Financial Services Pty Ltd was established in December 2015 and is a small proprietary company limited by shares, which are solely held by CSIRO. The company has been issued an Australian Financial Services License by ASIC and acts as Manager of various funds under management .

- CSIRO Follow-On Services Pty Ltd was established in April 2018 and is a small proprietary company limited by shares, which are solely held by CSIRO. It serves as trustee of the CSIRO Innovation Follow-On Fund 1.
- CSIRO Innovation Follow-On Fund 1 was established October 2018 and is structured as a managed investment trust, formed to provide follow-on investment to companies supported by CSIRO Innovation Fund 1, LP.
- CSIRO Innovation Services Pty Ltd was established in October 2016 and is a small proprietary company limited by shares, which are solely held by CSIRO. It acts as trustee of:
    - discretionary trusts (see below) established to distribute certain returns from CSIRO Innovation Fund 1, LP, CSIRO Innovation Fund 2, LP and Main Sequence Core Fund 3, LP; and
    - unit trusts (see below) established to distribute certain returns form CSIRO Innovation Follow-On Fund 1, CSIRO Innovation Follow-on Fund 2 and CSIRO Innovation Coinvestment Fund (Class A units).
- CSIRO Innovation Fund 2, LP is an incorporated limited partnership formed under the *Partnership Act 1892* (NSW). It is unconditionally registered by Industry Innovation and Science Australia as an Early Stage Venture Capital Limited Partnership (ESVCLP). It was established in March 2020.
- CSIRO Management Partnership 2, LP is an incorporated limited partnership formed under the *Partnership Act 1892 (NSW)*. It was established in March 2020 as a Venture Capital Management Partnership and acts as the general partner of the CSIRO Innovation Fund 2, LP.
- CSIROGP Fund 2 Pty Ltd was established in March 2020 and is a small proprietary company limited by shares, which are solely held by CSIRO. This company acts as the general partner of CSIRO Management Partnership Pty 2, LP.
- CSIRO Follow-On Services 2 Pty Ltd was established in March 2020 and is a small proprietary company limited by shares, which are solely held by CSIRO. It will serve as the trustee of CSIRO Innovation Follow-On Fund 2.
- CSIRO Custodial Services Pty Ltd was established in April 2020 for the purpose of providing custodial services under an Australian Financial Services Licence to the Innovation Fund entities.
- CSIRO Innovation Follow-on Fund 2 was established November 2021 and is structured as a managed investment trust, formed to provide follow-on investment to companies supported by CSIRO Innovation Fund 1, LP and CSIRO Innovation Fund 2, LP.
- CSIRO Innovation Coinvestment Services Pty Ltd was established in September 2021 and is a small proprietary company limited by shares, which are solely held by CSIRO. It serves as the trustee of CSIRO Innovation Coinvestment Fund.
- CSIRO Innovation Coinvestment Fund was established March 2022 and is structured as an attribution managed investment trust, formed to invest with CSIRO Innovation Follow-on Fund 2 and to provide follow-on investment to companies supported by CSIRO Innovation Fund 1, LP and CSIRO Innovation Fund 2, LP.
- Main Sequence Innovation Fund 3, LP is an incorporated limited partnership formed under the *Partnership Act 1892* (NSW). It is conditionally registered by Industry Innovation and Science Australia as an Early Stage Venture Capital Limited Partnership (ESVCLP). It was established in November 2022.
- Main Sequence Management Partnership 3, LP is an incorporated limited partnership formed under the *Partnership Act 1892 (NSW)*. It was established in November 2022 as a Venture Capital Management Partnership. This company acts as the general partner of Main Sequence Innovation Fund 3, LP.
- Main Sequence GP Fund 3 Pty Ltd was established in October 2022 and is a small proprietary company limited by shares, which are solely held by CSIRO. This company acts as the general partner of CSIRO Management Partnership Pty 3, LP.
- Main Sequence Parallel Fund Pty Ltd was established in October 2022 and is a is a small proprietary company limited by shares, solely held by CSIRO. It serves as the Trustee of Main Sequence Parallel Fund.
- Main Sequence Parallel Fund was established February 2023 and is structured as a managed investment trust, formed to coinvest alongside Main Sequence Fund 3.
- Opportunity Fund 3 Pty Ltd was established in October 2022 and is a small proprietary company limited by shares, which are solely held by CSIRO. This company will act as the trustee of Main Sequence Opportunity Fund 3.
- Opportunity Fund 3 was established in March 2023 and will be a managed investment trust with the purpose to make follow-on investments from Main Sequence Innovation Fund 3, LP and Main Sequence Parallel Fund.
- Main Sequence NGS Pty Ltd was established in October 2022 and is a small proprietary company limited by shares, which are solely held by CSIRO. It serves as the trustee of the Main Sequence NGS Coinvestment Fund.
- Main Sequence NGS Coinvestment Fund was established in November 2022 as a managed investment trust to coinvest alongside certain MSV funds.

- Main Sequence Innovation Services Pty Ltd was established in November 2022 for the purpose of employing team members directly involved in investment activity, with such staff to be seconded to CSIROFS. CSIRO has transferred ownership of Main Sequence Innovation Services Pty Ltd to the Main Sequence partners in June 2023.

All of the above Innovation Fund related companies are under the sole control of the CSIRO as at 30 June 2023, with the exception of Main Sequence Innovation Services Pty Ltd. The above entities (with the exception of CSIRO Financial Services Pty Ltd; CSIRO Innovation Services Pty Ltd; and CSIRO Custodial Services Pty Ltd) sit outside the General Government Sector.

CSIRO USA LLC and CSIRO Innovations LLC were established in February 2017 to support the establishment of a CSIRO presence in the United States of America. Both entities are incorporated within Delaware and are wholly controlled by the CSIRO.

(b) Related party relationships

CSIRO is an Australian Government controlled entity. Related parties to CSIRO are the Board, Key Management Personnel including the Portfolio Minister and Executive, and other Australian Government entities.

Transactions with related parties:

Given the breadth of Government activities, related parties may transact with the government sector in the same capacity as ordinary citizens. Such transactions include the payment or refund of taxes, receipt of a Medicare rebate or higher education loans. These transactions have not been separately disclosed in this note.

Significant transactions with related parties can include the payments of grants or loans, purchases of goods and services, asset purchases, sales transfers or leases, debts forgiven and guarantees. Giving consideration to relationships with related entities, and transactions entered into during the reporting period by CSIRO, it has been determined that there are no related party transactions to be separately disclosed.

4. Managing Uncertainties

This section analyses how CSIRO manages financial risk within its operating environment.

4.1. Contingent Assets and Liabilities

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Quantifiable Contingencies				
Contingent assets				
Insurance claims	**15,682**	16,329	**15,682**	16,329
Bank guarantees received from suppliers	**12,200**	10,223	**12,200**	10,223
Total contingent assets	**27,882**	26,552	**27,882**	26,552
Contingent liabilities				
Estimated legal claims	**-**	2,301	**-**	2,301
Total contingent liabilities	**-**	2,301	**-**	2,301
Total net contingent asset/(liability)	**27,882**	24,251	**27,882**	24,251

At 30 June 2023, CSIRO has an outstanding insurance claim for business interruption and costs incurred from a natural disaster (hailstorm) that occurred at CSIRO Black Mountain on 20 January 2020.

Depending on the materiality of risks involved with certain commercial transactions, CSIRO has requested bank guarantees where necessary to mitigate risks, notably where substantial advance payments were made.

Unquantifiable contingencies

As disclosed in the Overview Note, a financial provision for the estimated costs in restoring and decontaminating land where a legal or constructive obligation has arisen has been recognised on the Statement of Financial Position. For cases where there is no legal or constructive obligation, the potential costs have not been assessed and are unquantifiable contingencies. CSIRO has no other identified unquantifiable contingencies to report.

Accounting Policy

Contingent liabilities and contingent assets are not recognised in the Statement of Financial Position but reported in the notes. They may arise from uncertainty as to the existence of a liability or asset, or represent a liability or asset in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

4.2. Financial Instruments

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 4.2A: Categories of financial instruments				
Financial Assets				
Financial assets at fair value through profit or loss				
Other investments	**1,011,532**	796,818	**371,634**	267,995
Total financial assets at fair value through profit and loss	**1,011,532**	796,818	**371,634**	267,995
Financial assets at amortised cost				
Cash at bank	**270,506**	204,701	**150,110**	128,105
Term deposits	**530,800**	476,900	**458,800**	410,750
Receivable for goods and services	**127,213**	97,514	**124,349**	96,003
Other receivables	**614**	1,120	**1,706**	2,406
Total financial assets at amortised cost	**929,133**	780,235	**734,965**	637,264
Total financial assets	**1,940,665**	1,577,053	**1,106,599**	905,259
Financial Liabilities				
Financial liabilities measured at amortised cost				
Trade creditors	**386,147**	311,032	**385,068**	310,036
Other creditors	**22,559**	18,357	**23,076**	18,097
Deposits	**17,011**	18,897	**17,321**	19,729
Total financial liabilities at amortised cost	**425,717**	348,286	**425,465**	347,862
Total financial liabilities	**425,717**	348,286	**425,465**	347,862
Note 4.2B: Net gains or losses on financial assets				
Financial assets at amortised cost				
Interest revenue	**27,922**	3,623	**22,469**	2,881
Impairment expense	**(1,807)**	(245)	**(1,807)**	(245)
Net gain from financial assets at amortised cost	**26,115**	3,378	**20,662**	2,636
Investments assets at fair value through profit or loss				
Fair value changes	**124,337**	191,563	**71,104**	35,909
Net gain/(loss) from investment assets at fair value through profit or loss	**124,337**	191,563	**71,104**	35,909
Net gain/(loss) on financial assets	**150,452**	194,941	**91,766**	38,545
Note 4.2C: Net gains or losses on financial liabilities				
Financial liabilities measured at amortised cost				
Interest expense	**2,551**	1,506	**2,214**	1,438
Net loss from financial liabilities	**2,551**	1,506	**2,214**	1,438

Accounting Policy

Financial Assets

The Group classifies its financial assets under AASB 9 *Financial Instruments* in the following categories:

a) financial assets at fair value through profit or loss;

b) financial assets at fair value through other comprehensive income; and

c) financial assets measured at amortised cost.

The classification depends on both the entity's business model for managing the financial assets and contractual cash flow characteristics at the time of initial recognition. Financial assets are recognised when the Group becomes a party to the contract and, as a consequence, has a legal right to receive or a legal obligation to pay cash and derecognised when the contractual rights to the cash flows from the financial asset expire or are transferred upon trade date.

Financial Assets at Amortised Cost

Financial assets included in this category need to meet two criteria:

1. the financial asset is held in order to collect the contractual cash flows; and

2. the cash flows are solely payments of principal and interest (SPPI) on the principal outstanding amount.

Amortised cost is determined using the effective interest method.

Effective Interest Method

Income is recognised on an effective interest rate basis for financial assets that are recognised at amortised cost.

Financial Assets at Fair Value Through Other Comprehensive Income (FVOCI)

Financial assets measured at fair value through other comprehensive income are held with the objective of both collecting contractual cash flows and selling the financial assets and the cash flows meet the SPPI test. Any gains or losses as a result of fair value measurement or the recognition of an impairment loss allowance is recognised in other comprehensive income.

Financial Assets at Fair Value Through Profit or Loss (FVTPL)

Financial assets are classified as financial assets at fair value through profit or loss where the financial assets either don't meet the criteria of financial assets held at amortised cost or at FVOCI (i.e. mandatorily held at FVTPL) or may be designated. Financial assets at FVTPL are stated at fair value, with any resultant gain or loss recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest earned on the financial asset. CSIRO values it’s equity investment portfolio in listed companies, unlisted companies and in Uniseed Trust as FVTPL. CSIRO Innovation Fund values it’s equity investment portfolio in unlisted companies as FVTPL.

Impairment of Financial Assets

Financial assets at amoritised cost are assessed for impairment at the end of each reporting period based on Expected Credit Losses, using the general approach which measures the loss allowance based on an amount equal to lifetime expected credit losses where risk has significantly increased, or an amount equal to 12-month expected credit losses if risk has not increased.

The simplified approach for trade, contract and lease receivables is used. This approach always measures the loss allowance as the amount equal to the lifetime expected credit losses. A write-off constitutes a de-recognition event where the write off directly reduces the gross carrying amount of the financial asset.

Financial liabilities

Financial liabilities are classified as either financial liabilities ‘at fair value through profit or loss’ or financial liabilities at amoritised cost. Financial liabilities are recognised and derecognised upon ‘trade date’.

Financial Liabilities at Fair Value Through Profit or Loss

Financial liabilities at fair value through profit or loss are initially measured at fair value. Subsequent fair value adjustments are recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest paid on the financial liability.

