

Sustainable Minerals Institute



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As society seeks to create a sustainable future, the global demand for minerals will continue to increase. At The University of Queensland's Sustainable Minerals Institute (SMI) we are developing the people, and the transformative approaches and technologies to ensure sustainability for the future.

The Institute's work is transdisciplinary, independent, impartial and rigorous. Our research integrates the expertise of production, environmental and social science specialists to deliver responsible resource development.

SMI is made up of six research centres, a Centre of Excellence based in Chile, and a technology transfer company. We have a strong track record across the resource sector - in exploration, mining, mineral processing, workplace health and safety, mine rehabilitation, water and energy, social responsibility, and governance.

In addition to depth of expertise in each Centre, SMI has three Strategic Programs examining key future issues facing the minerals industry:

- Unlocking Complex Orebodies
- Governance and Leadership
- Development Minerals

SMI creates change through research discovery and collaborative global initiatives and consortia. We work in partnership with industry and stakeholders bringing both depth and breadth of expertise to our work. We train the next generation of leaders through Higher Degrees by Research and through a growing number of professional development courses.

We are proud that many of our alumni are now in influential roles in resource companies and non-government and government organisations around the world.

SMI's vision is to develop knowledge-based solutions to the complex problems facing the resource industry as it seeks to reduce its impact on communities and the environment, and reshape its role in sustainable development

Centres

Centre for Mined Land Rehabilitation

The Centre for Mined Land Rehabilitation (CMLR) addresses the environmental challenges of the minerals industry by translating scientific results into practices that improve mine rehabilitation and closure outcomes. The Centre consists of a collaborative, multidisciplinary group of research, teaching and support staff, and postgraduate students. The Centre is widely recognised as a source of quality research in mining environmental management and sustainability, across the full spectrum of resource commodities.

Centre for Social Responsibility in Mining

The Centre for Social Responsibility in Mining (CSRM) focuses on the social, cultural, economic and political challenges that occur when change is introduced by resource extraction. The Centre supports industry improvement through independent research, teaching, and by convening and participating in multi-stakeholder dialogue processes. The CSRM team consist of anthropologists, sociologists, political scientists, economists, engineers and development and natural resource specialists.



Photo: Morobe Province of Papua New Guinea by Emilka Skrzypek



Centres

Centre for Water in the Minerals Industry

The Centre for Water in the Minerals Industry (CWIMI) supports the sustainable management of water in the minerals and energy industries. The team contributes to solving the engineering, environmental and social challenges of water management and engages with a wide range of research organisations and water stakeholders in Australia and internationally. The Centre's research is funded principally by regional and national governments, and selected mining and gas companies who are committed to sustainability performance.

International Centre of Excellence in Chile

The International Centre of Excellence in Chile (SMI-ICE-Chile) aims to deliver demonstrable benefits to the Chilean people and economy. It is developing a new collaborative global mining knowledge hub in the country that builds human capital, provides innovative research outcomes and realises effective technology transfer to industry. The Centre is building upon extensive expertise that already exists in many areas of Chilean mining research. This collaboration and investment has potential for significant gains for the industry globally.

JKTech

JKTech offers consultancy and laboratory services, specialist software and equipment, and professional development courses to help mining companies achieve positive and sustainable outcomes. JKTech's team of engineers has extensive experience in the minerals industry and they are committed to delivering value to our international client base. The team works closely with researchers at the Julius Kruttschnitt Mineral Research Centre (JKMRC) and the WH Bryan Mining and Geology Research Centre (BRC).

Julius Kruttschnitt Mineral Research Centre

The Julius Kruttschnitt Mineral Research Centre (JKMRC) is an internationally recognised provider of applied research in mineral processing, geometallurgy and postgraduate education. Staff from the Centre work closely with global mining companies and the JKMRC has a reputation for delivering innovative research outcomes that are widely adopted across the industry. The Centre comprises a multidisciplinary group of mining engineers, mineral processors, computational mathematicians and applied scientists.



