JUNE 2025 - JUNE 2026

amira

ANNUAL REPORT



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ACKNOWLEDGEMENT OF COUNTRY

Aligned with the principles of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), we affirm our unwavering commitment to the rights and values of indigenous communities where mining activities are undertaken. This entails respecting their inherent right to self-determination, ensuring that their free, prior, and informed consent is obtained, preserving their cultural heritage, and guaranteeing redress and sustainable practices. We recognize the indispensable role of indigenous voices in these endeavors and pledge to uphold a transparent, inclusive, and mutually beneficial relationship in all mining engagements.

WHO WE ARE

Amira is an independent global not-for-profit organisation representing members from the Mineral Resources industry. We seek to enhance, sustain and deliver transformational research and development, innovation and implementation to the benefit of society.

OUR PURPOSE

01. ENHANCE

Enhance standing of the Mineral Resources Industries amongst stakeholders locally and globally

02. SUSTAIN

Sustainable development of the Mineral Resources industries that is acceptable to society

03. DELIVER

Delivery of new data, knowledge, technologies, products and services in order to help Members

OUR HIGHLIGHTS

Amira P1262 Enters Final Stages

Amira Global's P1262 research project focuses on improving seismic hazard forecasting in underground mining through advanced numerical and probabilistic modelling. The project aims to enhance the prediction of seismic events, supporting safer mine designs, improved risk management and more informed geotechnical decision-making.
In FY2025/26, P1262 entered its final stages, completing two sponsor review meetings and site-specific workshops. Key achievements included validating seismic forecasting models using operational data, improving forecasting accuracy through updated mining sequences and enhancing post-processing and visualisation tools. As the project approaches completion, Amira is focused on delivering practical guidelines, software tools and research outputs to support industry application. Building on these achievements, Amira is also exploring opportunities to extend the research, with a potential follow-on project commencing in late 2027.



P1332I Amira Training Skills Transfer Program

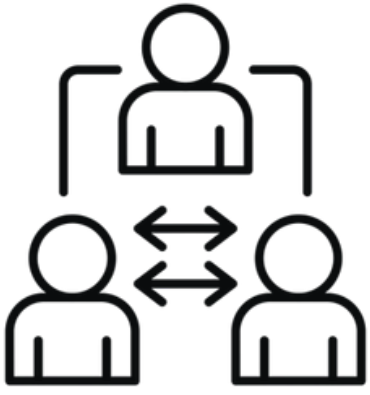
In the 25/26FY, 3 different sets of mineral processing training was delivered under Amira P1332 project. This included a hybrid (on-line & in-person in Johannesburg, South Africa) training on flotation modelling and circuits in July 2025, on-site operators and supervisors training at AGA Siguiri, Guinea in October-November 2025 on Milling, Classification and Gravity operations and another on-site operators and supervisors training on Carbon Management, CIP/CIL. Elution and Metallurgical laboratory operations at AGA Siguiri, Guinea in February- March 2026. Some upcoming training and discussion with members currently include operators and supervisors training in Tailings Storage Facility management. Amira continues to engage interested members on above training and other special requirements to the transfer requisite skills and create value for members.

Exploration Managers Conference

This year the EMC2025 brought together leaders from across the global exploration community to reflect on the future of the sector. The conference provided a platform for both technical insight and open discussion, surfacing key themes around time and cost pressures, the need for greater collaboration, increasing uncertainty, and the role of integrated technologies. The event reinforced Amira's position as a trusted convener and innovation partner in the exploration ecosystem.

WHY AMIRA IS UNIQUELY POSITIONED

A trusted, independent platform built to orchestrate system-level collaboration across the minerals ecosystem.



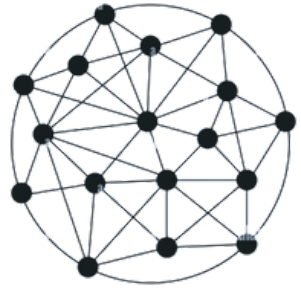
Independent, Neutral

Trusted by members to convene shared challenges.



Governance

Makes collaboration investable, structured and accountable.



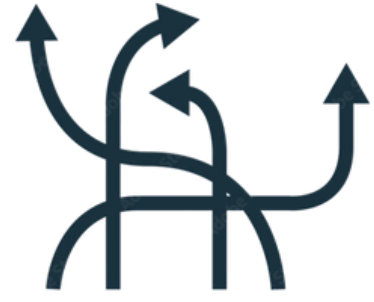
Systems of Value Creation

Global industry, research, government and capability networks.



Thought Leadership

Turns complexity into shared priorities and practical pathways.



Agile

Flexibility from neutrality, driving the right response to the right challenges

65 years of institutional memory
500+ collaborative projects
Global industry and research networks

HOW AMIRA CREATES VALUE ACROSS THE INNOVATION SYSTEM

Industry prioritises flow-down. Value compounds up. Amira orchestrates the system that connects them.



PROOF OF LEVERAGE - AND THE INVITATION

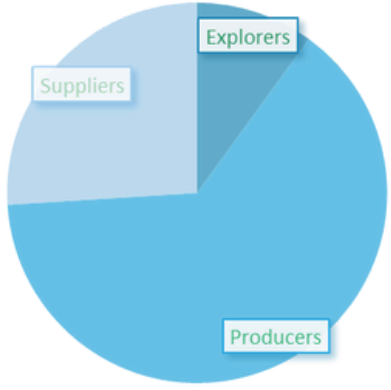
The invitation to shape the industry shared priorities, not a transaction to fund another project.

JOIN THE AMIRA MEMBERS

80	12	12
Average members since 2008	Average annual member turnover since 2008	Average member turnover since 2008

TO CREATE VALUE FROM GOVERNED COLLABORATION

$1.65B	$350M	750
Industry focused R&D Delivered	New technology	Collaborative Projects



The ask

Engage senior leaders to define the shared priorities that matter most.

Support the governed platforms required to address them.

Back collective action where collective action creates the greatest leverage.

THROUGH PROJECT DELIVERY

AUD $54M	81	32	300	594 GB	$1.7M	47
P9 series industry investment	P9 industry sponsors	countries with site tests	P9 MSc, PhD and postdoc projects	SAXI exploration GIS database	SAXI funding to date plus in-kind support	SAXI graduate and postgraduate projects

We are not asking leaders to fund another project.
We are inviting leaders to shape the industry's shared priorities for collective objectives.

A MESSAGE FROM OUR CHAIRMAN
MR. RAJ MATHIRAVEDU



Chairman B.Eng. Mechanical Engineering
M.S. Mechanical Engineering, MBA General Management
Group Executive and President Asia, Orica Digital Solutions

Dear AMIRA Members,

As Chairman of AMIRA Global, I am honoured to address you at the commencement of FY2027. Since 1959, AMIRA has provided a unique platform for industry, academia and government to work together to solve shared challenges and advance our industry through collaboration and innovation.

Today, we operate in a markedly different environment. Mining companies are facing increasing cost pressures, capital discipline and market uncertainty, while the global research ecosystem is navigating constrained funding and growing expectations to deliver practical outcomes. These conditions make collaboration more important than ever.

AMIRA's purpose remains unchanged: to enable the mineral industry to prosper by advancing knowledge, developing people and delivering innovation. Through our global network, we continue to connect organisations, share risk, and accelerate solutions that no single company could achieve alone.

As we navigate these challenging conditions, I encourage our founding members and long-standing supporters to continue championing the collaborative model upon which AMIRA was built. Your leadership, participation and ongoing commitment are critical to ensuring that our industry continues to benefit from world-class research, innovation and talent development.

Equally, I encourage newer members to engage actively in shaping our future research agenda and strengthening our collective impact.

I would like to thank Vaughan Chamberlain, our CEO, the management team, Board members, research partners and all our members for their dedication and support. Your commitment to collaboration remains the foundation of AMIRA's success.

While the challenges ahead are real, so too are the opportunities. By working together, sharing knowledge and investing in innovation, we can ensure AMIRA continues to create value for our members and support a resilient, productive and sustainable minerals industry.

Thank you for your continued support and partnership.

Yours sincerely,

Rajkumar Mathiravedu
Chairman, AMIRA Global Board

A MESSAGE FROM OUR CEO
MR. VAUGHAN CHAMBERLAIN



Master of Science in Engineering MEng; BSc Hons (Geology) Founder, VG Advisory, Amira Global CEO

Dear Amira Members,

The 2025/26 year was a year of strategic reflection for Amira. We spent time considering our value proposition to better place ourselves in the industry. The key outcome for us was recognising that we are in effect a trusted, independent platform built to orchestrate system-level collaboration across the minerals ecosystem. This means we are uniquely positioned as an independent and neutral body to provide governance to systems of value creation whilst remaining agile and providing thought leadership.

The research frameworks we developed last year remained live documents and continue to be adapted to reflect the drivers and needs of industry. Working with our members to understand their research needs and business prerogatives is paramount to this evolution. The number of research frameworks was reduced to four frameworks with the Innovation framework now integrated into each of key frameworks.