Financial Liabilities at Amortised Cost

Financial liabilities at amortised cost, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective interest basis.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

4.3. Fair Value Measurement

Note 4.3A: Fair value measurement

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Financial assets				
Other investments	**1,011,532**	796,818	**371,634**	267,995
Total financial assets	**1,011,532**	796,818	**371,634**	267,995
Non-financial assets				
Land	**385,991**	380,974	**385,991**	380,974
Buildings	**1,248,920**	1,159,985	**1,248,920**	1,159,796
Plant and equipment	**563,218**	563,542	**563,218**	563,505
Investment properties	**46,141**	50,747	**46,141**	50,747
Heritage and cultural	**10,160**	9,952	**10,160**	9,952
Total non-financial assets	**2,254,430**	2,165,200	**2,254,430**	2,164,974
Financial liabilities				
Deposits	**17,011**	18,897	**17,321**	19,729
Total financial liabilities	**17,011**	18,897	**17,321**	19,729

Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, CSIRO has made the following judgements that have the most significant impact on the amounts recorded in the financial statements:

- The fair value of land which will continue to be used to further the Group's objectives for research activities, and buildings held for specialised purposes and where there is no readily available market price has been taken to be Fair Value- Highest and Best Use (level 3 inputs), as determined by an independent valuer;
- The fair value of plant and equipment has been taken to be Fair Value – Highest and Best Use (level 2 and 3 inputs) as they mainly comprise of specialised research equipment. Fair value is determined by an independent valuer; and
- The fair value of listed companies is assessed at market value (level 1 inputs); whereas unlisted companies and commercial vehicles are assessed at fair value using the best information available (level 3 inputs). For investments in unlisted companies where there is no readily available market pricing, the fair value has been determined by applying valuation techniques in line with the generally accepted valuation guidelines 'International Private Equity and Venture Capital Valuation Guidelines (IPEV).' Where recent transactions for the unlisted companies' equity have taken place, these equity transaction prices are used to value CSIRO's investment. For unlisted companies that have not had any recent equity transactions, other IPEV valuation techniques are used such as discounted cash flows and share of net assets. Investments in special purpose entities are either valued at cost of share of net realisable assets since a reliable estimate of fair value cannot be established. These entities have been set up primarily to gain access to research facilities/networks, or to provide services to owners. Hence, there is not 'active market' for these equity investments.
- The fair value of unlisted companies at each reporting date is assessed. The fair value has been determined by applying valuation techniques in line with generally accepted valuation guidelines,'International Private Equity and Venture Capital Valuation (IPEV) Guidelines'(level 3 inputs). Valuation techniques include :using arm's length market transactions, multiples, industry benchmarks, discounted cashflow analysis and option pricing models making as much use of observable and supportable data as possible. Judgements and estimates involved in valuation technicques include considerations of liquidity, marketability, credit risk (both own and couterparty's), risks specific to investee financial and technical milestones, correlation and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments. The valuation inputs are calibrated and tested for validity regularly including as at each balance date. To assess the signficance of a particular input to the entire measurement, CSIRO and its subsidiaries perform sensitivity analysis or stress testing techniques.

5. Other information

5.1. Current/non-current distinction for assets and liabilities

	Consolidated		CSIRO	
	2023	2022	**2023**	2022
	$'000	$'000	**$'000**	$'000
Note 5.1A: Current/non-current distinction for assets and liabilities				
Assets expected to be recovered in:				
No more than 12 months				
Cash and cash equivalents	**801,306**	681,601	**608,910**	538,855
Trade and other receivables	**127,259**	103,756	**125,896**	103,698
Other investments	**109,211**	-	**109,211**	-
Other non-financial assets	**30,596**	11,886	**30,354**	11,644
Assets directly related to discontinued operations	**1,343**	-	**-**	-
Assets held for sale	**41,720**	40,530	**41,720**	40,530
Total no more than 12 months	**1,111,435**	**837,773**	**916,091**	**694,727**
More than 12 months				
Other investments	**902,321**	796,818	**262,423**	267,995
Land and buildings	**1,634,884**	1,540,912	**1,634,884**	1,540,723
Heritage and cultural	**10,160**	9,952	**10,160**	9,952
Plant and equipment	**563,218**	563,542	**563,218**	563,505
Investment properties	**46,141**	50,748	**46,141**	50,748
Intangibles	**17,020**	18,502	**17,020**	18,502
Inventories	**1,284**	1,290	**1,284**	1,290
Total more than 12 months	**3,175,028**	2,981,764	**2,535,130**	2,452,715
Total assets	**4,286,463**	3,819,536	**3,451,221**	3,147,441
Liabilities expected to be settled in:				
No more than 12 months				
Suppliers	**386,147**	311,032	**385,068**	310,036
Other payables	**22,559**	18,357	**23,076**	18,097
Deposits	**1,871**	2,140	**1,905**	3,087
Liabilities directly related to discontinued operations	**1,126**	-	**-**	-
Lease liabilities	**15,392**	11,214	**15,392**	11,214
Employee provisions	**68,910**	63,645	**68,844**	63,474
Provision for remediation	**-**	179	**-**	179
Total no more than 12 months	**496,005**	406,567	**494,285**	406,087
More than 12 months				
Deposits	**15,140**	16,757	**15,416**	16,642
Lease liabilities	**42,895**	52,439	**42,895**	52,315
Employee provisions	**179,296**	162,807	**179,260**	162,716
Provision for remediation	**64,606**	65,187	**64,606**	65,187
Total more than 12 months	**301,937**	297,190	**302,177**	296,860
Total liabilities	**797,942**	703,757	**796,462**	702,947

5.2. Monies Held in Trust

	2023	2022
	$'000	$'000
Monies held in trust represented by cash, deposits and investments for the benefit of the Group which are not included in the Statement of Financial Position are:		
The Sir Ian McLennan Achievement for Industry Award - established to award outstanding contributions by the Group's scientists and engineers to national development.	**408**	399
The Elwood and Hannah Zimmerman Trust Fund - established to fund weevil research and the curation of the Australian National Insect Collection (ANIC) weevil collection.	**4,103**	4,629
The Schlinger Trust - established to research the taxonomy, biosystematics, general biology and biogeography of Australasian Diptera conducted by the Australian National Insect Collection.	**2,832**	3,040
Total monies held in trust as at 30 June	**7,343**	8,068

Summary of movements:	**McLennan $'000**	**Zimmerman $'000**	**Schlinger $'000**	**Total $'000**
Balance as at 1 July 2022	**399**	**4,629**	**3,040**	**8,068**
Adjustments to opening balance	**-**	**(395)**	**(185)**	**(580)**
Interest and distribution adjustments	**34**	**-**	**101**	**(445)**
Expenditure in the period	**(25)**	**(131)**	**(124)**	**(280)**
Balance as at 30 June 2023	**408**	**4,103**	**2,832**	**7,343**

5.3. Collections

CSIRO is the custodian of several collections used for scientific research. These collections have been established over time and document an extensive range of Australian flora and fauna species. The collections are irreplaceable, bear scientific and historical value and are not reliably measurable in monetary terms. Therefore, CSIRO has not recognised them as an asset in its financial statements.

The main collections held by CSIRO are:

- Australian National Herbarium (ANH) – With a focus on the Australian flora and that of neighbouring regions such as New Guinea and the Pacific, the ANH has over 1 million herbarium specimens, with additional holdings at the Australian Tropical Herbarium (ATH) in Cairns, Queensland. The ANH collections include the Dadswell Memorial Wood Collection and comprehensive holdings of a number of groups, including cryptogams, eucalypts and orchids.

- Australian National Insect Collection (ANIC) – Specialising in Australian terrestrial invertebrates, ANIC houses over 12 million specimens and is the world's largest collection of Australian insects, as well as groups such as mites, spiders, earthworms, nematodes and centipedes. ANIC is an important research collection used by CSIRO researchers, university staff, and students, and scientists from Australian and international research organisations.

- Australian National Wildlife Collection (ANWC) – Specialising in terrestrial vertebrates, ANWC contains specimens of most species of Australian mammals, birds, reptiles, and amphibians. It is particularly rich in specimens of birds from New Guinea. ANWC is a valuable asset for biologists engaged in biodiversity research. Its research library holds 60,000 recordings of wildlife sounds, more than a thousand tissue samples, and egg collections from more than 300 bird species.

- Australian National Fish Collection (ANFC) – Specialising in marine fishes, the ANFC contains almost 150,000 specimens representing more than 3,000 species from the Indo-Pacific region. It is an invaluable resource for biodiversity and biogeographic research on Australian and Indo-Pacific fishes. Its major strengths are sharks, rays, and deep-water fishes. It also contains a large collection of images and radiographs of Australian fishes.

- Australian Tree Seed Centre (ATSC) – The ATSC is managed as a collection and research centre for Australian native tree species. For over 60 years the centre has been collecting, researching and supplying quality, fully documented tree seed to both domestic and overseas customers. Collections of seed are sourced from wild populations and genetically improved seed from our domestication and improvement programs.

- Australian National Algae Culture Collection (ANACC) – The ANACC consists of more than 300 microalgae species and is a resource for research on algal diversity, distribution, richness, and taxonomic relationships, including those of economic importance and environmental concern. Aligned with the collection is the National Algae Supply Service, which provides microalgae strains as starter cultures to industry, research organisations and educational institutions in over 70 countries.

6. Budgetary Reports and Explanations of Major Variances

The following provides a comparison of the original budget as presented in the 2022-23 Portfolio Budget Statements to the actual outcome reported for 2022-23. The intention of this variance analysis is to provide the reader with information relevant to assessing the performance of CSIRO, including the accountability for the resources entrusted to it.

Statement of Comprehensive Income
for the period ended 30 June 2023

	Actual	Consolidated Original Budget	Variance
	2023	**2023**	2023
	$'000	**$'000**	$'000
NET COST OF SERVICES			
Expenses			
Employee benefits	**883,018**	**863,327**	(19,691)
Suppliers	**525,341**	**503,048**	(22,293)
Depreciation and amortisation	**168,357**	**176,030**	7,673
Finance costs	**2,551**	**853**	(1,698)
Write-downs and impairment loss on financial instruments	**1,807**	**-**	(1,807)
Write-downs and impairment of other assets	**16,544**	**-**	(16,544)
Loss on revaluation of investment properties	**4,606**	**-**	(4,606)
Losses from asset sales	**3,397**	**-**	(3,397)
Foreign exchange losses	**668**	**-**	(668)
Total expenses	**1,606,289**	**1,543,258**	(57,757)
Own-Source Income			
Own-source revenue			
Revenue from contracts with customers	**497,604**	**449,948**	47,656
Royalties and licence fees	**-**	**44,635**	(44,635)
Bank and term deposits interest	**27,922**	**2,196**	25,726
Rental income	**6,665**	**5,298**	1,367
Other revenues	**28,603**	**108,801**	(80,198)
Total own-source revenue	**560,794**	**610,878**	(50,084)
Gains			
Gains from sale of equity investments and intellectual property	**9,173**	**-**	9,173
Gains from asset sales	**-**	**10,500**	(10,500)
Gains on valuation of equity investments	**124,337**	**-**	124,337
Gain on revaluation of investment properties	**-**		-
Other gains	**13,938**	**39,874**	(25,936)
Foreign exchange gains	**-**	**-**	-
Total gains	**147,448**	**50,374**	97,074
Total own-source income	**708,242**	**661,252**	46,990
Net cost of services	**(898,047)**	**(882,006)**	(16,041)
Revenue from Government	**991,134**	**991,134**	-
Surplus/(Deficit)	**93,087**	**109,128**	(16,041)
OTHER COMPREHENSIVE INCOME			
Items not subject to subsequent reclassification to net cost of services			
Changes in asset revaluation reserves	**107,032**	**-**	107,032
Items subject to subsequent reclassification to net cost of services			
Changes in other reserves	**47**	**-**	47
Total other comprehensive income	**107,079**	**-**	107,079
Total comprehensive income/(loss)	**200,166**	**109,128**	96,312