Photo: Mary Kathleen Mine by Peter Erskine



Photo: Roseberry Mine, Tasmania by Michelle Rowland



Centres

Minerals Industry Safety and Health Centre

The Minerals Industry Safety and Health Centre (MISHC) conducts research in occupational safety and health, risk management and human factors. The results and findings of this research informs the Centre's postgraduate and continuing education programs and consultancy services. The team has extensive experience conducting research and educational programs in mines across Australia, Africa, Asia and South America. The team's expertise covers risk management, occupational health, psychology, physiotherapy, and human factors and ergonomics.

W.H.Bryan Mining & Geology Research Centre

The W.H. Bryan Mining & Geology Research Centre (BRC) applies practical innovation and leadership in geology across the mining value chain to enhance efficiency. With a diverse range of geoscientific and related expertise, the Centre is focused on delivering industrial research solutions for active and future mines. The Centre's research team are developing new and improved methods for mineral discovery, total deposit knowledge and predictive understanding of ore bodies.





Strategic Programs



Complex Orebodies

The Complex Orebodies Strategic Program aims to address the projected shortage of metals by unlocking deposits that are currently unviable due to technical, environmental, social and political barriers. The quest to overcome these barriers through economies of scale is reaching the limit of effectiveness and sustainable pathways are necessary. In collaboration with industry, the Program is developing the innovative technologies and methodologies required for cost effective, sustainable access to these Complex Orebodies.



Development Minerals

The Development Minerals Strategic Program undertakes research, education, technical assistance and capacity building on the local materials most important for local development. Development Minerals are crucial for infrastructure, housing, road building, manufacturing and agriculture, and support the livelihoods of millions of people working in domestic artisanal, small and medium sized businesses. The Program works with a wide range of international development partners to improve sustainability and human development outcomes and to help realise the UN Sustainable Development Goals.



Governance & Leadership

Today’s resource sector operates in a complex and evolving world. Stakeholders, from communities to investors, have vastly different expectations of companies to those they may have held even 10 years ago. It is more important than ever for companies to operate in a manner that maximises mining’s benefits to society and minimises its negative impacts. The Governance & Leadership Strategic Program aims to support mining companies, policy makers and ultimately society by providing evidence-based advice on how industry leaders can respond to increasingly significant environmental, health and well-being, safety and social expectations.

Partner with the Sustainable Minerals Institute

Collaboration is at the heart of SMI's operations. We work with industry, government and civil society groups around the world - integrating research disciplines, generating new ideas, engaging stakeholders and delivering relevant outcomes.

The Sustainable Minerals Institute brings together engineers, scientists and social scientists to deliver sustainable development solutions for the resource industry.

Our work covers all facets across the life of a mine, from mineral exploration and extraction to water management issues, minerals processing, workplace health and safety, mine rehabilitation, energy and community engagement.

We undertake:

- Professional development courses and masterclasses for industry
- Advisory and consulting work
- Convening of multi stakeholder dialogue processes
- Research projects focused on delivering sustainable resource development





Study at the Sustainable Minerals Institute

Higher Degree by Research

All of SMI's Centres offer Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) degrees in their discipline area.

Postgraduate research is strongly linked to industry. Our Higher Degree by Research (HDR) candidates become familiar with conducting research in an industrial environment and in the challenges of transferring research outcomes to industry.

HDR candidates at SMI will:

- work on independent research projects under advisors who are world leaders in their field
- have the opportunity to undertake relevant applied research and gain valuable industry experience
- be encouraged to publish at all stages of their studies
- be part of a diverse and inclusive community

Professional Development

Our professional development courses and masterclasses are designed to meet industry needs and promote best practice. Experts from across our Centres collaborate with teaching professionals to deliver content covering:

- Health, Safety and Risk
- Social Performance in the Resources Sector
- Mine Site Environmental Management
- Geology, Mining and Metallurgy

Our professional development offerings are designed for a variety of audiences and skill levels, with courses offering both early learning and deeper knowledge for specialists. We also work with organisations to tailor programs to meet their specific needs.

Please visit the website for information on current courses – smi.uq.edu.au/professionaldevelopment



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

E smi@uq.edu.au

T +61 7 3346 4003

W smi.uq.edu.au