On a personal note, I once again extended my contract with Amira as I continued to relish the opportunity to work with the Amira team, our engaging members and cohort of researchers. This year saw several changes in the team and the management structure was revised and strengthened. Shubham Bist joined as Executive Head of Finance after Sean Robson left, while Hayley McGillivray completed her PhD and was appointed as Executive Head of Geoscience and Membership. Tony Anyimadu completes the executive and fills the role of Executive Head of Minerals Processing and Operations. We established an operations committee to which we appointed Romulo Sanhueza as Head of Mining and Dr Silvia Black as Head of Sustainability. Maya Sabattini joined as the marketing officer and Sumeet Yamdagni was appointed as a program manager after providing consulting service for the last two years.

In the geoscience's portfolio, highlights of the year saw P934C WAXI successfully concluding and an extension project to clean the data gathered over more than 20 years being formulated. We also saw P1335 GAXI and P1249 Complex Orebodies continuing during the year. Development of a modern version of Data Metallogenica has commenced and should be launched before the year end. This is the first phase of the development of Amira's knowledge base system, CollaborateOre. Meanwhile the proposals for P1332 EAXI and P1061B SAXI were completed and we are now actively seeking sponsorship. Several exciting projects have been added to the framework pipeline, and these include four new and exciting projects: P1372 Core Scanning, P1245A Spectral IP, P1376 LAXI and P1378 Geoheritage of South Africa.

The most successful function of the year was the 2025 Amira Exploration Managers Conference. This was held on the Gold Coast. EMC2025 brought together 92 leaders from 30 companies across the global exploration community to reflect on the future of the sector.

A MESSAGE FROM OUR CEO
MR. VAUGHAN CHAMBERLAIN



Master of Science in Engineering MEng; BSc Hons (Geology) Founder, VG Advisory, Amira Global CEO

Work continued to develop the Mining framework with P1262 Seismiicity continuing while a supplementary program P1262A is being formulated. The mining team is reaching deep to expand and develop the framework in conjunction with our members and academia. The Mineral Processing framework saw significant efforts to further integrate research work and supplement the work done in P420 which is nearing the end of the current program. The proposal for P1345 Integrated Digital Modelling of Mineral Processing Circuit's is complete and looking for sponsorship. Amira is offering a broad range of training modules for all disciplines. The first two operational metallurgical training sessions took place in the second half of 2025, and the programs are currently being expanded.

This year saw the P1288 Predicting Liquefaction continued as part of the sustainability framework. The program is proving to be successful. Other projects being developed under the sustainability framework include P1367 Sustainability Navigator and P1374 Minerals Industrial Symbiosis Program.

The active management of our project pipeline is paying dividends, and we saw many programs and projects brought forward during the year. We implemented an investment committee to shepherd the projects through the stages of development to sponsorship. The model sees the Amira team leading the collaboration process which needs the active involvement of members and global research teams to define industry relevant programs supported by well-defined and executed projects.

Yours sincerely,

Mr Vaughan Chamberlain
Amira Global CEO


OUR PEOPLE

AMIRA GLOBAL BOARD



Mr Mathiravedu joined AMIRA International Limited as a non-executive Director in July 2022 He was appointed Chair of the Amira Global board in 2023

Rajkumar Mathiravedu
Chairman B.Eng. Mechanical Engineering
M.S. Mechanical Engineering, MBA General Management
Group Executive and President Asia, Orica Digital Solutions



Mr Chamberlain joined AMIRA International as a non-executive Director in March 2023 and rejoined the board in June 2025.

Vaughan Chamberlain
Master of Science in Engineering MEng;
BSc Hons (Geology) Founder, VG Advisory,
Amira Global CEO



Dr Ampofo joined AMIRA International Limited as a non-executive Director in February 2022.

Kwasi Ampofo
PhD Mineral Economics
Head of Metals and Mining, BloombergNEF



Mr Canby joined AMIRA International Limited as a non-executive Director in November 2019

Mac Canby
BSc Geological Engineering,
MSc Geology
Senior VP Exploration,
Freeport-Mc-Mo-Ran Inc.



Dr Kappes joined AMIRA International Limited as a non-executive Director in June 2018. She is a member of Finance & Audit Committee. She is also Member of the nominations committee for AMIRA.

Dr Ronel Kappes
BSc Engineering, PhD
Metallurgical Directory,
Advisory to the CTO,
Newmont Corporation



Dr Maki joined AMIRA International Limited as a non- executive Director in May 2020

Dr Rikard Maki
PhD Mechanical Engineering,
Head of Electrification and
Automation, Boliden



Dr Osborne joined AMIRA International Limited as a non-executive Director in November 2020

Dr Jared Osborne
PhD Chemical Engineering,
Head of Technical
Development Rio Tinto



Mr Ravella joined AMIRA International Limited as a non-executive Director in April 2021. He is a member of the Finance and Audit Committe

Michael Ravella
BSc Geology, Global Key
Account Manager Rigaku



Dr Victor Pantano joined AMIRA International Limited in November of 2025 as a non executive director

Dr Victor Pantano
PhD Engineering, Honorary
Associate Professor,
Australian National University

AMIRA AFRICA BOARD



Kwasi Ampofo
PhD Mineral Economics
Head of Metals and Mining, BloombergNEF

Dr Ampofo joined AMIRA International Limited as a non-executive Director in February 2022.



Vaughan Chamberlain
Master of Science in Engineering MEng; BSc Hons (Geology) Founder, VG Advisory, Amira Global CEO

Mr Chamberlain joined AMIRA International as a non-executive Director in March 2023 and rejoined the board in June 2025.



Eric Asubonteng
Mining Executive, Company Founder and CEO

Mr Asubonteng joined AMIRA International Limited as a non-executive Director on the 11th February 2025



Helen Brume
Director & Global Head Project Finance and Asset Based Finance Afreximbank, Board Member

Ms Brume joined AMIRA International Limited as a non-executive Director on the 8th January 2025

THE EXECUTIVE TEAM



Tony Anyimadu
GM Africa | VP Mineral Processings

Describe your role: Operationalise the Africa Board Strategy. Current Focus is to re-organize Amira Global Mineral Processing into 4 programs to include Energy, critical mineral processing, unit processing models extension (old p9), and Extractive Metallurgy; and (ii) embed P-ADI and ACoE to meet the needs of members.

Brief career biography: Tony graduated as a Metallurgical Engineer in 1993 and is an experienced Process Engineer with Anglo and AGA, spanning plat design, production, combined assurance and due diligence, operations and research management. He's been on advisory boards for institutions like UCT Chemical Engineering and SAMMRI and is dedicated to enhancing Africa's mineral value chain.

Country of origin: Ghana



Vaughan Chamberlain
Amira Global CEO

Describe your role at Amira Global: My role is that of CEO and MD of Amira Global. I have been in the role for around 2.5 years. I am accountable for the strategic leadership of Amira Global and lead a very strong team which is motivated and technically strong across the mining value chain. We always strive to meet out mandate to support collaborative research and develop talent for the mining industry.

Brief career biography: I spent over 40 years working for Anglo American and AngloGold Ashanti. I originally trained as a geologist and later obtained a MSc in Mining engineering. I filled numerous roles during this time with AngloGold, including being the Competent Person for Mineral Resource and Mineral Reserve, leading the Strategic Technical team as well as the strategic planning function, taking accountability for the consolidated group budget and finally acting in the both the CTO and CDO roles. I retired for AngloGold in 2022 and established a successful consultancy before joining Amira.

Country of origin: South Africa

THE EXECUTIVE TEAM



Shubham Bist
Head of Finance

Describe your role:
Responsible for overseeing AMIRA Global's financial management, reporting and financial governance, with a focus on maintaining the organisation's financial sustainability and supporting informed strategic decision-making. The role encompasses financial planning and budgeting, cash flow management, management and Board reporting, financial controls and compliance, project and membership financial oversight, and providing financial and commercial advice to the CEO and leadership team.
Brief career biography:
Shubham is an experienced finance professional with more than 20 years of experience across financial management, accounting, business advisory and operational finance. He has worked with organisations across a diverse range of industries, providing financial leadership, strengthening financial systems and controls, and supporting management teams with budgeting, forecasting, cash flow management and strategic decision-making. At AMIRA Global, Shubham brings a commercial and practical approach to financial management, with a particular focus on strengthening financial governance, improving visibility of organisational and project performance, and supporting AMIRA's long-term financial sustainability.
Country of origin:
India



Hayley McGillivray
Executive Head of Geoscience

Describe your role: My role is to support Amira members to address complex challenges that no organisation can handle alone. With a particular passion for the Geoscience area, I enjoy managing the WAXI initiative and working on structures and strategies for new programs.