Statement of Financial Position
as at 30 June 2023

	Actual	Consolidated Original Budget	Variance
	2023	**2023**	**2023**
	$'000	**$'000**	**$'000**
ASSETS			
Financial Assets			
Cash and cash equivalents	**801,306**	**659,801**	141,505
Trade and other receivables	**127,259**	**104,053**	23,206
Assets directly related to discontinued operations	**1,343**	**-**	1,343
Other investments	**1,011,532**	**328,153**	683,379
Total financial assets	**1,941,440**	**1,092,007**	849,433
Non-Financial Assets			
Land and buildings	**1,634,884**	**1,568,246**	66,638
Heritage and cultural	**10,160**	**9,952**	208
Plant and equipment	**563,218**	**661,468**	(98,250)
Intangibles	**17,020**	**19,176**	(2,156)
Investment properties	**46,141**	**50,748**	(4,607)
Inventories	**1,284**	**1,290**	(6)
Other non-financial assets	**30,596**	**11,886**	18,710
Total non-financial assets	**2,303,303**	**2,322,766**	(19,463)
Assets held for sale	**41,720**	**-**	41,720
Total assets	**4,286,463**	**3,414,773**	871,690
LIABILITIES			
Payables			
Suppliers	**386,147**	**283,855**	(102,292)
Other payables	**22,559**	**18,357**	(4,202)
Deposits	**17,011**	**19,419**	2,408
Liabilites directly associated with discontinued opreations	**1,126**	**-**	(1,126)
Total payables	**426,843**	**321,631**	(105,212)
Interest Bearing Liabilities			
Leases	**58,287**	**46,928**	(11,359)
Total Interest bearing liabilities	**58,287**	**46,928**	(11,359)
Provisions			
Employee provisions	**248,206**	**226,452**	(21,754)
Provision for remediation	**64,606**	**62,366**	(2,240)
Total provisions	**312,812**	**288,818**	(23,994)
Total liabilities	**797,942**	**657,377**	(140,565)
Net assets	**3,488,521**	**2,757,396**	732,125
EQUITY			
Contributed equity	**416,912**	**416,912**	-
Asset revaluation reserves	**1,702,538**	**1,595,206**	107,332
Other reserves	**(253)**	**-**	(253)
Retained surplus	**816,357**	**745,278**	71,079
Non-controlling interest	**552,967**	**-**	552,967
Total equity	**3,488,521**	**2,757,396**	731,125

CONSOLIDATED FINANCIAL STATEMENTS
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

Statement of Changes in Equity

for the period ended 30 June 2023

	Retained earnings			Asset revaluation reserve			Other reserves			Contributed equity/capital			Non-controlling interest			Total equity		
	Actual	Original Budget	Variance	Actual	Original Budget	Variance	Actual	Original Budget	Variance	Actual	Original Budget	Variance	Actual	Original Budget	Variance	Actual	Original Budget	Variance
	2023	**2023**	2023	**2023**	**2023**	2023	**2023**	**2023**	2023	**2023**	**2023**	2023	**2023**	**2023**	2023	**2023**	**2023**	2023
	$'000	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000	**$'000**	**$'000**	$'000
Opening balance	**764,975**	636,150	128,825	**1,595,506**	1,595,506	-	**(300)**	(300)	-	**331,384**	331,384	-	**424,214**		424,214	**3,115,779**	2,562,740	553,039
Comprehensive income																		
Other comprehensive income	**-**	-	-	**107,032**	-	107,032	**47**	-	47	**-**	-	-	**-**	-	-	**107,079**	-	107,079
Surplus/(deficit) for the period	**52,099**	109,128	(57,029)	**-**	-	-	**-**	-	-	**-**	-	-	**40,988**	-	40,988	**93,087**	109,128	(16,041)
Total comprehensive income	**52,099**	109,128	(57,029)	**107,032**	-	107,032	**47**	-	47	**-**	-	-	**40,988**		40,988	**200,166**	109,128	91,038
Other Movements	**(717)**	-	(717)	**-**	-	-	**-**	-	-	**-**	-	-	**-**	-	-	**(717)**	-	(717)
Contributions by owners																		
Equity injection	**-**	-	-	**-**	-	-	**-**	-	-	**85,528**	85,528	-	**87,765**	-	87,765	**173,293**	85,528	87,765
Closing balance	**816,357**	745,278	71,079	**1,702,538**	1,595,506	107,032	**(253)**	(300)	47	**416,912**	416,912	-	**552,967**	-	552,967	**3,488,521**	2,757,396	731,125

CONSOLIDATED FINANCIAL STATEMENTS
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

Cash Flow Statement

for the period ended 30 June 2023

	Consolidated		
	Actual	Original Budget	Variance
	2023	2023	2023
	$'000	$'000	$'000
OPERATING ACTIVITIES			
Cash received			
Receipts from Government	**991,134**	**991,134**	-
Sale of goods and rendering of services	**606,879**	**649,559**	(81,680)
Interest	**18,942**	**2,255**	16,687
Net GST received	**24,780**	**-**	24,780
Total cash received	**1,641,735**	**1,642,948**	(40,213)
Cash used			
Employees	**856,542**	**863,327**	6,785
Suppliers	**580,353**	**556,867**	15,514
Interest payments on lease liabilities	**2,122**	**853**	(1,269)
Finance costs	**429**	**-**	(429)
Deposits	**1,886**	**-**	(1,886)
Net GST paid	**-**	**17,120**	17,120
Total cash used	**1,441,332**	**1,438,167**	35,835
Net cash from operating activities	**200,403**	**204,781**	(4,378)
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment	**1,259**	**70,347**	(69,088)
Proceeds from sales of equity investments and intellectual property	**15,746**	**-**	15,746
Total cash received	**17,005**	**70,347**	(53,342)
Cash used			
Purchase of property, plant and equipment	**148,749**	**279,547**	130,798
Purchase of equity investments	**102,798**	**45,000**	(57,798)
Other selling costs	**28**	**-**	(28)
Total cash used	**251,575**	**324,547**	72,972
Net cash used in investing activities	**(234,570)**	**(254,200)**	19,630
FINANCING ACTIVITIES			
Cash received			
Contributed equity	**173,293**	**85,528**	87,765
Total cash received	**173,293**	**85,528**	87,765
Cash used			
Principal payments of lease liabilities	**19,421**	**18,584**	(837)
Total cash used	**19,421**	**18,584**	(837)
Net cash from financing activities	**153,872**	**66,944**	86,928
Net increase in cash held	**119,705**	**17,525**	102,180
Cash and cash equivalents at the beginning of the reporting period	**681,601**	**642,276**	39,325
Cash and cash equivalents at the end of the reporting period	**801,306**	**659,801**	141,505

Explanation of Major Variances

Australian Accounting Standard *AASB 1055 Budgetary Reporting* requires variance explanations of major variances between the original budget, as presented in the 2022-23 Portfolio Budget Statements, and the actual outcome as reported in these financial statements. Major variances are those that are relevant to an assessment of the discharge of accountability and to an analysis of the performance of the entity.

Variances attributable to factors which would not reasonably have been identifiable at the time of the budget preparation, such as the revaluation, sale or impairment of assets have not been included as part of the explanation.

Statement of Comprehensive Income

Royalties and licence fees are disclosed separately in the Portfolio Budget Statements (PBS) and included in *Revenue from contracts with customers* as per *AASB 15 Revenue from Contracts with Customers* in the financial statements.

Statement of Financial Position

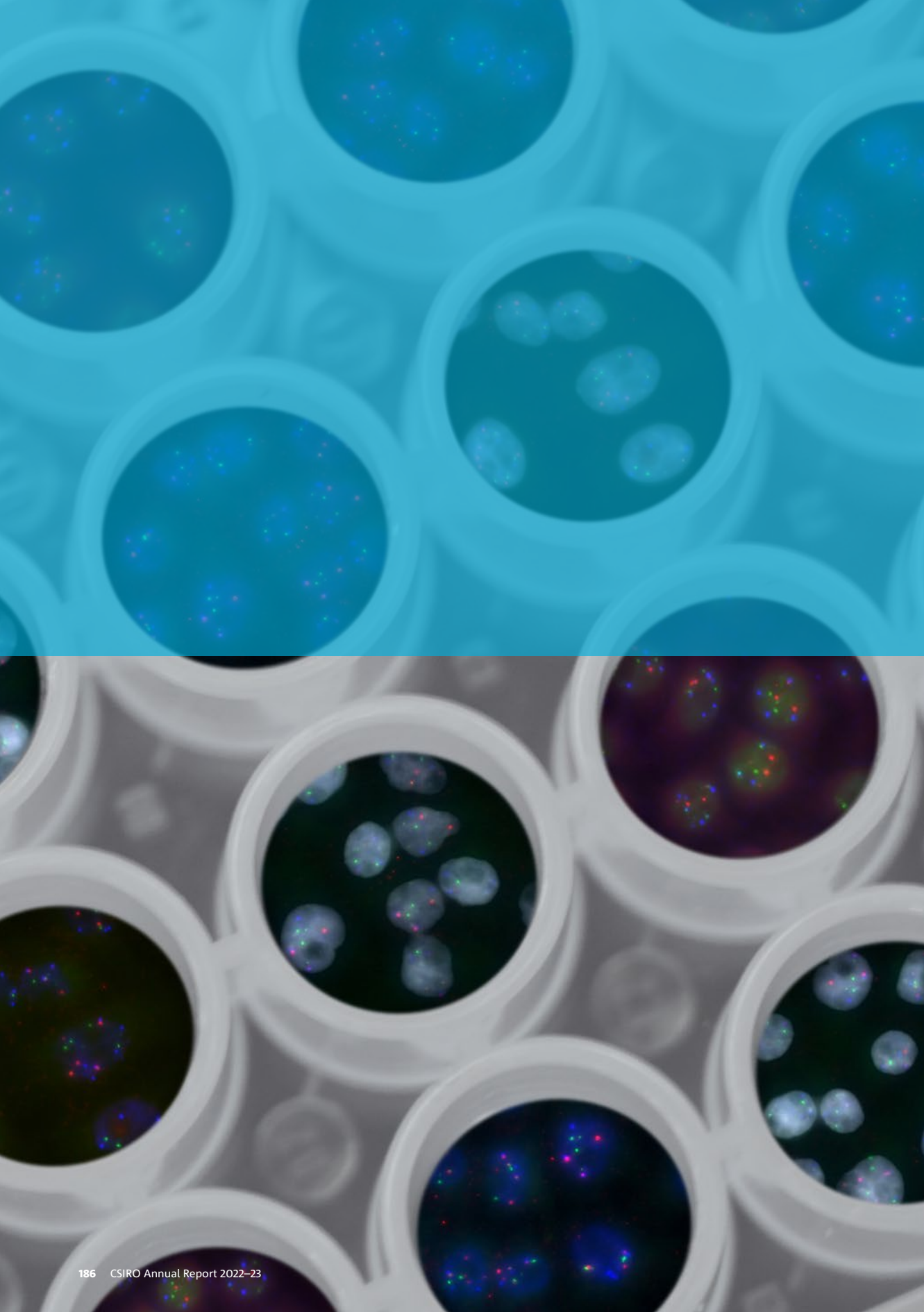
Cash and cash equivalents are higher than budget due to capital expenditure delays, but also timing differences in the expected settlement of payables. This is reflected with a higher payable balance than anticipated, which translates to a higher cash balance.

The Portfolio Budget Statements are prepared on the basis of only including General Government Sector (GGS) entities, whereas the Financial Statements for CSIRO include the results of CSIRO and all controlled entities, regardless of whether they are within the GGS or not. Therefore, there is a difference in the accounting treatment between the two, resulting in the budget containing the Innovation Fund investment as an *Investment Accounted for using the Equity Method* (reported as Other investments), while the Financial Statements account for this investment in the consolidation as *Cash and cash equivalents* and *Other investments* held by a controlled entity.

The *Non-controlling interest* balance is higher than budget due to the difference in basis of preparation between the PBS and the financial statements relating to the Innovation Fund investment.

Cash Flow Statement

Variances relating to cash flows reflect the factors detailed under Statement of Comprehensive Income and Statement of Financial Position.