Brief career biography: Hayley has a background of ten years working as a Geologist in the Mining Industry. During this time, one of her focuses was managing research and development partnerships with research organisations and operational implementation of outcomes. Over the last decade, Hayley has worked with small businesses and Research organisations, facilitating research knowledge transfer into industry. Hayley spent three years delivering the Federal Government Entrepreneurs Program-Innovation Connections. Hayley has extensive experience of research collaborations from Industry, Research and Program delivery perspectives and has built strong operational experience in Innovation, R&D and Commercialisation. Hayley is studying for her PhD in Industry-Research Collaborations and is a program manager at Amira Global

Country of origin: England

HEADS OF DISCIPLINE



Hayley McGillivray
Executive Head of Geoscience

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Brief career biography: Hayley has a background of ten years working as a Geologist in the Mining Industry. During this time, one of her focuses was managing research and development partnerships with research organisations and operational implementation of outcomes.
Over the last decade, Hayley has worked with small businesses and Research organisations, facilitating research knowledge transfer into industry. Hayley spent three years delivering the Federal Government Entrepreneurs Program- Innovation Connections. Hayley has extensive experience of research collaborations from Industry, Research and Program delivery perspectives and has built strong operational experience in Innovation, R&D and Commercialisation. Hayley is studying for her PhD in Industry-Research Collaborations and is a program manager at Amira Global

Country of origin: England



Dr Silvia Black
Head of Sustainability & Australia Representative

Describe your role: leading operational and strategic initiatives by developing and managing a diverse portfolio of global projects, programs and strategic collaborative initiatives, with Research & Innovation focusing on long-term sustainability across the mineral industry value chain. Currently Silvia is leading the strategic development of Amira Global's Sustainability framework
Brief career biography: Silvia has a BSc (App. Chem.) degree from Curtin University, a Grad. Dip. (Food and Drug Analysis) from University of NSW and a PhD (Extractive Metallurgy) from Murdoch University. She has scientific, analytical and innovation expertise spanning over 35 years in the fields of mining, food, water, education, racing, and forensic and environmental science. With a large portion of her career being in mining, she has long lasting relationships and works collaboratively with government agencies, funding bodies, researchers, industry and industry bodies.
Country of origin: Argentina

HEADS OF DISCIPLINE



Tony Anyimadu

GM Africa | VP Mineral Processings

Describe your role: Operationalise the Africa Board Strategy. Current Focus is to re-organize Amira Global Mineral Processing into 4 programs to include Energy, critical mineral processing, unit processing models extension (old p9), and Extractive Metallurgy; and (ii) embed P-ADI and ACoE to meet the needs of members.

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Country of origin: Ghana



Romulo Sanhueza

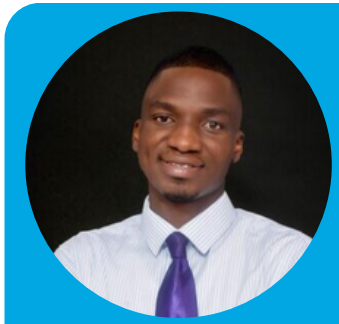
Head of Mining & Americas

Describe your role: Lead Amira Global's mining portfolio and activities across the Americas, identifying industry needs, developing collaborative research initiatives and building relationships with mining companies, research institutions and other key stakeholders.

Brief career biography: Romulo is a mining engineer and Fellow of the AusIMM with over 25 years of international experience across Latin America and Africa. Before joining Amira, he held senior roles with AngloGold Ashanti and Anglo American, leading mining operations, mine planning, feasibility studies and major project development. His expertise includes strategic planning, asset optimisation, value engineering and technical assurance.

Country of origin: Chile

PROGRAM MANAGERS



Bright Foli
Program Manager

Describe your role: Developing and managing projects/program through engagement with academia, industry and allied stakeholders. I support ongoing collaborative R&D projects globally, and I drive emerging programs in Africa.

Brief Career Biography: Bright holds a Bsc Chemistry degree from the Kwame Nkrumah University of Science and Technology, Ghana, MSc. Oil and Gas Chemistry from the University of Aberdeen, UK and a Project Management Professional (PMP) certification. In the past 10years, he has worked on offshore oil production chemistry projects and implemented downstream fuel integrity programs for governments across the West and Central Africa regions.

Country of Origin: Ghana



Tim Cross
Program Manager

Describe your role: Working with researchers and mining/METS companies to imagine and build collaborative solutions to the challenges we're all facing right now with respect to safely and effectively finding and understanding orebodies.

Brief career biography: Aside from a brief stint in gold exploration that supported my undergraduate thesis (2008, Acadia University), most of my career has been in iron ore: exploration, modelling, mining and processing, across Canada and Australia. I started part-time contract work for Amira in November 2024 and moved to a nearly-full-time staff role in July 2025. The breadth and depth of the Program Manager role in Amira has been a real challenge for me, but my belief in the value of collaborative, multi-disciplinary thinking spurs me on.

Country of origin: Canada

PROGRAM MANAGERS



Redeemina Comfort Bonnah

Program Manager

Describe your role: I oversee a global project portfolio, focusing on strategic and long-term initiatives which aim to promote sustainability across the entire mining industry value chain through collaborative projects. I also work to strengthen Amira's member presence, expand research alliances, and represent Amira during member engagements, prioritizing member needs.

Brief career biography: Redeemina holds a BSc. (Hons) in Minerals Engineering and an M.Eng. in Materials Science and Engineering. With over 9 years of experience, she has expertise in mining, and materials science and engineering. She has been involved in collaborative research projects in the mining industry in Ghana, particularly in metallurgy and tailings management establishing strong industry relationships in her capacity as a research fellow.

Country of origin: Ghana



Sumeet Yamdagni

Program Manager

Describe your role: I integrate technical, commercial, and strategic insights to help identify and develop opportunities in new global markets. My work spans analysing industry needs, defining the innovation landscape, and building partnerships to bridge capability gaps.

Brief career biography: Sumeet is an innovator and entrepreneur with over 15 years of experience in deep tech innovation, spanning optical sensing, energy and space. He holds an M.Sc. Engg in instrumentation and is a MIT TR35 India awardee.

Country of origin: India

AMIRA SUPPORT TEAM



Dr Anil Subramanya
Strategic Advisor

Describe your role: I provide high-level guidance to shape Amira's research and innovation strategy, ensuring it aligns with global priorities such as decarbonisation, critical minerals, and sustainable mining. I work closely with industry partners, government bodies, and research institutions to identify emerging opportunities, foster collaboration, and help position Amira at the forefront of transformative R&D that drives meaningful impact across the minerals sector.

Brief career biography: Anil holds a PhD in geochemistry and economic geology with 35 years of global experience, primarily in exploration and development. Passionate about sustainable industry development, he champions early STEM education to nurture talent in the minerals sector. He's known for fostering collaborations between research institutions, industry, and governments

Country of origin: India



Ann Woolley
Global Support Manager

Describe your role: I provide support for all projects from inception to completion which includes project meetings, distributing of reports, presentations, and all other project information relevant to the project. I provide administrative support for the Amira RSA Board and the Amira Global Board. I provide staff training on our various systems and processes. I manage the South African office - accounts, memberships, and finances.

Brief career biography: Ann was a partner in a company Called Ridge Systems as administrative support. She has been with Amira since 2008.

Country of origin: South Africa

AMIRA SUPPORT TEAM



Jacqueline Russell
Project Support Officer
& Office Manager

Describe your role: To provide support on project issues throughout the process and life of the project, as well as collaboration with colleagues in whatever is necessary and required. I maintain the databases in our systems related to contacts, contracts, interactions, documentation, and projects. Administratively, I manage legal documentation, financial information, and contracts.

Brief career biography: Jacky worked at CAP (Compañía de Aceros del Pacifico) as an assistant in the Stock department for almost 18 years. She was also in the Accounting and Finance departments of CAP as an assistant and eventually in the Presidency. She arrived at Amira in 2010 as a Project Support Officer.

Country of origin: Chile



Maya Sabattini
Communications &
Marketing Officer

Describe your role: In my role as Marketing & Communications Officer at Amira Global, I am responsible for developing and delivering marketing and communications initiatives that enhance brand awareness and promote collaborative research projects across the global mining industry. This includes creating content for digital channels, managing the company website and social media platforms, coordinating newsletters and marketing campaigns, supporting conferences and events, liaising with internal and external stakeholders, and monitoring campaign performance to ensure our communications are engaging, consistent, and aligned with organisational objectives.

Brief career biography: Maya is a Marketing & Communications Officer at Amira Global and a graduate of the University of Western Australia with a Bachelor of Commerce, majoring in Marketing. She has experience across marketing, communications, digital content, campaign management, and brand development, with previous roles spanning the professional services and retail sectors.