Part 6

Science Industry Endowment Fund

Trustee's report

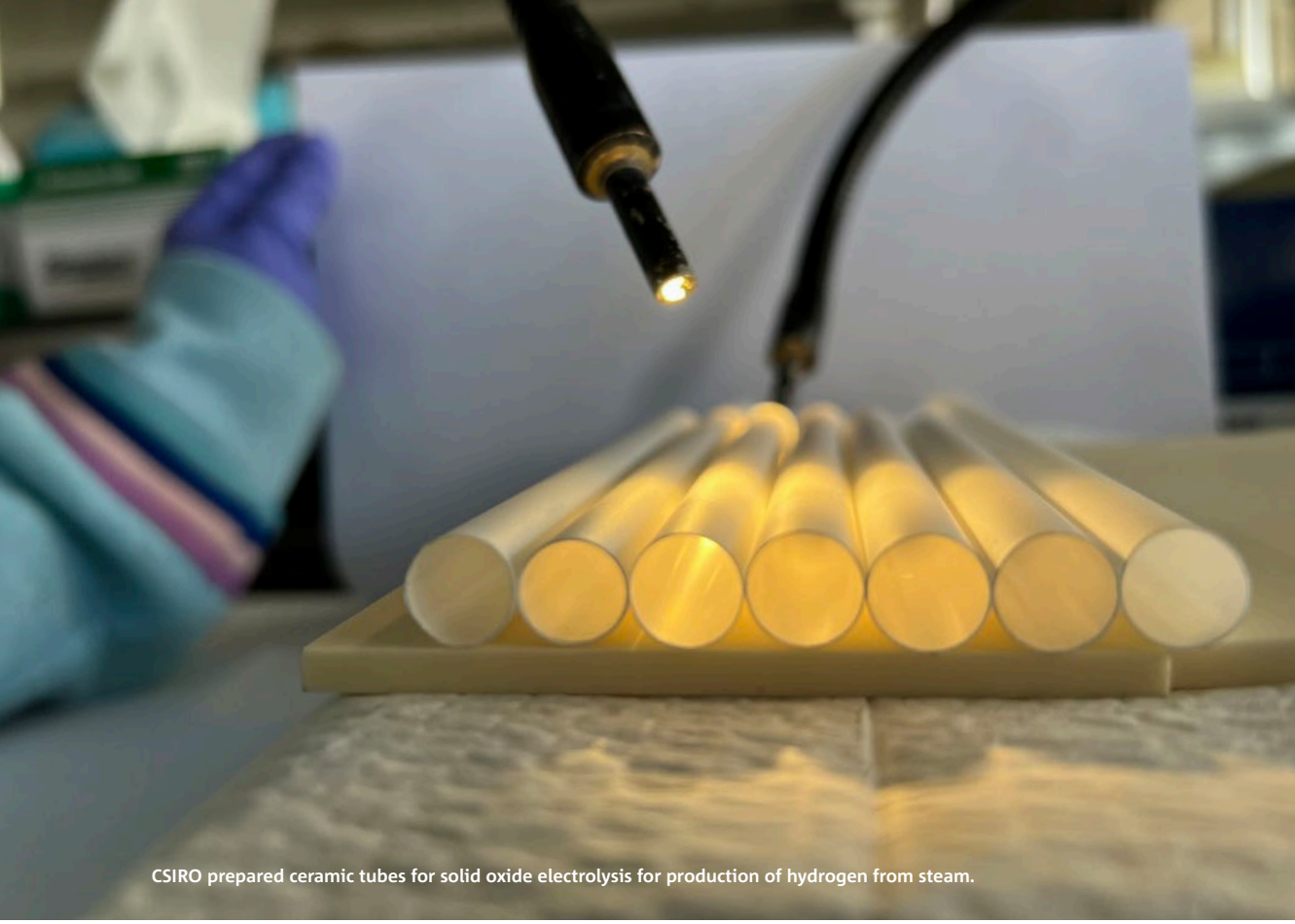
Eight years ago, I was delighted to become Trustee of the Science and Industry Endowment Fund (SIEF) in addition to Chief Executive of CSIRO, being able to see firsthand the benefits of the Fund in action. Over that time, SIEF has made significant contributions to the advancement of science and technology in Australia through the CSIRO Gift, made possible from the proceeds of CSIRO's fast Wi-Fi innovation. As intended, the $150 million CSIRO Gift has been fully committed, but that has not stopped SIEF from growing.

In backing its own technologies, CSIRO has benefited from financial gains that have allowed it to make several additional gifts to SIEF – another $83 million in total. The CSIRO Gift portfolio of programs was expanded with the addition of the Experimental Development Program, the Medium Equipment Program and the SIEF National Missions Collaboration Program (SNMCP). The reputation of SIEF has subsequently attracted gifts from new donors, which broadened SIEF's activities in information and communications technologies (ICT) (through the NICTA Gift in 2017) and science, technology, engineering and mathematics (STEM) education (through the NSW Endowment in 2017). I am confident that SIEF can become an evergreen fund, replenished regularly from CSIRO's innovation successes and other gifts.

As I end my term as CSIRO's Chief Executive, my role as SIEF Trustee also ends, but I leave the new Trustee a strong SIEF to help support Australia into an uncertain future. It has been a great pleasure and privilege to be Trustee of this esteemed Fund and to see the impact of the Fund's investments in science and industry and the next generation of Australia's scientists. In this, my last report as Trustee, I share some of the year's highlights from the SIEF, demonstrating its continued contribution to science of global significance and impact, and support of Australian industry, sustainability and productivity.

Australia has a lot of challenges ahead of it, but science holds the solutions. We can't afford to lose half our young female scientists before they enter Year 9, nor the other half before they reach the workforce. Turning around our STEM decline is a national mission for me. I passionately believe that supporting the development of scientific capability in the next generation of Australian researchers, innovators and entrepreneurs is essential to solving our greatest challenges. Our next generation of STEM superstars are being nurtured through the Generation STEM initiative across New South Wales through the NSW Government Endowment to SIEF. This initiative is building a pipeline of STEM-educated, workforce-ready school and tertiary graduates. Now midway through its 10-year term, the program is delivering impact and meeting the needs of its community through building strong relationships with participants, partners and collaborators. Excitingly, the first program under the initiative, STEM Community Partnerships Program (STEM CPP), has grown significantly in the last 12 months, reaching more than 2,300 secondary school students. Its flexible delivery model allows tailoring the program to suit each school, building students' skills in hands-on problem solving that addresses real-world issues of high importance to them and their communities. The highlight of the program so far came in late 2022, when students presented the results of their projects to their communities and local industries, with over 100 industry professionals attending.

As a leader and Champion of Change, I know diversity in STEM is critical to solving Australia's greatest challenges. The Generation STEM Initiative has been working towards increasing the diversity of students in STEM for a number of years. So, in 2022 I was delighted to welcome the Deadly in Generation STEM program to the SIEF portfolio. Deadly in Generation STEM was launched in the NSW regions of Moree and Illawarra in conjunction with Indigenous delivery partners and has been designed to meet the needs of the Indigenous communities in those areas. While still in its early days, the program is already strengthening awareness and understanding of culture and Indigenous knowledges.



CSIRO prepared ceramic tubes for solid oxide electrolysis for production of hydrogen from steam.

There is a 'Valley of Death' that stops scientific discoveries with great potential from becoming real-world solutions through lack of investment at crucial stages of commercialisation. I wanted to increase opportunities for these great discoveries to move from the lab bench into the marketplace to benefit Australia. The Experimental Development Program (EDP) – funded through the CSIRO Gifts – further develops technologies at Technology Readiness Level (TRL) 4 to attract industry funding for commercialisation. A recent review of the EDP found the program: fills an important gap in the Australian innovation system for experimental development research; SIEF is playing a role in supporting experimental development projects; the process educates researchers on innovation and entrepreneurship; and the program is de-risking technologies to support future investment.

Nineteen EDP projects have been funded since 2016 and are at varying stages of their commercialisation journeys. In particular, I'm pleased to see continued progress for the GraphAir team, who first looked at commercial applications for their graphene-based water purification membrane as part of CSIRO's ON Accelerator a few years ago. This membrane has been shown to produce ultra-pure water at a reduced cost, with fewer steps compared to established technologies, as well as providing improved resistance to biofouling and degradation. The membrane has been shown to remove sodium chloride, metal salts, detergents, mine tailings and extremely toxic chemical compounds including per- and polyfluoroalkyl substances (PFAS) chemicals from water sources.

A review of GraphAir's involvement in EDP found SIEF played an instrumental role in addressing the 'Valley of Death' phase, gaining commercial traction, and improving the impact potential of GraphAir technology by making a concerted, focused effort possible on product development, driving the focus of end use applications and providing valuable feedback from independent, industry-focused reviewers. The next step is to develop a large-scale pilot system for field trials. Read more on page 189.

SIEF is also playing an important role in developing the green and renewable technologies that Australia needs for its transition to a reliable net zero emissions energy future at the lowest cost. SIEF, via an EDP project, has recently funded construction of a pilot plant that will harness steam – a by-product of steelmaking – and use this to generate hydrogen to drive the steel making process. This will displace the use of coal and coke as the main source of energy. The technology has the potential to reduce CO_2 emissions by 15 per cent and achieve a target cost for hydrogen close to the Australian Government's $2 per kg target for green hydrogen. Achieving this price target will facilitate adoption of hydrogen at a scale to decarbonise the energy, industry and transport sectors. Importantly, this project has the support of industry, powered by collaboration between CSIRO and BlueScope Steel.

Both CSIRO and SIEF acknowledge that Australia's greatest challenges cannot be solved by one organisation or Fund alone. CSIRO launched its missions program in 2020 to bring together broad coalitions of partners to tackle bold, complex challenges. Similarly, the SIEF National Missions Collaboration Program (SNMCP) has been established to address national challenges on a global scale. This CSIRO Gift-funded program is supporting Australia's participation in the National Science Foundation Global Centers: Use-inspired research addressing global challenges in climate change and clean energy (Global Centers Program). Announced in February 2023, this initiative brings together partners from the US, Canada, the UK and Australia to fund international, interdisciplinary collaborative research centres that will apply best practices of broadening participation and community engagement to meet our biggest challenges in the future. Funding outcomes are expected to be announced in September 2023. The SNMCP will support Australian-based research teams to undertake science and research activities addressing national priorities and contribute to achieving Australia's national objectives. It will support projects that deliver on the objectives of CSIRO's missions and enable ecosystem-wide collaboration.

World-class national science infrastructure is essential to every stage of the science pipeline – from building capability, to fostering collaboration, to scaling-up towards commercialisation. During my term as Trustee, I re-established the Medium Equipment Program in 2022–23 for a further 2 rounds of funding, with $18 million from the CSIRO Gift supporting the procurement of new state-of-the-art assets, providing a huge boost to Australian research and increasing opportunities for collaborations. In recent years, infrastructure funded by SIEF has ranged from co-investment in a fleet of Argo floats to autonomously gather ocean data, through to a virtual lab for cyber security research.

My role as Trustee is greatly assisted by the Fund's Advisory Councils and expert advisors. I've been honoured to have great leaders like Maile Carnegie, Tom Spurling, Alan Robson, Margaret Sheil, Ezio Rizzardo and John Paitaridis. They have generously supported the Fund by providing guidance and insight on a pro bono basis. Their contributions have ensured investments are directed to where the greatest difference can be made for national and global significance and impact, sustainability and productivity of Australia's industries.

It has been a privilege to act as the Trustee of SIEF over the past 8 years and I look forward to seeing the impact of the replenished Fund's investment in science and industry in strengthening Australia's capacity to address national challenges into the future.

Dr Larry Marshall
SIEF Trustee

Current Consultative Council (NSW Endowment):

Mr David Wright (Chair)
Ms Gabrielle Trainor AO
Dr Ian Opperman
Ms Chloe Read
Professor Elanor Huntington
Ms Gail Fulton

INDEPENDENT AUDITOR'S REPORT

To the Minister for Industry and Science

Opinion

In my opinion, the financial statements of the Science and Industry Endowment Fund (the Entity) for the year ended 30 June 2023:

(a) comply with Australian Accounting Standards – Simplified Disclosures; and

(b) present fairly the financial position of the Entity as at 30 June 2023 and its financial performance and cash flows for the year then ended.

The financial statements of the Entity, which I have audited, comprise the following as at 30 June 2023 and for the year then ended:

- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity;
- Cash Flow Statement;
- Notes to and forming part of the financial report, comprising a summary of significant accounting policies and other explanatory information; and
- Statement by the Trustee and Chief Finance Officer

Basis for opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Entity in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Trustee's responsibility for the financial statements

The Chief Executive of the Commonwealth Scientific and Industrial Research Organisation (the Trustee) is responsible for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Simplified Disclosure Requirements. The Trustee is also responsible for such internal control as they determine is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustee is responsible for assessing the ability of the Entity to continue as a going concern, taking into account whether the Entity's operations will cease as a result of an administrative restructure or for any other reason. The Trustee is also responsible for disclosing, as applicable, matters related

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to going concern and using the going concern basis of accounting, unless the assessment indicates that it is not appropriate.

Auditor's responsibilities for the audit of the financial statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Trustee;
- conclude on the appropriateness of the Trustee's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office

Bola Oyetunji

Group Executive Director

Delegate of the Auditor-General

Canberra

30 August 2023

SCIENCE AND INDUSTRY ENDOWMENT FUND

Statement by the Trustee and Chief Finance Officer

For the year ended 30 June 2023

STATEMENT BY THE TRUSTEE AND CHIEF FINANCE OFFICER OF COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION (CSIRO) AS SERVICE PROVIDER TO THE SCIENCE AND INDUSTRY ENDOWMENT FUND

The attached financial report for the year ended 30 June 2023 has been prepared based on properly maintained financial records and in accordance with Australian Accounting Standards simplified disclosure requirements and the requirements of the *Science and Industry Endowment Act 1926* , and present fairly the financial position of the Science and Industry Endowment Fund as at 30 June 2023 and its performance and cashflows for the year then ended.