Country of origin: Australia


GEOSCIENCE
MINING
RESEARCH FRAMEWORKS
MINERAL PROCESSING
SUSTAINABILITY



GEOSCIENCE FRAMEWORK

GEOSCIENCE FRAMEWORK

collaborateore

DATA METALLOGENICA

Long-term, pre-competitive global series

P934C WAXI-4 (West Africa) ∞
P1335 GAXI (Geodynamic Andes) ∞

P1322 EAXI (East Africa) ∞
P1061C SAXI-3 (Sth America) ∞
P 1368 Laramides XI ↑ ∞
Central Africa Regional Geology Development and Critical Commodity Study ∞

Arabian-Nubian Shield XI
P1308 NAXI (Nth America)
AXI (Asia)
Kaapvaal Craton XI

Complimentary, medium to long-term exploration

P1249 Complex Orebodies ∞

Data Preservation- South Africa

Data Metallogenica Future Extensions
Geometallurgy

Short to medium-term Technology R&D

P1306 Data Metallogenica Curation

P1245A Full Physics Spectral IP
P1372 Core Scanning Evaluation ↑ ∞

Data Fusion
Fluid Flow Modelling ↑ ∞

PROJECTS IN MANAGEMENT
PROJECTS UNDER DEVELOPMENT
FUTURE / CONCEPTUAL PROGRAMS

Geoscience Community - Exploration Managers Conference exploring Inter and Intra Sector Ideas

Talent, capability building, education and training (∞)

Innovation - Acceleration of Adoption, Scaling and Commercialisation (↑)

GEOSCIENCE HIGHLIGHTS

1 PROJECT COMPLETED





32 RESEARCH ORGANISATIONS

2 PROPOSALS CIRCULATED

15 CONCEPTS EVALUATED

5 SPONSOR REVIEW MEETINGS

3 PROJECTS MANAGED

11 GOVERNMENT SURVEYS

31 ACTIVE ROJECT SPONSORSHIPS

6 ROUND TABLES

The Geoscience Framework has had an active year, offering Amira members multiple opportunities to engage with ideas, shape developing projects and as sponsors of established initiatives.

The Exploration Managers' Conference remains one of the highlights of the framework, offering a unique opportunity for the community to come together for an invite only discussion of significant topics. Covering the theme Exploring Exploration: Where does it start? Where does it stop? Through the sub-themes of: collaboration, time and uncertainty, this year's conference was a great success.

The EMC specifically highlighted some focus areas which emerged, including: Technology sandbox testing, roundtables and roadmaps for discovery, data fusion, integration of juniors into projects and EMC conferences. The need to address central challenges of systemic working, accelerating discovery, and collaboration were central. These do not happen in isolation, requiring collaborative governance, a natural role of Amira:
"We can share data and still own our ideas. That's how we go faster."

GEOSCIENCE PROJECTS IN DEVELOPMENT

P1372 CORE SCANNING TECH EVALUATION

Current Stage: Expressions of Interest (Proposal in Development)

P1372 is a member-driven concept, the intent of which is to provide sponsors with clear, evidence-based guidance on selecting, using and managing data associated with various core scanning technologies currently on the market, across various geological contexts.

Inspired by seminal collaborations like CAMIRO's Project 10E01 on portable XRF devices (2012-2013), P1372 aims to evaluate a broad range of commercially available core scanning technologies across a variety of commodities, deposit types and geographies. Coordinated by James Shreeve (Digital Lithics), with contributions from a range of independent consultants and researcher institutions, the program aims to provide unbiased guidance on each technique's fundamental operating principles, strengths, limitations, ideal operating parameters/procedures, data management and opportunities for improvement, enabling stakeholders of all kinds to focus their investments – including future R&D - effectively.

James and Amira are currently engaging with a diverse group of potential sponsors, vendors and research partners who have already signed EOI's to design the full project Proposal, with ongoing opportunity for others to get involved.

Current highlights and future outlook: In the 25/26FY, this project had a series of co-creation round tables with mining company reps, core scanning vendors and researchers/technical experts to ascertain high-level support for the concept and inform project design. The Proposal will be released in the coming months, with the aim of kicking off early in 2027.

Principal Researcher: James Shreeve @ Digital Lithics

P1245A SPECTRAL IP II

Current Stage: Expressions of Interest (Proposal in Development)
P1245A is the successor to Amira's project P1245 Spectral Induced Polarisation, completed in 2024, which showed compelling evidence for the potential of Spectral IP to differentiate between certain minerals and/or textures of interest to explorers.

Since P1245's completion, Amira has been working with former sponsors and research team members to refine the strategy and key focus areas for further research, culminating in the proposal of a staged, simulation-first approach aimed at understanding and overcoming current barriers to effective, real-world application of lab-derived learnings from former research. This will be delivered through a partnership between industry (consultants and geophysical service providers) and academia, led by Kerry Key (Deep Blue Geophysics) with collaborators from Rutgers University Newark (P1245 co-lead), Terrigena Ltd (P1245 co-lead) and Zonge International.

Current highlights and future outlook: Round table meetings held in 25/26FY resulted in sufficient interest among industry reps to justify proceeding with development of the full Project Proposal. This is expected to be released early in Q4 of 2026, ready for a rapid kick-off of the Simulation-focused Stage 1 before the end of this calendar year.

Principal Researcher: Kerry Key @ Deep Blue Geophysics



Program Manager: Tim Cross

GEOSCIENCE PROJECTS IN DEVELOPMENT

Program Manger
Romulo Sanhueza



P1376 LAXI

Current Stage: Proposal Development

Description: P1376 is a project founded upon taking the success of the AXI initiatives into a new region. The Laramides eXploration Initiative will focus on regional understanding, data harmonisation and capacity uplift.

LAXI will investigate the magmatic-tectonic signature and relationship to develop ore deposits from Cretaceous to Paleogene periods:

- Intergrate the knowledge of magmatic-tectonic evolution into the development of ore deposits with Artificial Intelligent algorithms
- accelerate the discovery of new deposits
- assist exploration companies focusing their activities
- help local geological surveys and universities maximise their potential in this region
- build strong collaborative connections

The LAXI strategy focuses on five main areas:
- (1) Geodynamic evolution
- (2) Magmatic-tectonic evolution
- (3) Ore deposit source and genesis
- (4) Data integration and exploration targeting
- (5) Knowledge transfer and training

Current highlights and future outlook:
In the 25/26FY, this project had a series of co-creation round tables with industry and academia to support the program design. The project proposal will be released in the coming months, with the aim of commencing the project in early 2027.

P1378 DATA HERITAGE

Current Stage: Expressions of Interest

Description: The project will focus on evaluating, cataloguing, and preserving legacy Wits Basin data. A central objective is the creation of a single, accessible digital system that consolidates borehole records, drill cores, reports, and datasets for use by the global scientific and mining community. Alongside data preservation, the project will support multidisciplinary research and postgraduate training, ensuring knowledge transfer to the next generation of geoscientists. By fostering collaboration between universities, mining companies, government, and philanthropic organisations, the project aims to secure the resources and governance structures required to sustain this work.

The first phase of the Wits Basin Geoheritage Project will deliver:
A digital catalogue of boreholes, reports, and geophysical datasets, accessible to academia and industry.
An evaluation of dataset condition and strategies for long-term curation and protection.
Postdoctoral research to unlock and reinterpret legacy data, identifying opportunities for new discoveries.
A Wits Basin Geoheritage Workshop, convening local and international stakeholders to set future research priorities and collaborative frameworks.
By securing and sharing this geological legacy, the Wits Basin Geoheritage Project will preserve one of the most significant mineral datasets in the world, enable new discoveries, and ensure that future exploration in South Africa builds upon 150 years of accumulated knowledge rather than risk repeating it.

Current highlights and future outlook: *In the 25/26FY, this project participated in a Wits Basin Geoheritage Workshop, convening local and international stakeholders to set future research priorities and collaborative frameworks. In the 26/27FY Amira will continue work to secure support and progression of this initiative and aims to commence staged data capture.*



Program Manager
Vaughan Chamberlain

GEOSCIENCE PROJECTS IN PROPOSAL

P1322 EAST AFRICAN EXPLORATION INITIATIVE (EAXI)



Principal Researcher: Centre for Exploration Targeting - University of Western Australia

Program Manager: Redeemina Comfort Bonnah

The East African eXploration Initiative (EAXI), Project P1322, is focused on developing a comprehensive program designed to improve the understanding of the base metal and gold exploration potential of East Africa (multi-commodity mineral resource frontier, particularly for gold (Au), lithium (Li), nickel-copper-PGE (Ni-Cu-PGE), and rare earth elements (REE)). Through an integrated approach of research and data collection, the initiative aims to understand the region's geological "anatomy."

EAXI aims to understand metal transfer processes across the lithosphere by investigating the prospective geological record of East Africa. Its initial focus is on the Archean Tanzania-Congo and Zimbabwe cratons, surrounding Paleoproterozoic–Neoproterozoic mobile belts, including the Kuunga Orogen and East African-Antarctic Orogen, and the influence of the East African Rift. EAXI 1 covers Tanzania, Kenya, Uganda, Zimbabwe, Rwanda, Burundi, Malawi, and Mozambique.

Amira Global is pleased by the growing momentum behind the P1322 EAXI, with the project now supported by seven confirmed sponsors. The project is scheduled to commence in Q1 of the FY 2026/2027 with an initial minimum budget of approximately USD 1.86 million to support a staged roll-out of the project deliverables and a full implementation budget of USD $3.3 million for core modules.