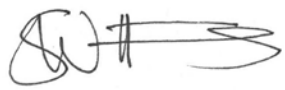
In our opinion, at the date of this statement, there are reasonable grounds to believe that the Science and Industry Endowment Fund will be able to pay its debts as and when they become due and payable.

Signed in accordance with a resolution of the Directors.

Kirsten Rose

Trustee (Acting) of the Science and Industry Endowment Fund

28 August 2023



Stewart Walters

Chief Finance Officer of CSIRO as service provider to the Science and Industry Endowment fund

28 August 2023

SCIENCE AND INDUSTRY ENDOWMENT FUND
Statement of Comprehensive Income

for the period ended 30 June 2023

	Notes	2023	2022
Expenses			
Scientific research grants	1.1A	**11,057,587**	6,069,145
Service fee under services agreement with CSIRO	1.1B	**516,130**	593,500
Audit fees	1.1C	**18,870**	11,500
Other fees	1.1D	**10,071**	6,001
Total expenses		**11,602,658**	6,680,146
Interest revenue	1.2A	**3,153,988**	484,525
Gifts	1.2B	**39,000,000**	18,000,000
Total revenue		**42,153,988**	18,484,525
Net profit for the period		**30,551,330**	11,804,379
Other comprehensive income		**-**	-
Total comprehensive income		**30,551,330**	11,804,379

The above statement should be read in conjunction with the accompanying notes.

SCIENCE AND INDUSTRY ENDOWMENT FUND

Statement of Financial Position

as at 30 June 2023

	Notes	2023	2022
ASSETS			
Current			
Cash and cash equivalents	2.1A	**118,457,950**	89,373,110
Trade and other receivables	2.1B	**1,875,112**	408,622
Total assets		**120,333,062**	89,781,732
LIABILITIES			
Current			
Suppliers payable		**-**	-
Total Liabilities		**-**	-
Net assets		**120,333,062**	89,781,732
EQUITY			
Contributed equity		**200,000**	200,000
Retained earnings		**120,133,062**	89,581,732
Total equity		**120,333,062**	89,781,732

The above statement should be read in conjunction with the accompanying notes.

SCIENCE AND INDUSTRY ENDOWMENT FUND

Statement of Changes in Equity

for the period ended 30 June 2023

	Retained Earnings	Contributed Equity	Total Equity
Opening balance 1 July 2022	**89,581,732**	**200,000**	**89,781,732**
Net profit	30,551,330	-	**30,551,330**
Closing balance 30 June 2023	**120,133,062**	200,000	**120,333,062**

	Retained Earnings	Contributed Equity	Total Equity
Opening balance 1 July 2021	**77,777,353**	**200,000**	**77,977,353**
Net profit	11,804,379	-	**11,804,379**
Closing balance 30 June 2022	**89,581,732**	200,000	**89,781,732**

The above statement should be read in conjunction with the accompanying notes.

SCIENCE AND INDUSTRY ENDOWMENT FUND

Cash Flow Statement

for the period ended 30 June 2023

	Notes	2023	2022
Operating activities			
Cash received			
CSIRO gift		**39,000,000**	18,000,000
Interest received		**2,104,819**	453,414
GST credits received		**742,938**	569,105
Total cash received		**41,847,757**	19,022,519
Cash used			
Payments to grantees		**12,163,346**	6,676,060
Other payments		**599,571**	672,101
Total cash used		**12,762,917**	7,348,161
Net cash used in operating activities		**29,084,840**	11,674,358
Net increase in cash held		**29,084,840**	11,674,358
Cash and cash equivalents at the beginning of the reporting period		**89,373,110**	77,698,752
Cash and cash equivalents at the end of the reporting period		**118,457,950**	89,373,110

The above statement should be read in conjunction with the accompanying notes.

SCIENCE AND INDUSTRY ENDOWMENT FUND
NOTES TO AND FORMING PART OF THE FINANCIAL REPORT
for the period ended 30 June 2023

Overview
The Science and Industry Endowment Fund (referred to as the Fund) was established under the *Science and Industry Endowment Act 1926* with the Trustee of the Fund being the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) Chief Executive and is a not-for-profit entity. An appropriation of 100,000 pounds was received at the time the Fund was established. The principal activity of the Fund is to provide assistance to persons engaged in scientific research and in the training of students in scientific research.

In October 2009 the Minister for Innovation, Industry, Science and Research announced a gift of $150 million to be donated by CSIRO to the Fund. The gift is intended to be used for scientific research for the purposes of assisting Australian industry and furthering the interests of the Australian community or contributing to the achievement of Australian national objectives. The gift was made subject to the terms of a Deed of Gift between the Trustee and CSIRO dated 15 October 2009. Between financial years 2018 and 2022 CSIRO made further gifts totalling $51 million to the Fund, with an additional $39m in financial year 2023. These gifts were also made subject to the terms of the Deed of Gift between the Trustee and CSIRO dated 15 October 2009.

In June 2017, the NSW Government acting through the NSW Department of Industry provided a $25 million endowment to the Fund to create the NSW Generation STEM Program. The program will be delivered over a 10-year period and will implement activities including research, to increase the supply of Science, Technology, Engineering and Mathematics (STEM) skilled labour to meet the current and future needs of New South Wales. The total cash payments made by the Fund in 2022-23 under the NSW Endowment were $3,470,000 (GST exclusive).

In November and December 2018, National ICT Australia Limited (NICTA), a controlled entity of CSIRO, provided two gifts to the Fund in the total amount of $20 million to fund the Future National ICT Industry Platform Program. A further $5 million was provided to the Fund by NICTA in December 2019. The program is to support research activities and projects at a scale that address challenges in the field of Information and Communications Technology (ICT) and it is intended that the outcomes from the Program will benefit Australia by helping create new Australian technology-based industries and/or applied technology platforms that can reach a global scale. The total payments made by the Fund in 2022-23 under the Future National ICT Industry Platform Program were $200,000 (GST exclusive).

In one financial year a maximum amount of $25 million exclusive of Goods and Services Tax (GST) can be disbursed from the Fund for the CSIRO GIFT Programs, NSW Generation STEM Program and the Future National ICT Industry Platform Program (under the Deeds of Gift/Endowment). The total payments made by the Fund under these gifts and programs in 2022-23 were $11,602,658 (GST exclusive). This includes Scientific research grant payments, service, audit and other fees.

Basis of Preparation of the Financial Statements
The financial statements for the Fund are general purpose financial statements and are required by:
- Section 10 of the *Science and Industry Endowment Act 1926* .

The financial statements have been prepared in accordance with:
- Australian Accounting Standards and Interpretations – including *AASB 1060 General Purpose Financial Statements – Simplified Disclosures for For-Profit and Not-for Profit Entities* issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and are in accordance with the historical cost convention. No allowance is made for the effect of changing prices on the results or the financial position. The financial statements are presented in Australian dollars and values are rounded to the nearest dollar unless otherwise specified.

SCIENCE AND INDUSTRY ENDOWMENT FUND
NOTES TO AND FORMING PART OF THE FINANCIAL REPORT
for the period ended 30 June 2023

Key Judgements and Estimates

The accounting policies are set out below. Within the current financial year, there were no significant judgements or estimates used in the preparation of the financial statements.

Adoption of new and future Australian Accounting Standards

All new, revised and amending standards and/or interpretations that were issued prior to the signing of these statements and applicable to the current reporting period were adopted by the Fund and did not have a material effect on the financial statements. The Fund has not early adopted any standards, interpretations or amendments that have been issued and are not yet effective.

Taxation

The Fund is exempt from all forms of taxation except Goods and Services Tax ('GST').

Events after the Reporting Period

At the time of signing of the financial statements, the Trustee is not aware of any other significant events occurring after the reporting date that could impact on the financial report.

1.1 Expenses

	2023	2022
1.1A: Scientific research grants		
Education and Outreach Program	-	18,000
Future National ICT Industry Platform Program	-	1,494,897
Research Infrastructure Program	**5,622,000**	185,000
Special Research Program	-	160,000
Promotion of Science Program - Scholarships and Fellowships	**100,000**	100,000
Experimental Development Program	**1,960,587**	1,686,248
NSW Endowment Grant	**3,375,000**	2,425,000
Total scientific research grants	**11,057,587**	6,069,145

Accounting Policy

The Fund awards grants to support approved eligible applications and activities in instalments, subject to the completion of Grant Recipients of funding milestones which are verified through provision of satisfactory Progress Reports to the Fund Manager. All costs associated with providing scientific research grants are expensed at acceptance of relevant Progress Reports.

	2023	2022
1.1B: Service fee under services agreement with CSIRO		
Service fee	**516,130**	593,500
Total service fee	**516,130**	593,500

Accounting Policy

Services fees under services agreement with CSIRO are expensed as incurred.

	2023	2022
1.1C: Audit fees		
Audit fees	**18,870**	11,500
Total audit fees	**18,870**	11,500

Accounting Policy

Audit fees are recognised when they have been incurred (irrespective of having been invoiced). Outside of audit services, no other services have been provided by the auditors.

	2023	2022
1.1D: Other fees		
Bank fees	**71**	1
Professional fees	**10,000**	6,000
Total other fees	**10,071**	6,001

Accounting Policy

All other expenses include operational expenses and are expensed as incurred. Other operating expenses consist of bank fees in addition to GIFT fund service fees.

1.2 Income and Gains

	2023	2022
1.2A: Interest revenue		
Cash bank account interest	**266,712**	95,859
Term deposits interest	**2,887,276**	388,666
Total interest revenue	**3,153,988**	484,525

Accounting Policy
Interest revenue is recognised using the effective interest method as set out in *AASB 9 Financial Instruments.*

	2023	2022
1.2B: Gifts		
CSIRO gift	**39,000,000**	18,000,000
Total gifts	**39,000,000**	18,000,000

Accounting Policy
Gifts are recognised as income when the entity gains control of the funds, where the consideration to acquire an asset is significantly less than fair value. Gifts, bequests or donations receivable are recognised at their nominal amounts as a financial asset under *AASB 9 Financial Instruments* as highlighted in paragraph 8 of *AASB 1058 Income of Not-for-Profit Entities.* The additional $39 million gifts received from CSIRO in 2022-23 is to be used to further Fund objectives (2021-22 $18m).

2.1 Assets

	2023	2022
2.1A: Cash and cash equivalents		
Cash at bank	**45,867,950**	23,223,110
Term deposits	**72,590,000**	66,150,000
Total Cash and cash equivalents	**118,457,950**	89,373,110

Accounting Policy
Cash and cash equivalents include cash on hand and demand deposits in bank accounts with an original maturity of three months or less that are readily convertible to known amounts of cash and subject to insignificant risk of change in value. Cash is recognised at its nominal amount.

	2023	2022
2.1B: Trade and other receivables		
Interest receivable	**1,250,037**	200,868
GST receivable	**625,075**	207,754
Total receivables	**1,875,112**	408,622
Less impairment loss allowance	**-**	-
Total Trade and other receivables	**1,875,112**	408,622

Accounting Policy
Trade and other receivables are financial assets held for collecting the contractual cash flows of the asset, where the cash flows are solely payments of principal and interest that are not provided at below-market interest rates. They are subsequently measured at amortised cost using the effective interest method adjusted for any loss allowance. Refer to accounting policies of financial assets in Note 4.1 Financial Instruments - Initial recognition and subsequent measurement.

3.1 Financial Instruments

	2023	2022
3.1A: Categories of financial instruments		
Financial assets		
Financial assets measured at amortised cost		
Cash and cash equivalents	**118,457,950**	89,373,110
Trade & other receivables	**1,875,112**	408,622
Total financial assets measured at amortised cost	**120,333,062**	89,781,732
Total financial assets	**120,333,062**	89,781,732
Financial Liabilities		
Financial liabilities measured at amortised cost		
Suppliers payable	-	
Total financial liabilities measured at amortised cost	-	-
Total financial liabilities	-	-
3.1B: Net gains or losses on financial assets		
Financial assets measured at amortised cost		
Bank interest	**3,153,988**	484,525
Net gain from financial assets at amortised cost	**3,153,988**	484,525

Accounting Policy

Financial Assets

The Fund classifies its financial assets under *AASB 9 Financial Instruments* as financial assets measured at amortised cost.

The classification depends on both the entity's business model for managing the financial assets and contractual cash flow characteristics at the time of initial recognition. Financial assets are recognised when the entity becomes a party to the contract and, as a consequence, has a legal right to receive or a legal obligation to pay cash and derecognised when the contractual rights to the cash flows from the financial asset expire or are transferred upon trade date.