To align with the current funding level, the project will begin with a reduced research scope, representing approximately 70% of the originally planned program. The intention is to progressively expand towards the full research scope as additional sponsors are secured during the project.

Current highlights and future outlook: In the 25/26FY, Amira P1322 EAXI gained significant momentum following a series of engagements with mining and exploration companies across the region. These engagements have successfully converted industry interest into sponsorship commitments, with six sponsors now confirmed and further companies actively considering participation. Amira is targeting October 2026 for the formal commencement of P1322 EAXI.

P1061B SOUTH AMERICAN EXPLORATION INITIATIVE (SAXI): STAGE 3

The South American Exploration Initiative (SAXI) is one of Amira Global's most ambitious collaborative programs, advancing understanding of the tectonics, architecture, and metallogeny of North-East South America. Building on the success of earlier stages, SAXI Stage 3 represents a once-in-a-generation opportunity to answer key geological questions while directly supporting sponsor companies exploring across the region–across all commodity.

Expanding beyond the Guiana Shield, SAXI Stage 3 now includes the Brazilian Shield, São Luis Craton and Gurupi Belt, Borborema Province, and the Lavras do Sul igneous complex within the Rio de la Plata Craton. The project also broadens its focus from gold to critical minerals such as copper, lithium, nickel, and platinum group elements (PGE), providing vital insights that align with the global energy transition.

Covering the entire Amazon Craton–including Brazil, French Guiana, Suriname, Guyana, Venezuela, and parts of Colombia–SAXI unites research institutions, exploration companies, and governments across borders. Backed by a four-year program budget of USD $3.64 million, the initiative combines world-class science with strong regional collaboration to map South America's ancient foundations and guide the future of sustainable mineral exploration.

*Current highlights and future outlook: In the 25/26FY, this project had extensive engagement with industry and the project research lead team via round tables and one-on-one meetings to secure sponsorship and further inform program design. The aim is to commence the project by end 2026, should the project meet its minimum fu*nding target.



Program Manager: Silvia Black

Principal Researcher: Centre for Exploration Targeting - University of Western Australia

GEOSCIENCE PROJECTS IN MANAGEMENT



P1306 DATA METALLOGENICA

Current Stage: In Management

As part of the internally-funded Phase 1 of CollaborateOre development, Amira is currently investing in a revamp of Data Metallogenica (DM), starting with a new digital web application - based on the LithoSurfer platform – that will make the collection substantially more accessible, interactive and data-enabled.

To ensure the digital representation of DM remains an accurate portrayal of its physical counterpart, Amira (with in-kind support from DEM South Australia) has employed a DM Curator (Peter Keller) based on site at the South Australia Drill Core Library.

Following the launch of the new DM web application (expected in Q4 2026), Amira will be looking for advisors and partners to help guide and support DM's next phase of growth, building it from a primarily visual reference into a modern, interactive, data-rich platform enabling broad new knowledge and insights to be gleaned from this unique, global reference library of mineral deposit specimens. If you're a passionate DM user or advocate, please reach out to Tim Cross to see how you can get involved.

Current highlights and future outlook: The most noteworthy events in FY25/26 for DM included Peter completing reconciliation of the entire Lithotheque collection, which laid the groundwork for development of the new DM website. Signing the contract with Lithodat Pty Ltd. to undertake this project was another major milestone, with Amira and the Dev team working closely together to bring an exciting new DM experience to the world in late 2026!



Clockwise from left: Tim Cross (Program Manger Amira Global, left), Anil Subramanya (Amira Global Strategic Advisor) and Fabian Kohlmann (Lithodat) outside the DM room in Adelaide; example "lithotheque" (plate mounted with 20 samples) representing the Batu Hijau deposit in Indonesia; some examples of the 8000+ "macrotheques" (hand specimens) currently stored at DM but absent from the digital collection







Program Manager: Tim Cross

Government of South Australia
Department for Energy and Mining

Principal Researcher: Amira-funded with in-kind support from DEM South Australia

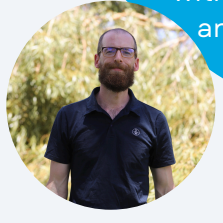
GEOSCIENCE PROJECTS IN MANAGEMENT

P1335 GEODYNAMIC ANDES EXPLORATION SOUTH AMERICA

The Geodynamic Andes eXploration Initiative (GAXI) is the latest addition to Amira Global's Exploration Initiative series, expanding the success of WAXI into Western South America—covering Ecuador, southern Peru, and the Chile–Argentina corridor. This four-year project (2024–2028) aims to deepen understanding of the spatial and temporal distribution of Cu-Mo-Au/Au-Cu and Au-Ag mineral systems, while also assessing the potential for associated critical minerals along the Andean margin.

GAXI applies a Mineral Systems–based approach to uncover the fundamental geological processes controlling the genesis and localization of ore deposits within a Unifying Framework and Causality Scheme. At its core, the project explores how geodynamic inheritance—the influence of ancient tectonic and lithospheric structures—has shaped pathways for mineralization through time. By studying trans-lithospheric fault systems (TLFs) and their reactivation during major tectonic events, GAXI aims to distinguish fertile versus barren zones, providing a powerful predictive framework for modern exploration.

September 2026 will see the 2-year (halfway) mark of the program, with a face-to-face SRM being organized in South America. If you're exploring in the region and want to get involved, there's still opportunity to join and support development of a full program.



Program Manager: Tim Cross

P1249 EXPLORING, CHARACTERISING, AND OPTIMISING COMPLEX OREBODIES

Amira Global's P1249 project is transforming how the mining industry understands and manages complex orebodies. With a focus on transition zones—the alteration domains that extend from orebodies into surrounding unmineralised rocks—P1249's research spans a wide range of deposit types, including porphyry, epithermal, carbonate-replacement, and skarn systems, as well as Mt Isa–style Cu, IOCG, and orogenic Au deposits. Building on the success of its predecessor, P1202, the project is pursuing innovative research avenues identified as having the greatest potential to be transformational for its sponsors.

Currently in its fourth year of a five-year program, this project is equipping sponsors with cutting-edge tools, methods, and workflows for recognising proximity to high-grade ore and translating mineralogical, geochemical, and hyperspectral data into actionable quantitative insights. The goal is to optimise orebody knowledge and deliver the detailed mineralogical information required for accurate domaining and resource definition at the mine scale.

The P1249 project with budget of AUD $4.55 million, has already delivered a suite of powerful outcomes, including transition zone fertility and vectoring tools, workflows for upscaling mineralogical and textural data, and industry-ready digital tools for large-scale interpretation and application. By integrating advanced science with practical innovation, P1249 is helping sponsors discover, define, and optimise mineral deposits more effectively—unlocking greater value across the entire mining value chain.



Program Manager: Bright Foli

2025 AMIRA EXPLORATION MANAGERS CONFERENCE

Exploring Exploration: Where does it start? Where does it stop?

Subthemes: Time, Uncertainty, Collaboration

This year the EMC2025 brought together leaders from across the global exploration community to reflect on the future of the sector. The conference provided a platform for both technical insight and open discussion, surfacing key themes around time and cost pressures, the need for greater collaboration, increasing uncertainty, and the role of integrated technologies. The event reinforced Amira's position as a trusted convener and innovation partner in the exploration ecosystem.

92 Attendees

30 Companies

7 Universities

15 Speakers




MINING
FRAMEWORK

MINING FRAMEWORK

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Energy and Sustainability

Equipment footprint & efficiency

P1262 Block Modelling and forecast mine seismicity hazard and more accuracy and better accessibility

P1262A Holistic Dynamic Ground Support - Analysis, Design, Monitoring, and Optimisation

Iniatives/Options

Hydrogen

Battery

Other energy sources: HVO - Hydrotreated Vegetable Oil (Carbon Free)

Other energy sources: Atomic

Selective Mining

Preconcentration techniques

Grade deportment by size (upgrade by screening)

Ore Sorting

Other techniques excluded from the mining framework

Mining Systems

Alternatives to the conventional load & haul by shovel & trucks

Geometallurgy and Predictive Modeling

Automation and Robotics

Digitalization and Data-Driven Mining

PROJECTS IN MANAGEMENT

PROJECTS UNDER DEVELOPMENT

FUTURE / CONCEPTUAL PROGRAMS

Talent, capability building, education and training (∞)

Innovation - Acceleration of Adoption, Scaling and Commercialisation (↑)

Main Drivers of the Mining Framework:

Innovation and technology

Sustainability and low-impact mining

Industry collaboration

Portfolio alignment

Automation and data-driven operations

Future skills and workforce development

MINING HIGHLIGHTS

4 Sponsor Review Meetings		
4 Site Specific Workshops	**2** Research Organisations	
1 EOI Circulated		
1 Project in Management	**1** Concept Evaluated	

Amira Global's Mining Framework is a strategic platform to accelerate the transformation of mining through innovation, sustainability, technology, and collaboration.
It connects industry, research, government, and funding partners to develop solutions in key areas such as low-impact energy, alternative mining systems, selective mining, preconcentration, automation, data-driven operations, and advanced geometallurgy.
Internally, the framework helps Amira align and manage its mining project portfolio, supporting integration with related areas such as Mineral Processing, Geoscience, and Sustainability.
The framework also embeds talent development, education, and training to build the capabilities needed for the future of mining.