Financial Assets at Amortised Cost

Financial assets included in this category need to meet two criteria:

1. the financial asset is held in order to collect the contractual cash flows; and
2. the cash flows are solely payments of principal and interest (SPPI) on the principal outstanding amount.

Amortised cost is determined using the effective interest method.

Effective Interest Method

Income is recognised on an effective interest rate basis for financial assets that are recognised at amortised cost.

Financial liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

Financial Liabilities at Amortised Cost

Financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective interest basis.

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

4.1 Related Parties

Accounting Policy

The Fund is a wholly controlled subsidiary of CSIRO. The Trustee is the Chief Executive of CSIRO who is remunerated through CSIRO and not paid an additional salary for his role as Trustee of the Fund. There were no transactions during the reporting period between the Trustee and the Fund. Related parties to this entity other than the Trustee are other Australian Government entities.

In considering relationships with related entities and transactions entered into during the reporting period by the Fund, it has been determined that there are no related party transactions required to be separately disclosed when taking into account the details provided within other notes to these financial statements. Grant funds are administered and applied in accordance with Program Funding Agreements. Awarded grants are assessed against a set of established criteria prior to approval. All eligible applications are assessed equally.

Part 7

Appendices and indexes

Data templates

Appendix A: Management of human resources

All ongoing employees* current report period (2022–23)

	MAN/MALE			WOMAN/FEMALE			NON–BINARY		
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL
NSW	376	8	384	195	67	262	–	–	0
Qld	388	13	401	272	62	334	–	–	0
SA	100	8	108	101	35	136	–	–	0
Tas	213	9	222	101	13	114	–	–	0
Vic	683	23	706	418	97	515	–	–	0
WA	270	5	275	117	37	154	–	–	0
ACT	442	13	455	293	88	381	–	–	0
NT	7	1	8	3	3	6	–	–	0
External territories	–	–	0	–	–	0	–	–	0
Overseas	–	–	0	1	–	1	–	–	0
Total	**2,479**	**80**	**2,559**	**1,501**	**402**	**1,903**	**0**	**0**	**0**

*Excludes casuals (HC = 196).

All non–ongoing employees current report period (2022–23)

	MAN/MALE			WOMAN/FEMALE			NON–BINARY		
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL
NSW	133	7	140	119	22	141	–	–	0
Qld	152	10	162	164	36	200	–	–	0
SA	42	–	42	34	10	44	–	–	0
Tas	33	1	34	39	4	43	–	–	0
Vic	212	10	222	166	23	189	–	–	0
WA	81	1	82	63	14	77	–	–	0
ACT	109	8	117	108	15	123	–	–	0
NT	3	–	3	7	1	8	–	–	0
External territories	–	–	0	–	–	0	–	–	0
Overseas	1	–	1	3	–	3	–	–	0
Total	**766**	**37**	**803**	**703**	**125**	**828**	**0**	**0**	**0**

	PREFERS NOT TO ANSWER			USES A DIFFERENT TERM			TOTAL
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	
	–	–	0	–	–	0	**646**
	1	–	1	–	–	0	**736**
	1	–	1	–	–	0	**245**
	2	–	2	–	–	0	**338**
	1	–	1	–	–	0	**1,222**
	1	1	2	–	–	0	**431**
	1	–	1	–	–	0	**837**
	–	–	0	–	–	0	**14**
	–	–	0	–	–	0	**0**
	–	–	0	–	–	0	**1**
	7	**1**	**8**	**0**	**0**	**0**	**4,470**

	PREFERS NOT TO ANSWER			USES A DIFFERENT TERM			TOTAL
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	
	5	–	5	–	–	0	286
	2	–	2	–	–	0	364
	1	–	1	–	–	0	87
	–	–	0	–	–	0	77
	3	–	3	–	–	0	414
	2	1	3	–	–	0	162
	5	–	2	–	–	0	245
	–	–	0	–	–	0	11
	–	–	0	–	–	0	0
	–	–	0	–	–	0	4
	18	**1**	**19**	**0**	**0**	**0**	**1,650**

All ongoing employees previous report period (2021–22)

	MALE			FEMALE			INDETERMINATE			TOTAL
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	
NSW	373	10	383	175	65	240	–	–	–	**623**
Qld	366	10	376	254	64	318	1	–	1	**695**
SA	101	8	109	88	36	124	–	–	–	**233**
TAS	203	6	209	97	16	113	1	–	1	**323**
Vic	659	22	681	388	109	497	–	–	–	**1,178**
WA	254	8	262	92	40	132	1	–	1	**395**
ACT	426	20	446	294	90	384	–	–	–	**830**
NT	8	1	9	2	3	5	–	–	–	**14**
External territories	–	–	–	–	–	–	–	–	–	**–**
Overseas	–	–	–	–	–	–	–	–	–	**–**
Total	**2,390**	**85**	**2,475**	**1,390**	**423**	**1,813**	**3**	–	**3**	**4,291**

Employee numbers by functional area – over 5 years

FUNCTIONAL AREA	2017–18	%F 2017–18	2018–19	%F 2018–19	2019–20	%F 2019–20
RESEARCH						
Research scientists/engineers	1,533	27.14	1,570	28.09	1,485	28.22
Research project staff	1,809	41.74	1,829	41.77	1,521	40.70
Research management	251	21.51	233	21.46	250	24.40
Research consulting	55	25.45	53	24.53	60	28.33
NON-RESEARCH						
Senior specialists	19	42.11	17	47.06	13	46.15
Technical services	672	16.82	719	17.25	683	15.96
Communication and information services	260	77.69	281	79.72	230	80.00
General services	19	52.63	16	50.00	8	37.50
Administrative services	999	74.77	1,046	74.76	930	74.84
General management	150	44.67	151	50.33	139	51.80
Total headcount	**5,767**	41.37	**5,915**	42.10	**5,319**	41.10
FTE	**5,189.67**		**5,359.13**		**5,065.27**	

F = female.

All non-ongoing employees previous report period (2021–22)

	MALE			FEMALE			INDETERMINATE			TOTAL
	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	FULL TIME	PART TIME	TOTAL	
NSW	104	19	123	71	26	97	2	–	2	**222**
Qld	124	32	156	105	38	143	1	–	1	**300**
SA	23		23	27	9	36	1	–	1	**60**
TAS	28	8	36	20	19	39	–	–	–	**75**
Vic	148	27	175	108	46	154	1	–	1	**330**
WA	59	6	65	47	20	67	–	–	–	**132**
ACT	93	30	123	78	45	123	1	–	1	**247**
NT	2		2	4	5	9		–	–	**11**
External territories	–	–	–	–	–	–	–	–	–	**–**
Overseas	1	–	1	3	–	3	–	–	–	**4**
Total	**582**	**122**	**704**	**463**	**208**	**671**	**6**	–	**6**	**1,381**

2020–21	%F 2020–21	2021–22	%F 2021–22	2022–23	%F 2022–23
1,424	28.58	1,514	31.11	1,816	33.59
1,504	42.35	1,625	41.91	1,667	43.61
252	28.97	257	31.52	278	34.53
57	21.05	68	33.82	74	32.43
11	54.55	10	60.00	11	54.55
665	16.54	707	17.96	752	18.35
206	81.07	256	84.77	317	80.44
8	62.50	15	60.00	14	57.14
946	73.89	1,071	73.86	1,230	72.28
148	50.68	149	52.35	157	52.87
5,221	41.97	**5,672**	43.79	**6,316**	44.90
4,948.96		**5,291.24**		**5,938.65**	

Appendix B: Accountable authority

Details of accountable authority during the current report period (2022–23)

NAME	QUALIFICATIONS OF THE ACCOUNTABLE AUTHORITY	POSITION TITLE/ POSITION HELD EXECUTIVE/ NON-EXECUTIVE	PERIOD AS THE ACCOUNTABLE AUTHORITY OR MEMBER WITHIN THE REPORTING PERIOD		
			COMMENCE. DATE	CESSATION DATE	NUMBER OF MEETINGS OF ACCOUNTABLE AUTHORITY ATTENDED
Ms Kathryn Fagg AO	BE (Hons) Chem Eng and MCom (Hons) FTSE GAIC	**Chair** (non-executive)	1 Jul 2022	30 Jun 2023	9
	Experience: Ms Fagg, an experienced company director and chair, senior executive and former engineer, was appointed Chair of CSIRO Board from 14 October 2021 for a 5-year term. Her current positions include non-executive Director of the National Australia Bank Ltd, Medibank Private Ltd and Djerriwarrh Investments Ltd, Chair of Breast Cancer Network Australia, Inaugural Chair of Watertrust Australia Ltd, as well as a Board Member of the Grattan Institute, The Myer Foundation and the Champions of Change Coalition.				
Mr David Knox	BSc (Hons) Mech Eng MBA FIE Aust FTSE GAICD	**Deputy Chair** (non-executive)	1 Jul 2022	30 Jun 2023	9
	Experience: Mr Knox is an experienced company director and executive with a background in oil and gas. His other positions include Chair of Snowy Hydro and Chair of The Australian Centre for Social Innovation and Micro X; a Director of Migration Council Australia, the Adelaide Festival Board and Redflow; and a member of the Royal Institution of Australia Council.				
Dr Larry Marshall	BSc (Hons) PhD FAIP FTSE FAIC	**Chief Executive**	1 Jul 2022	30 Jun 2023	8
	Experience: Dr Marshall is a scientist, technology innovator and business leader with over 30 years' experience in creating value and impact with science. He founded 6 successful companies in biotechnology, photonics, telecommunications and semiconductors in the United States, and has served on 20 boards of high-tech companies operating in the United States, Australia and China. He is a Fellow of the Australian Institute of Physics, the Australian Academy of Technology and Engineering, and the Australian Institute of Company Directors; and ex-officio member of the National Science and Technology Council.				
Dr Michele Allan	BAppSc MMgtTec MCommLaw DBA FAICD	**Member** (non-executive)	1 Jul 2022	30 Jun 2023	9
	Experience: Dr Allan is an experienced company director and board chair with significant skills and competencies in the university, private and public sectors and expertise in food and advanced manufacturing. She is the Chancellor of Charles Sturt University and Chair of the boards of Wine Australia, Food and Agribusiness Growth Centre and Defence CRC for Trusted Autonomous Systems. Dr Allan's current board positions include Smart Sat CRC, Food Agility CRC, MJ Chickens and Dairy Food Safety Victoria. She is also Chair of Advisory Council for Australian AgriFood Data Exchange and a member of the Steering Committee.				
Mr Drew Clarke AO	PSM BAppSc (Surveying) MSc GAICD FTSE	**Member** (non-executive)	1 Jul 2022	23 Aug 2022	2
	Experience: Mr Clarke is an experienced public sector company director with extensive public policy experience from over 20 years in senior government. He was Secretary of the Department of Resources, Energy and Tourism and Secretary of the Department of Communications. He is Chair of Australian Energy Market Operator Ltd, a Director of NBNCo, a member of the Australian Government's Low Emission Technology Investment Advisory Council and an ex-officio member of the Australian Antarctic Science Council. He also chairs advisory groups relating to energy transition research and Antarctic science research.				

NAME	QUALIFICATIONS OF THE ACCOUNTABLE AUTHORITY	POSITION TITLE/ POSITION HELD EXECUTIVE/ NON-EXECUTIVE	PERIOD AS THE ACCOUNTABLE AUTHORITY OR MEMBER WITHIN THE REPORTING PERIOD COMMENCE. DATE	CESSATION DATE	NUMBER OF MEETINGS OF ACCOUNTABLE AUTHORITY ATTENDED
Prof Edwina Cornish AO	BSc (Hons) PhD FTSE AICD	**Member** (non-executive)	1 Jul 2022	30 Jun 2023	9
	Experience: Professor Cornish is an experienced director with significant scientific and academic leadership and international business development expertise. She played a key role in building one of Australia's first biotechnology companies, Florigene Limited, which developed and successfully commercialised the world's first genetically modified flowers. She is a member of the Council of La Trobe University, a Director of Uniquest Pty Ltd, Ambassador of the Australian Sleep Foundation, and was previously Provost and Senior Vice-President of Monash University.				
Hon Ian Macfarlane	FAICD	**Member** (non-executive)	1 Jul 2022	30 Jun 2023	9
	Experience: Mr Macfarlane is the Chief Executive of the Queensland Resources Council, a non-executive director of Woodside Petroleum and was the former Chairman of the Innovative Manufacturing Co-operative Research Centre. He brings significant experience in public policy and deep understanding of the resources and energy, agribusiness, science and innovation, skills and training, and industry and manufacturing sectors.				
Prof Tanya Monro AC	BSc (Hons) PhD FAA FTSE FOSA FAIP GAICD	**Member** (non-executive)	1 Jul 2022	30 Jun 2023	4
	Experience: Professor Monro is the Chief Defence Scientist. Her experience at senior levels in industry and educational institutions includes research in photonics focusing on sensing, lasers and new classes of optical fibres. Professor Monro is Science Patron of the National Youth Science Forum and a member of the South Australian Premier's Economic Advisory Council.				
Prof Michelle Simmons AO	BSc Physics (Hons) BSc Chemistry (Hons) PhD FRS FAA FAAAS FTSE FInstP Dist FRNS	**Member** (non-executive)	1 Jul 2022	19 Jan 2023	5
	Experience: Professor Simmons is Director of the Centre of Excellence for Quantum Computation and Communication Technology at the University of New South Wales and Founder and Director of Silicon Quantum Computing. She pioneered new technologies to build electronic devices in silicon at the atomic scale. Professor Simmons, a Fellow of the Royal Society of London, has been recognised by the American Computer Museum as a pioneer in quantum computing and was awarded the US Feynman Prize in Nanotechnology. She is a member of the University Research Commercialisation Scheme Taskforce and National Intelligence Scientific Advisory Board.				
Prof Alex Brown	BMed, MPH, PhD, FRACP (hon.), FCSANZ, FAAHMS	**Member** (non-executive)	16 Mar 2023	30 Jun 2023	2
	Experience: Professor Brown is an internationally recognised clinician and researcher who has worked in Aboriginal and Torres Strait Islander health for his entire career. He is the Professor of Indigenous Genomics at the Telethon Kids Institute and the Australian National University. A proud member of the Yuin nation, Professor Brown is the first Indigenous scientist appointed to the CSIRO Board, bringing a wealth of experience understanding and overcoming health inequalities and bridging connections across science ecosystems.				

Appendix C: Audit Committee

CSIRO Board Audit and Risk Committee

MEMBER NAME	QUALIFICATIONS, KNOWLEDGE, SKILLS OR EXPERIENCE (INCLUDE FORMAL AND INFORMAL AS RELEVANT)	NUMBER OF MEETINGS ATTENDED	TOTAL NUMBER OF MEETINGS HELD	TOTAL ANNUAL REMUNERATION (GST INC.)	ADDITIONAL INFORMATION (INCLUDING ROLE ON COMMITTEE)
Dr Michele Allan	BAppSc MMgtTec MCommLaw DBA FAICD Experienced director and senior executive in private, public and tertiary sector. Extensive experience in risk, governance and financial management.	4	4	$8,160 per annum (Remuneration Tribunal determination) as Member then $16,320 per annum (Remuneration Tribunal determination) as Chair. Details of remuneration as a CSIRO Board member are at 3.3 of the Financial statements.	N/A
Mr Drew Clarke AO	PSM BAppSc (Surveying) MSc GAICD FTSE Valuable mix of skills and experience in applied science, public policy, government administration and financial reporting.	2	2	$8,160 per annum (Remuneration Tribunal determination). Details of remuneration as a CSIRO Board member are at 3.3 of the Financial statements.	N/A
Prof Edwina Cornish AO	BSc (Hons) PhD FTSE AICD Valuable skills and experience as a senior executive in the tertiary and commercial sector.	4	4	$8,160 per annum (Remuneration Tribunal determination). Details of remuneration as a CSIRO Board member are at 3.3 of the Financial statements.	N/A

MEMBER NAME	QUALIFICATIONS, KNOWLEDGE, SKILLS OR EXPERIENCE (INCLUDE FORMAL AND INFORMAL AS RELEVANT)	NUMBER OF MEETINGS ATTENDED	TOTAL NUMBER OF MEETINGS HELD	TOTAL ANNUAL REMUNERATION (GST INC.)	ADDITIONAL INFORMATION (INCLUDING ROLE ON COMMITTEE)
Mr Geoff Knuckey External BARC Member	BEc (ANU) FICA GAICD IIAM AIMM An experienced chair and non-executive director with skills in financial reporting and analysis, risk management, corporate governance and internal audit. A former Partner and Managing Partner in Ernst & Young.	4	4	$8,800.00	N/A
Mr Matt Cahill External BARC Member	FCPA GAICD An experienced chair and non-executive director with diverse experience in operational, program, regulatory, policy, corporate and assurance roles and deep audit experience, having overseen the performance audit program at the Australian National Audit Office. A former deputy secretary in the Australian Public Service.	1	4	$4,606.25	N/A

Appendix D: Audit Committee Charter

PGPA Rule Section 17BE (taa)(i) – Audit committee charter

DIRECT ELECTRONIC ADDRESS OF THE CHARTER DETERMINING THE FUNCTIONS OF THE AUDIT COMMITTEE	
URL	Board Audit and Risk Committee Charter: csiro.au/en/about/Corporate-governance/Minister-and-Board/BARC

Appendix E: Meetings of the Board and Board Committees

During the financial year 2022–23, 9 Board meetings (3 out of session), 4 Board Audit and Risk Committee meetings, 3 Board People and Safety Committee meetings and 4 Board Science Excellence Committee Meetings were held. The number of meetings attended by each of the Board members was as follows:

MEMBER NAME	CSIRO BOARD		CSIRO BOARD AUDIT AND RISK COMMITTEE	
	NO. ELIGIBLE	NO. ATTENDED	NO. ELIGIBLE	NO. ATTENDED
Ms Kathryn Fagg AO	9	9	0	4
Dr Larry Marshall	8	8	0	4
Mr David Knox	9	8	0	0
Dr Michele Allan	9	8	4	4
Mr Drew Clarke AO	2	2	2	2
Prof Edwina Cornish AO	9	9	4	4
Hon Ian Macfarlane	9	9	0	2
Prof Tanya Monro AC	4	3	0	0
Prof Michelle Simmons AO	5	5	0	0
Prof Alex Brown	2	1	0	0

MEMBER NAME	CSIRO BOARD PEOPLE AND SAFETY COMMITTEE		CSIRO BOARD SCIENCE EXCELLENCE COMMITTEE	
	NO. ELIGIBLE	NO. ATTENDED	NO. ELIGIBLE	NO. ATTENDED
Ms Kathryn Fagg AO	3	3	0	4
Dr Larry Marshall	0	3	0	4
Mr David Knox	3	3	4	3
Dr Michele Allan	0	1	4	4
Mr Drew Clarke AO	0	0	0	0
Prof Edwina Cornish AO	0	3	4	4
Hon Ian Macfarlane	3	2	4	3
Prof Tanya Monro AC	1	1	1	1
Prof Michelle Simmons AO	2	2	1	1
Prof Alex Brown	0	0	0	0

Appendix F: Greenhouse Gas Emissions Inventory

EMISSION SOURCE	SCOPE 1 tCO_2-e	SCOPE 2 tCO_2-e	SCOPE 3 tCO_2-e	TOTAL tCO_2-e
Electricity		69,710		69,710
Natural gas	9,039			9,039
Fleet vehicles	1,246			1,246
Domestic flights			1,747	1,747
International flights			1,172	1,172
Other energy*	6,184			6,184
Total tCO_2-e	16,469	69,710	2,919	89,098

CO_2-e = Carbon Dioxide Equivalent. *Other energy includes non-transport fuel and *RV Investigator* diesel consumption.

Appendix G: Correction to previous annual report

Part 3: Annual performance statements

Objective 3: Stimulate innovation for Australian industry, academia and government

Enabling capabilities

Health and safety performance

Page 104: Should read 'We recorded fewer total recordable injuries compared to last year and our total recordable injury frequency rate dropped from 3.7 to 3.0. Medical treatment injuries have held steady this year (28), slightly increased from last year (22), but there have been significantly less lost time injuries (**14** compared to 22 last year).'

Acronyms

AAHL	Australian Animal Health Laboratory
ACDP	Australian Centre for Disease Preparedness
ADJR	*Administrative Decisions (Judicial Review) Act 1977*
AI	Artificial Intelligence
ALA	Atlas of Living Australia
APS	Australian Public Service
ASEAN	Association of Southeast Asian Nations
ASKAP	Australian Square Kilometre Array Pathfinder
ASTRI	Australian Solar Thermal Research Institute
ASX	Australian Securities Exchange
ATCA	Australia Telescope Compact Array
ATNF	Australia Telescope National Facility
ATSE	Australian Academy of Technological Sciences and Engineering
BCR	Benefit Cost Ratio
CCC	Cross Cutting Capabilities
CCS	Carbon capture and storage
CDSCC	Canberra Deep Space Communication Complex
CERC	CSIRO Early Research Career
CERT	Corporate Emissions Reduction Transparency
CoP	Community of Practice
CPRs	Commonwealth Procurement Rules
CRC	Cooperative Research Centre
CREST	Creativity in Research, Engineering, Science and Technology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DAWE	Department of Agriculture, Water and the Environment
DFAT	Department of Foreign Affairs and Trade
DISER	Department of Industry, Science, Energy and Resources
DISR	Department of Industry, Science and Resources
eDNA	Environmental DNA
EDP	Experimental Development Program
EEGO	Energy Efficiency in Government Operations Policy
EPBC	*Environment Protection and Biodiversity Conservation Act 1999*
ESD	Enterprise Support Digitalisation Program
ET	CSIRO Executive Team
FOI Act	*Freedom of Information Act 1982*
FS&T	Future Science and Technology
FSP	Future Science Platform
FTE	Full-time equivalent
GDP	Gross Domestic Product
HDR	Higher Degree by Research
HILT	Heavy Industry Low-Carbon Transition
HPC	High-Performance Computing
HSE	Health, Safety and Environment
I^2S^2	Inquiry for Indigenous Science Students program
IAEA	International Atomic Energy Agency
ICT	Information and communication technology

IMOS	Integrated Marine Observation System
IP	Intellectual property
iPhD	Industry PhD Program
ISRU	In Situ Utilisation Facility
LiDAR	light imaging, detection and ranging
MDE	Managed Data Ecosystem
MLA	Meat and Livestock Australia
MNF	Marine National Facility
MOU	Memoranda of understanding
MRNA	Messenger RNA
NAIC	National AI Centre
NASA	National Aeronautics and Space Administration
NCI	Normalised Citation Index
NCRIS	National Collaborative Research Infrastructure Strategy
NET	Negative Emissions Technologies
NGER	*National Greenhouse and Reporting Act 2007*
NICTA	National Information Communication and Technology Australia
NPS	Net Promoter Score
NPV	Net Present Value
NRCA	National Research Collections Australia
NRF	National Reconstruction Fund
NSF	National Science Foundation (US)
OA	Open Access
OGTR	Office of the Gene Technology Regulator
PBS	Portfolio Budget Statement
PGPA	*Public Governance, Performance and Accountability Act 2013*
PID Act	*Public Interest Disclosure Act 2013*
PPE	Personal Protective Equipment
R&D	Research and development
RAIN	Responsible AI Network
RAP	Reconciliation Action Plan
RDCs	Rural Research and Development Corporations
RISE	Reporting and Improving Science Excellence
RMG	Resource Management Guide
SAGE	Science in Australia Gender Equity
SIEF	Science and Industry Endowment Fund
SIR Act	*Science and Industry Research Act 1949*
SKA	Square Kilometre Array
SKAO	SKA Observatory
SME	Small- to medium-sized enterprise
STEAM	Science, Technology, Engineering, Arts and Mathematics
STEM	Science, Technology, Engineering and Mathematics
ToA	Types of Activity
TRL	Technology Readiness Level
URC	University Research Scheme
UROP	Undergraduate Research Opportunities Program
VWEP	Virtual Work Experience Program
WGEA	Workplace Gender Equity Agency
WHO	World Health Organisation
WIPO	World Intellectual Property Organization

Glossary

Granted patents: Once a patent application has been examined and satisfies various patentability criteria, it becomes a granted patent and remains so until the end of the patent period (normally 20 years), provided renewal fees are paid.

Indigenous: Respectfully includes both Aboriginal people and/or Torres Strait Islander people. The term First Nations is used throughout this report in reference to the Minister's Statement of Expectations and refers to Aboriginal and Torres Strait Islander people.

Journal articles: Includes journal articles and other items published as part of a journal (for example, an editorial or book review).

Live patent cases: A live patent case is where either a patent application or a granted patent exists. It does not include cases that have lapsed, expired or been withdrawn. Applications may include provisional applications, Patent Cooperation Treaty (PCT) applications, and applications pending in Australia or foreign jurisdictions.

Physical Containment level 4 (PC4) One-CSIRO laboratories: Laboratories rated at the highest level of containment and the highest designated biosecurity level for working with highly transmissible diseases and viruses for which there are no vaccines or effective treatment.