P1262A HOLISTIC DYNAMIC GROUND SUPPORT - ANALYSIS, DESIGN, MONITORING AND OPTIMISATION

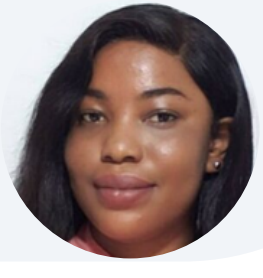
Current Stage: Open for co-creation and sponsorship

Objective: extends the foundational work of the Amira P1262 Program, which focused on forecasting mine seismicity. Address critical ground-support challenges
Main deliverable: Deliver practical tools and frameworks to optimise ground support performance, improve safety, and reduce costs in operations vulnerable to rock bursts and seismic activity.
Key sponsor benefits:

- Early access to a holistic ground support design framework
- Ground support review and optimisation recommendations for one nominated site
- Planning and design recommendations for a smart real-time monitoring system (no installation or equipment deployment)
- Comparative datasets on dynamic-capable support systems, verified via dynamic testing and integrated monitoring data
- Estimated 10 - 20% ground support cost savings from reduced over-supporting at one sponsor site.

Principal Researcher: Dr Abouzar Vakili Cavroc/Mining One Pty Ltd

Program Manager: Redeemina Comfort Bonnah



MINING PROJECTS IN DEVELOPMENT

BLAST MOVEMENT PREDICTION TECHNOLOGY. VERY SELECTIVE MINING

Current Stage: Under Development

Objective:

•Predicts blast movement in near real time and generates an estimated post-blast block model, including tonnage and grade estimates for each mineable block.

•Mineable blocks are shared in real time with loading equipment to define/execute operational digging strategy.

•Information will support reconciliation by comparing:

•Post-blast results

•Grade-control models

•Truck and dispatch data

Project strategy:

•Benchmark and compare existing techniques, technologies, and commercial applications against the current state of the art, following an approach similar to the Core Scanning.

•Interested parties: Technology and service providers, mining companies, researchers and organisations.

Program Manger:
Romulo Sanhueza



MINING PROJECTS NEARING COMPLETION

P1262 - BLOCK MODELLING AND FORECASTING MINE SEISMICITY HAZARD WITH MORE ACCURACY AND BETTER ACCESSIBILITY

Current Stage: Nearing Completion

Objective: Improve forecasting of seismic hazards associated with underground mining using advanced numerical modelling.

Key predictions: Estimate the location and magnitude of major seismic events, triggered aftershocks, peak ground velocities, and surface displacement.

Main deliverable: A practical guideline and customised software plug-in to support safer, more cost-effective mine design and improve training and knowledge transfer.

Status: Project ending early 2027



Principal Researcher: Dr Abouzar Vakili Cavroc/Mining One Pty Ltd

Program Manager: Redeemina Comfort Bonnah

MINING FRAMEWORK FURTHER CONCEPTS AND IDEAS

Low TRL vs High TRL. Value proposition for high-TRL initiatives. Amira can adds value across 3 tiers

- Low-TRL initiatives: collaborative research, technology development and proof-of-concept testing.
- Mid-TRL initiatives: prototype validation, field trials and operational integration.
- High-TRL initiatives: independent benchmarking, multi-site validation, implementation support and accelerated adoption.

One-to-one innovation support

Education & Training

- Short courses, workshops, operational guidelines and executive programs focused on emerging mining technologies and their implementation.

Other ideas

- Fragmentation measurement and prediction
- Human–machine interaction and workforce readiness.

On-going plan to approach all key mining research entities looking for attractive projects & ideas.




MINERAL PROCESSING
FRAMEWORK

MINERAL PROCESSING FRAMEWORK

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OVERARCHING THEMES: TECHNO-ECONOMIC ANALYSIS, EFFICIENCY, THROUGHPUT, GEOMETALLURGY, ENERGY MIX, COARSE SEPARATION, DATA, AI, OPTIMIZATION

Integrated Digital Modelling of Mineral Processing Circuit

(Extension into new units and equipment)

P1354 Digital Transformation of Mineral Processing through Integrated Modelling and AI - Combining physics-based understanding and artificial intelligence to improve throughput and recovery

Energy, Technology and Data Science

P1359A Coarse Particle Flotation and HydroFloat

P1359B New Machine RIMMS

Dry Processing.

Energy saving, economics & carbon footprint analysis

Energy, Technology and Data Science

Metal recovery & extraction flowsheet from:

P1358B Development of a geometallurgically informed model for extraction of critical minerals

Primary Ore Sources
Secondary Soures(e-waste & industry produced water

Extractive Metallurgy

P420H Gold Processing Technology

Amira Copper and Base Metal Project

Flotation Chemistry Aspect

Copper and other Base metal processing

Current process optimization

-Complex ores and low grade

Energy use and innovation

PROJECTS IN MANAGEMENT
PROJECTS UNDER DEVELOPMENT
FUTURE / CONCEPTUAL PROGRAMS

Innovation – Adoption, Scaling and Commercialisation

Talent, Capability Building, Education and Training

MINERAL PROCESSING HIGHLIGHTS

9 Research Organisations		
3 Concepts Evaluated	1 EOI Circulated	
1 Project Managed		2 Mine Site Visits / Audits
1 Proposal Developed	1 Proposal Circulated	

The vision of Mineral Processing in Amira continues to include being thought leaders and a catalyst for improvement on behalf of our members.
Key highlights include (i) redevelopment of Gold Processing Research, technology and skills transfer; (ii) entrenching skills transfer across mineral processing and tailings across member sites; (iii) developing Copper and Base metals processing projects in conjunction with our company members; and (iv) implement Digital modelling for quicker calibration and feedback for our members' mineral processing circuits.
For Africa, the EAXI project based in East Africa is on course to progress to implementation.
Opportunities for members and non-members to interact with Amira in this year include:
· Training- various levels and modules, customised for adding short-term and long-term value to sponsors' teams, circuits and projects. The Centre of Excellence (CoE) for full value processing is still available for collaboration.
· P1354 Digital Transformation of Mineral Processing through Integrated Modelling and AI - Combining physics-based understanding and artificial intelligence to improve throughput and recovery; with the potential to add value to throughput and recovery of sponsors operations and projects
· Next level gold processing research to build on proven value add for both current and new challenges including ore types and grades
· Copper and other base metal programmes development with deliverables covering
(i) Optimization of Current Copper & Base Metal Operation and Project- Focus on Recovery, Throughput, And Grade
(ii) Difficult Complex Ores, Difficult Geographies & Low-Grade (including penalty elements) and Tailings
(iii) Energy Use and Innovation

· Other specific challenges within processing and extraction that need new areas of research or application of technology
Contacts: Redeemina, Bright, Anthony, Silvia or Ann.

P1354 DIGITAL TRANSFORMATION OF MINERAL PROCESSING THROUGH INTEGRATED MODELLING AND AI - COMBINING PHYSICS-BASED UNDERSTANDING AND ARTIFICIAL INTELLIGENCE TO IMPROVE THROUGHPUT AND RECOVERY

Amira P1354 represents the next major step in the evolution and offers sponsors a unique opportunity to shape the next generation of mineral processing by building on the proven legacy of the P9 series to deliver research outlining enhanced expert models that directly improve plant optimisation, efficiency, and decision-making.

Building on ov**er six decades of international collaboration and modelling innovation, this project combines mechanistic process understanding with AI/ML and real-time data integration to deliver the next generation of intelligent, adaptive mineral processing systems.**

The project will develop platform-neutral, AI-ready expert models that can be continuously recalibrated using plant data, enabling data-informed decision-making, real-time optimisation, predictive maintenance, and paving the way toward autonomous plant control.

Participation in Amira P1354 offers strategic value for the sponsors :

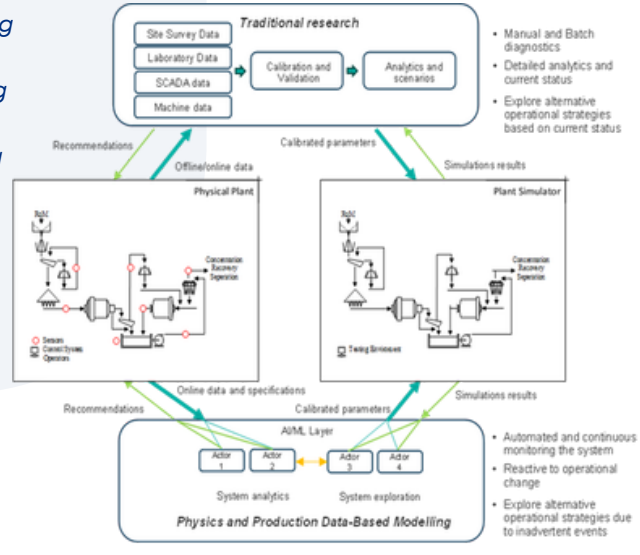
1. **Higher throughput and recovery through data-driven optimisation.**
2. **Reduced variability and energy intensity via adaptive, AI-enabled control.**
3. **Improved capital efficiency by maximising existing plant capacity.**
4. **Future-ready capability to support the transition toward autonomous operations.**

By bridging deep mechanistic expertise with digital intelligence, P1354 will redefine how mineral processing circuits are designed, calibrated, and optimised–turning data into a continuous source of value and competitive advantage.