PCT applications: International PCT applications are a 'temporary' phase in any international patenting process and have a lifespan of 18 months. This type of application is very common in major international corporations and is used by CSIRO when it considers its invention may have wide commercial application. In view of the 18-month time span, it is reasonable to approximate that two-thirds of the reported number were filed in the previous 12-month period.

Recordable injury frequency rate: This is calculated as the sum of Lost Time Injuries per million hours worked plus Medical Treatment Injuries per million hours worked.

Science excellence: An assessment of the competitiveness of CSIRO's research capabilities. It recognises CSIRO's science (for example, total citations) and excellence (for example, citation rates). It tends to be output-oriented and includes lagging metrics relating to research publication performance (bibliometrics), esteem measures (such as awards) and expert-peer reviews.

Scopes 1, 2 and 3 greenhouse gas emissions: Greenhouse gas emissions are organised into scopes to avoid double-counting emissions and indicate those that organisations can control (Scope 1) versus those that they can influence (Scope 3). Scope 1 are emissions from sources that are owned or controlled by the organisation. Scope 2 are emissions from the consumption of purchased electricity, steam or other sources of energy generated upstream from the organisation. Scope 3 are emissions that are a consequence of an organisation's operations but are not directly owned or controlled by the organisation.

Sponsored students: Students are deemed to be sponsored if they receive a full or partial scholarship paid from CSIRO funds to pursue a research project leading to a PhD, master's or honours degree. This excludes CSIRO employees, whose study expenses are considered to be training and development.

SIEF Ross Metcalf STEM+ Business Fellowship program: Run through the Science and Industry Endowment Fund, the program embeds early career researchers into an industrial workplace over a 2–3-year period.

Supervised students: Students are deemed to be supervised if they have a CSIRO staff member appointed officially by the university as co-supervisor for their research project. Normally, CSIRO staff are joint supervisors in conjunction with a university academic.

Team Australia: An initiative to develop strategic partnerships with other government agencies, such as the Department of Foreign Affairs and Trade, the Department of Industry, Energy, Science and Resources, and Austrade. It ensures we are working with these agencies to address complex, multidisciplinary challenges that require science and innovation input to support Australia's foreign policy agenda.

Technical reports: Includes individually authored chapters as well as whole reports that are subject to peer review and usually publicly released.

Telehealth: The use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration.

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Statement of Expectations index

MINISTER'S STATEMENT OF EXPECTATIONS	PAGE
Apply science to advance national interests. Innovation, impact, collaboration. Globally recognised expertise. Applying the National Challenge framework to opportunities and challenges facing Australia.	23, 30–31, 44–46, 52–53, 58–72, 74, 94, 101–102, 107–108, 111, 115, 188–189
Take Australian Science to the world. An active international presence. Contributing to global efforts to establish diverse and resilient supply chains; Collaborating with Australia's strategic partners; Prioritising engagement in our region.	24–25, 34–35, 58–70, 115
Advance Government policy priorities. CSIRO mission-directed research. Cross sector collaboration. Engagement with Australia's Chief Scientist and the National Science and Technology Council.	14, 24–25, 26–29, 34, 53, 60, 61, 64, 66, 68–70, 94–97, 99, 101–103 106–111, 116, 190–191
Advance First Nations Science. Leading First Nations engagement in science; Collaborating and building stronger relationships with Aboriginal and Torres Strait Islander peoples; Delivering remote applications of CSIRO programs.	4, 32–32, 46, 51, 69, 81, 93, 98–99, 103–104, 110, 117, 124, 188
Achieving Net Zero Emissions and becoming a Renewable Energy Superpower. Contributing to obligations under the Paris Agreement; Continuing commitment to climate change; Supporting to catalyse Australia's transition toward net zero emissions; Advancing the Government's renewable energy agenda; Assisting to unlock mineral endowment value; Expanding downstream processing of critical minerals; Collaborating with international counterparts on clean energy transition.	22, 24, 27, 29, 33, 34–35, 37, 59, 74–75, 80, 81–82, 106, 115, 132–133, 190
Delivering a future made in Australia through the National Reconstruction Fund. Aligning commercialisation activities to National Reconstruction Fund (NRF) priorities; Supporting Australian industries to build sovereign capability and bolster critical supply chains.	24, 35, 63, 67–68, 80, 103, 106, 126
Research translation and commercialisation. Lead in the translation of science and technology into products and services, aligned to the NRF; Supporting translation and commercialisation of university research and SMEs; Building industry connections; Supporting business growth and building critical mass for industry research ventures; Leveraging expertise in managing IP for the benefit of Australia; Bridging the gap between R&D and industry; Upholding high standards in research; Ensuring independence of commercial interest and accessibility of findings.	22, 24, 28–29, 34, 36, 44–45, 48–49, 60, 62, 64–70, 74, 78, 94–96, 98, 107, 108–109, 110, 115, 122, 125
Support the health of Australians. Applying health research expertise, providing world-class facilities and strong networks in response to threats to biosecurity and human health.	17, 28, 30–31,53, 70, 76, 78, 79, 106, 115
Managing research infrastructure and national facilities. Facilitating high utilisation rates of major science and research infrastructure and facilities; Encouraging access to, and maximising, beneficial arrangements from the use of facilities and collections.	17, 48–49, 53, 68, 81–87, 116, 118, 191

MINISTER'S STATEMENT OF EXPECTATIONS	PAGE
Promoting STEM. Engaging with the university sector; Increasing quantity and quality of STEM training; Continuing to lead and build on gender equity in STEM programs.	46, 50–52, 69, 93–95, 97–98, 105, 107–108, 110, 117, 188
STEM careers. Providing career paths for early career and postdoctoral students, research and technical staff.	5, 52, 94, 100
Communication of CSIRO science and research. Raising awareness in the community of CSIRO activities, technical knowledge and research facilities.	24, 26, 46, 49, 101–102, 105–106, 108, 111–113
Drive the organisation's performance. Promoting effective and efficient use of available resources and staff.	88–100, 116–119, 121–135
Legislative requirements. Demonstrating effective governance and performance, as per the *Public Governance, Performance and Accountability (PGPA) Act 2013*, with consideration to government policy and priorities.	I,39–53, 105, 122–128, 138–203, 234–236
Agency staff and health. Providing a workplace that supports and encourages diversity and inclusivity; Retaining the best minds from Australia and around the world, with robust professional development; Maintaining safety standards across the organisation and fulfilling obligations under the *Work Health and Safety (WHS) Act 2011*; Ensuring Board adherence to relevant legislation in the execution of duties, including security clearances as appropriate.	50–52, 88–100, 116–117, 122–123
Working with the Department and Office. Communicating and collaborating with the Minister's office and Department of Industry, Science and Research (DISR) and across government in the delivery of priorities and input into policy.	67, 98, 105–106, 123

Compliance index

Statutory reporting requirements

PGPA RULE REFERENCE	PART OF REPORT	DESCRIPTION	REQUIREMENT
17BE	Contents of annual report		
17BE(a)	ii	Details of the legislation establishing the body	Mandatory
17BE(b)(i)	ii–iii, 2–3, 20–21, 40–41, 105, 122, 129	A summary of the objects and functions of the entity as set out in legislation	Mandatory
17BE(b)(ii)	20–21, 40–41	The purposes of the entity as included in the entity's corporate plan for the reporting period	Mandatory
17BE(c)	3, 105	The names of the persons holding the position of responsible Minister or responsible Ministers during the reporting period, and the titles of those responsible Ministers	Mandatory
17BE(d)	105	Directions given to the entity by the Minister under an Act or instrument during the reporting period	If applicable, mandatory
17BE(e)	122	Any government policy order that applied in relation to the entity during the reporting period under section 22 of the Act	If applicable, mandatory
17BE(f)	N/A	Particulars of non-compliance with: (a) a direction given to the entity by the Minister under an Act or instrument during the reporting period or (b) a government policy order that applied in relation to the entity during the reporting period under section 22 of the Act	If applicable, mandatory
17BE(g)	39–53	Annual performance statements in accordance with paragraph 39(1)(b) of the Act and section 16F of the rule	Mandatory
17BE(h), 17BE(i)	122	A statement of significant issues reported to the Minister under paragraph 19(1)(e) of the Act that relates to non-compliance with finance law and action taken to remedy non-compliance	If applicable, mandatory
17BE(j)	6, 10, 40, 210–211	Information on the accountable authority, or each member of the accountable authority, of the entity during the reporting period	Mandatory
17BE(k)	10–13	Outline of the organisational structure of the entity (including any subsidiaries of the entity)	Mandatory
17BE(ka)	4, 14, 206–209	Statistics on the entity's employees on an ongoing and non-ongoing basis, including the following: (a) statistics on fulltime employees; (b) statistics on part time employees; (c) statistics on gender; (d) statistics on staff location	Mandatory
17BE(l)	iv–v, 115	Outline of the location (whether or not in Australia) of major activities or facilities of the entity	Mandatory
17BE(m)	122–131	Information relating to the main corporate governance practices used by the entity during the reporting period	Mandatory

PGPA RULE REFERENCE	PART OF REPORT	DESCRIPTION	REQUIREMENT
17BE(n), 17BE(o)	128	For transactions with a related Commonwealth entity or related company where the value of the transaction, or if there is more than one transaction, the aggregate of those transactions, is more than $10,000 (inclusive of GST): (a) the decision-making process undertaken by the accountable authority to approve the entity paying for a good or service from, or providing a grant to, the related Commonwealth entity or related company; and (b) the value of the transaction, or if there is more than one transaction, the number of transactions and the aggregate of value of the transactions	If applicable, mandatory
17BE(p)	N/A	Any significant activities and changes that affected the operation or structure of the entity during the reporting period	If applicable, mandatory
17BE(q)	N/A	Particulars of judicial decisions or decisions of administrative tribunals that may have a significant effect on the operations of the entity	If applicable, mandatory
17BE(r)	N/A	Particulars of any reports on the entity given by: (a) the Auditor General (other than a report under section 43 of the Act); or (b) a Parliamentary Committee; or (c) the Commonwealth Ombudsman; or (d) the Office of the Australian Information Commissioner	If applicable, mandatory
17BE(s)	N/A	An explanation of information not obtained from a subsidiary of the entity and the effect of not having the information on the annual report	If applicable, mandatory
17BE(t)	124	Details of any indemnity that applied during the reporting period to the accountable authority, any member of the accountable authority or officer of the entity against a liability (including premiums paid, or agreed to be paid, for insurance against the authority, member or officer's liability for legal costs)	If applicable, mandatory
17BE(taa)	122–123, 212–214	The following information about the audit committee for the entity: (a) a direct electronic address of the charter determining the functions of the audit committee; (b) the name of each member of the audit committee; (c) the qualifications, knowledge, skills or experience of each member of the audit committee; (d) information about each member's attendance at meetings of the audit committee; (e) the remuneration of each member of the audit committee	Mandatory
17BE(ta)	127, 167–170	Information about executive remuneration	Mandatory

PGPA Rule Section 17BE (h) – (i) Significant non-compliance with the Finance Law

DESCRIPTION OF NON-COMPLIANCE	REMEDIAL ACTION
N/A	

***Science and Industry Research Act 1949*, Compilation No. 15 (14 September 2022)**		
SIR ACT REFERENCE	**PART OF REPORT**	**DESCRIPTION**
Part II, Section 9(1)(a)(iiia)	35, 134	Contributing to giving effect to Australia's obligations under the Paris Agreement (per *Climate Change (Consequential Amendments) Act 2022*
Part VIII, Section 51 (a)	122, 125	Policies relating to scientific research
Part VIII, Section 51 (b)	126	Development in policies during the year
Part VIII, Section 51 (c)	105, 122	Ministerial determinations in relation to the functions of the Organisation
Part VIII, Section 51 (d)	105, 122	Ministerial directions or guidelines relating to the functions and powers of the Board
Part VIII, Section 51 (e)	105, 122	Policies of Australian Government that apply to CSIRO
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Section 9	33, 46, 50–51, 89–90, 93, 117, 188	*Equal Employment Opportunity (Commonwealth Authorities) Act 1997*
Section 4(1)	50, 91, 92	*Work Health and Safety Act 2011*
	126, 129	*Privacy Act 1988*
	129	*Freedom of Information Act 1982*
	130	*Public Interest Disclosure Act 2013*
	126	*Modern Slavery Act 2018*
	126, 132	Fraud Control
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	128	Service Charter

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Feedback

CSIRO welcomes your feedback on our performance. Please contact the CSIRO officer with whom you have been dealing or CSIRO Enquiries, who can direct your feedback to the relevant person: csiro.au/contact

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