Program Manager:
Redeemina Comfort Bonnah

Current highlights and future outlook: *In the 25/26FY, Amira continued industry engagement around P1354 holding a series of discussions with departmental heads and mineral processing teams to better understand industry priorities, operational challenges, and emerging research needs. These engagements form part of Amira's ongoing commitment to delivering industry-led research that addresses practical mineral processing and extractive metallurgy challenges. Discussions focused on identifying areas where collaborative research and Amira's existing knowledge portfolio could support improvements in plant performance and operational outcomes.*
P1354 will be delivered through three regional streams–Europe and North America, Southern Africa, and South America–each supported by dedicated regional leadership. This structure enables research to address region-specific industry priorities while ensuring all sponsors have access to the data, insights and project outcomes generated across all three regions.



P1332I AMIRA TRAINING SKILLS TRANSFER PROGRAM

Amira Global proposes the development and implementation of a comprehensive Training and Skills Transfer Program, which will be under the auspices of the Amira Africa Center of Excellence (AACoE). This is designed to enhance industry-specific knowledge and skills across all levels. This initiative aims to bridge the gap between academic research and practical application, ensuring that industry professionals are equipped with the latest advancements and best practices..

Scope of Training and Skills Transfer Program (not limited to the following):

a.Amira P754 Code of Practice for Metal Accounting and Standards.

b.Comminution knowledge and modelling from Mineral Processing Unit models.

c.Flotation and gravity concentration theory and practice, modelling from Mineral Processing Unit models.

d.Gold knowledge theory and practice, with the extensive industrial benchmark and survey.

e.Solid/liquid Separation, Amira P266 Improving Thickener Technology.

f.Metallurgical training for various levels of the production and operational staff – In collaboration with Continuous Education Department of Amira cohort of institutions and their accredited contractors.

g.Advanced Graduate Development Programme (AGDP).



Current highlights and future outlook: *In the 25/26FY, 3 different sets of mineral processing training was delivered under Amira P1332 project. This included a hybrid (on-line & in-person in Johannesburg, South Africa) training on flotation modelling and circuits in July 2025, on-site operators and supervisors training at AGA Siguiri, Guinea in October-November 2025 on Milling, Classification and Gravity operations and another on-site operators and supervisors training on Carbon Management, CIP/CIL. Elution and Metallurgical laboratory operations at AGA Siguiri, Guinea in February- March 2026. Some upcoming training and discussion with members currently include operators and supervisors training in Tailings Storage Facility management. Amira continues to engage interested members on above training and other special requirements to the transfer requisite skills and create value for members.*

AMIRA'S SKILLS TRANSFER IN MINERAL PROCESSING













P420 GOLD PROCESSING TECHNOLOGY

P420 has a long and valuable history of delivering new data, technology, and knowledge to the gold mining sector over 32 years. The current iteration of the series, P420H, is supported by companies in Australasia, North America and South Africa.

The P420H project aims to continue support of the gold industry in achieving operating excellence despite the challenges, both continuing and emerging, being encountered by the industry today:

- Human resources are still the key to successful operation, yet skilled gold metallurgists are in short supply.
- Large high grade, free-milling deposits are becoming less common, and companies are turning to difficult to process (i.e. lower grade, complex and refractory) orebodies to maintain reserves.
- The tools to evaluate, optimise and predict performance are limited for dealing with anything other than well-established technologies or simple free-milling orebodies.The Gold Technology Group (GTG) has a long history of Amira collaborative projects related to the gold industry and will be leading P420H. GTG is a research group, primarily funded by industry, at the Western Australian School of Mines: Mining, Energy and Chemical Engineering, Curtin University in Perth, Australia.

Current highlights and future outlook: In the 25/26FY, this project has focused on delivering all the expected project outcomes and reports for industry. The Final Report is due to be submitted for Sponsor review and approval. Scoping for the next phase of an Amira Gold Processing Program is underway.





Program Manager: Silvia Black

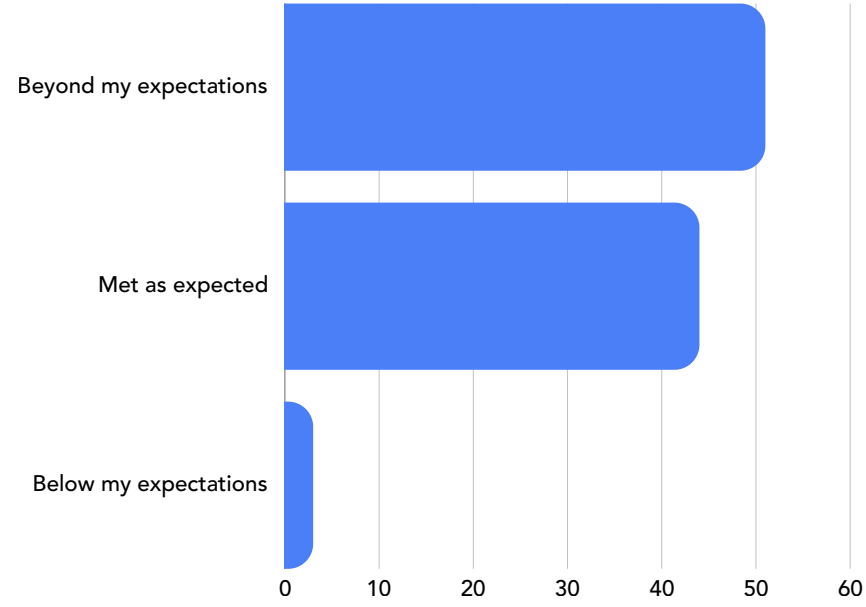
Curtin University

Research Lead: Gold Technology Group, Curtin University

AMIRA'S SKILLS TRANSFER IN MINERAL PROCESSING

Process of Training Development

- Pre-training meeting on requirements, need assessment and gap analysis with plant management
- Customize material to reflect the plant's flowsheet, role descriptions and management priorities
- Deliver training and material client's preferred language French, English and indigenous local language consideration






SUSTAINABILITY
FRAMEWORK

SUSTAINABILITY FRAMEWORK

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SOCIAL, ENVIRONMENT, GOVERNANCE & IMPROVED ECONOMICS
REDUCED WASTE – IMPROVED WATER MANAGEMENT – COMMUNITIES – SAFETY– CLEAN ENERGY – REPORTING

Tailings

- P1288 - Preventing Tailings Dam Failures: Predicting Liquefaction Risk
- P1373 Tailings Characterisation
- P1310 - Dewatering Technologies
- P1377 Low-Grade Metal Recovery from Legacy Tailings Testbed

Decarbonisation & Clean Energy

- Amira Lithium Program
- Amira Copper Program
- Non-Battery Green Energy Storage

Communities, Safety & Environment

- P1366 Drill Pad Void Safety
- P1374 Minerals Industrial Symbiosis (MIS)
- Mosquito Population
- Corrosion

Governance Tools

- P1214 MN-002 Iron Ore Standards Committee
- P1367 Sustainability Navigator
- Quantum Sensing for the Minerals Industry

PROJECTS IN MANAGEMENT
PROJECTS UNDER DEVELOPMENT
FUTURE / CONCEPTUAL PROGRAMS

Innovation – Adoption, Scaling and Commercialisation

Talent, Capability Building, Education and Training

SUSTAINABILITY HIGHLIGHTS

31 Active project Sponsorships	**3** Projects Completed		
	2 SRM's	**2** EOI's Circulated	
4 Projects in Management	**1** Site Specific Workshop		**5** Roundtables
	6 Research Organisations	**8** Concepts Evaluated	

Amira Global's Sustainability Framework brings together a globally connected portfolio of projects and programs designed to embed sustainability into every facet of the mining value chain. The framework drives forward social, environmental, and governance excellence, aligning innovation with improved economics, reduced waste, responsible water use, community impact, safety, clean energy and reporting requirements.

Externally, the framework promotes collaborative R&D to address global sustainability challenges in mining. It strengthens connections across the globe between industry, researchers, government, and funding bodies, helping to coordinate and amplify sustainability-focused innovation. Through initiatives like the Amira Sustainability Navigator, tailings pillar of projects and the Amira Lithium Program, it supports transition pathways for low-emission mining, energy transformation, and circular economy practices.

Internally, the framework provides strategic structure to develop and scale new programs aligned with member priorities. It enhances the management of Amira's sustainability portfolio, creates synergies with allied frameworks (such as Mining and Mineral Processing), and directs focus toward near- and mid-term sustainability outcomes. The framework also supports Innovation for Adoption, Scaling and Commercialisation, as well as capability building and knowledge transfer across communities and industry.

P1367 SUSTAINABILITY NAVIGATOR PROJECT — AMIRA SUSTAINABILITY INTELLIGENCE AND GOVERNANCE PLATFORM

A complex and fragmented sustainability landscape

Corporate sustainability reporting and governance have become increasingly complex and fragmented. Minerals companies must navigate multiple disclosure frameworks, industry commitments, regulatory obligations, and site-level standards and certifications, creating duplication, inefficiency and risk, particularly for junior and mid-tier companies with limited resources.

A practical Sustainability Navigator for the minerals sector

The project will develop the Amira Sustainability Navigator, a global-to-local, AI-enabled knowledge platform to help minerals companies understand and respond to sustainability reporting, governance and regulatory requirements.

The Navigator will map relevant instruments, their overlaps and relationships, and provide pathways tailored to company size, maturity, commodity and operating jurisdiction.

AI-enabled, expert-validated guidance

A key innovation will be the planned integration of generative artificial intelligence and large language models into the Amira Sustainability Navigator. Generative AI and large language models will support natural-language queries and help monitor changes to standards, frameworks and regulatory requirements. Combined with structured knowledge and expert validation, these capabilities will provide practical, current guidance rather than simply catalogue sustainability requirements.

The Amira Sustainability Navigator will reside in Amira Global's knowledge platform "CollaborateOre" and will be kept live and up to date post-project completion as Sustainability and ESG Instruments change over time and new ones are developed around the globe.

This is a strategic R&D project and we are seeking industry agents of change and influence as sponsors, leveraging Government funding.



Program Manager:
Silvia Black

collaborateore

SUSTAINABILITY PROJECTS IN MANAGEMENT

P1217 EVALUATION OF TAILINGS STORAGE FACILITIES MONITORING TECHNOLOGIES

In the aftermath of the recent spate of Tailings Storage Facilities (TSF) failures, there has been a significant increase in activity relating to the monitoring of TSFs.
A focus of this project is to provide an independent evaluation of a range of monitoring technologies and their suitability for the application of providing advance warning of potential instabilities of TSFs.

This will be achieved through an integrated programme of laboratory and field testing as well as physical and numerical modeling of sponsor selected sites. Monitoring equipment vendors will be able to contribute to the project through provision of their technologies for site testing.

Current highlights and future outlook: *In the 25/26FY, this project was successfully completed in December 2025. Two PhD students are completing additional work over the next two years, which will be appended to the project final report.*

Research Lead: Australian Centre for Geomechanics

ACG AUSTRALIAN CENTRE FOR GEOMECHANICS

CSIRO | The University of Western Australia | Joint Venture

P1214: MN-002- IRON ORE STANDARDS COMMITTE

Amira Global's P1214 project supports Standards Australia in fulfilling the International Secretariat role for ISO TC 102/SC2 Iron Ore and Direct Reduced Iron – Chemical Analysis, and assists the national mirror committee MN-002. The project ensures iron ore standards remain current, rigorous, and aligned with global best practice.

By partnering with Standards Australia, BHP, Rio Tinto, FLSmidth, Fortescue Metals Group, and Roy Hill, P1214 strengthens the accuracy and consistency of ore characterization, improving quality control, communication, and decision-making across the supply chain. This collaboration drives innovation, promotes best practice, and supports the growth and sustainability of the iron ore sector.

Current highlights and future outlook: *In the 25/26FY, this project was successfully completed in August 2025. Upon request by the project sponsors, scoping for the next phase is underway.*



Program Manager: Silvia Black

STANDARDS Australia

Research Lead: Standards Australia

P1288 PREVENTING TAILINGS DAM FAILURES: PREDICTING LIQUEFACTION RISK

This project will undertake new research and facilitate knowledge transfer and training activities to help the mining industry prevent failures of tailings storage facilities (TSFs). Particular attention will be given to methods and tools used to assess liquefaction susceptibility as well as the reductions in strengths and stabilities of TSFs post-liquefaction. The research will target poorly understood characteristics of TSFs including:

- Varying states of saturation
- High concentrations of fine particles
- Physical changes with age which occur through internal mechanical and geochemical processes
- And how they can be dealt with in assessments of liquefaction propensity.

Current highlights and future outlook: *In the 25/26FY, this project has focused on delivering all the expected project outcomes and reports for industry. The first in-person SRM will be held in November 2026 in Denver, USA in alignment with the "Tailings & Mine Waste Conference" being held there. In conjunction, a 1-day industry workshop will be delivered for sponsors and it's open to non-sponsors for a fee.*



In October 2025 the research team, in collaboration with Sponsors ArcelorMittal, successfully delivered a training workshop in Brazil titled "Partial Saturation Influences on Strength and CPT Interpretations in Silty Tailings". The workshop attracted strong participation from industry professionals, reinforcing Amira's commitment to capacity building and global knowledge exchange.



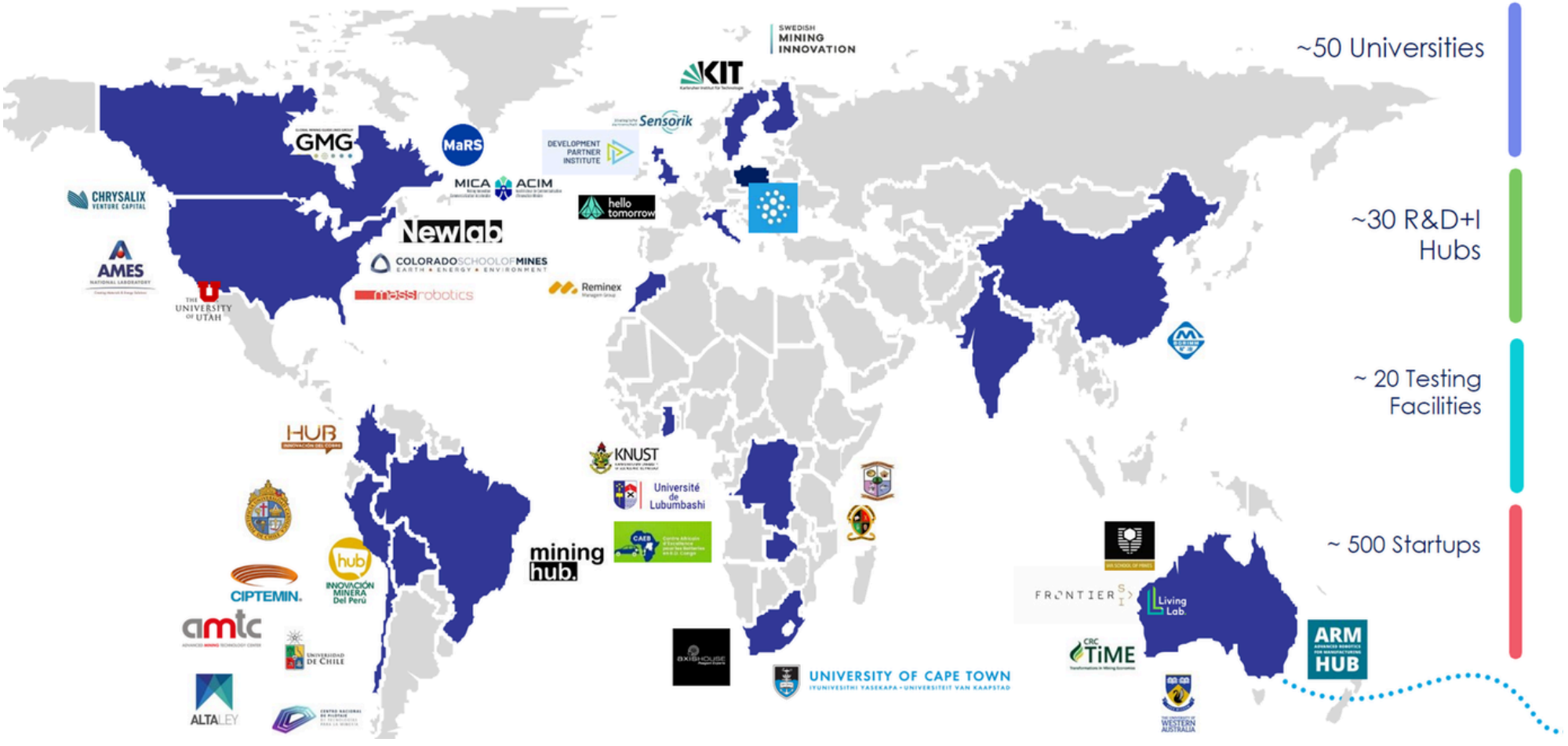
Program Manager: Silvia Black

Research Lead: University of New South Wales Global

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Some of our Allies in R&D and Innovation



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