



JAEPA GENERAL REVIEW 2021

AusIMM Submission

Japan EPA Coordinator
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About AusIMM

The Australasian Institute for Mining and Metallurgy (AusIMM) is the peak body for resources professionals, with over 13,000 members across more than 110 countries. Established in 1893 and operating under the Royal Charter, we represent professionals across all levels of the mining industry, working from exploration through to delivery and in disciplines ranging from mining engineering to geoscience, health and safety, finance, Government, and academia.

We lead the way for people in resources, supporting professionals to provide enduring benefits for the community. We are committed to upholding ethics, codes and standards in resources and delivering the highest quality of professional development to the sector.

As the trusted voice for resources professionals, we exercise shared leadership to benefit our sector and in the interest of all members of the global community. We advance our sector's continued technical and professional leadership on the world stage, champion community understanding and support for the industry, and work with governments to design, implement and maintain regulatory frameworks that facilitate the continued economic and social contributions delivered through mining.

Executive Summary

The Australian resources sector is the powerhouse of the Nation's economic growth and social prosperity, as the leading global provider of commodities essential for all aspects of modern life. In 2019-20, Australian mining accounted for 60% of the Nation's export revenue, generating more than \$283 billion in export earnings. Australian mining export revenue is forecast to grow to a record \$296 billion as the global economy continues to rebound from the impacts of the COVID-19 Pandemic.¹ The stability of Australian mining throughout the COVID-19 Pandemic, and a clear pathway of continued growth, highlight the sector's important role in providing:

- **Employment** opportunities that are long-term, well-paid, diverse and expanding
- **Economic growth and resilience**, underwriting the prosperity of rural and regional economies and the national economy.
- **Innovation** in technology, talent, standards and practices that strengthen Australia's global position and yield benefits extending across a range of industries and sectors

What is sometimes less well appreciated is the vital role of the sector, and specifically the professionals who work in the sector, in advancing Australia's geostrategic interests. The essential mineral elements rising in global demand for renewable and energy-efficient technology and industrial advancement forecasts rely on Australian industry involvement.

For over forty years, Japan was Australia's largest trading partner. Today, Japan accounts for 10% (\$90billion) of Australia's total trade.

Australian resources professionals play a fundamental role as technical, managerial, and strategic leaders for some of the region's most complex and challenging issues. Australia's leading technical expertise is often the pre-eminent requirement for most industrial mining operations and will be pivotal to achieving green technologies, The future of global decarbonisation technology and Industry4.0 development in the resources sector is a significant opportunity to continue growing the Japan-Australia trade relationship.

Australia is the largest supplier of strategic raw materials to Japan and is an opportunity to grow the Australian resources sector.

Australia's proximity to Asia has always been a significant trade advantage for our resource exports. The dominance of the region accounts for two-thirds of the global economic growth forecasts to 2030.² The shift in geopolitical dynamics is driving a rapidly changing landscape in the supply and demand of the

¹ Australian Bureau of Statistics (ABS), January 2021, 'International Trade in Goods and Services, Australia', Cat. No 5368, Canberra: available at: <https://www.abs.gov.au/statistics/economy/international-trade/international-trade-goods-and-services-australia/latest-release>.

² <https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Mining>

international mineral market and its skills requirements. The control of reserves and secure access to the supply chain has significant potential to impact and realign geopolitical power in the global system.

The liberalisation of bilateral trade between Australia and Japan has forged a deep trust between the business sectors, creating confidence and an eagerness to invest. Over the past twelve years, Japanese direct investment has doubled, driven by the Australian business investment market's opportunity, stability, and reliability. In March 2021, His Excellency Yamagami Shingo, Ambassador of Japan to Australia, keynote to Perth USAsia Centre Japan Symposium, highlighted "Over seventy-four thousand jobs have been created here in Australia by Japanese companies, who are also listed as some of the highest corporate taxpayers."³

Japan is one of the top sources of foreign investment in Australia, amounting to \$116 Billion in total stock value, creating jobs for resource professionals⁴

The strength of the economic relationship is strongly aligned to Australia's resources sector, with 60% of all Japan's Iron Ore imports coming from Australia. The long-standing Australia-Japan relationship is praised by both Nations as built on a deep connection and mutual trust that has expanded from trade in mineral and energy resources to pioneering investment and collaboration to solve common and complex problems.

Japan is one of Australia's most important allies in Asia and is a natural target for Australian business. The Australia-Japan relationship is fundamental to the strategic and economic interests of both countries. Australia's resources sector can expand the commodity trade partnership with Japan, particularly in energy security and decarbonisation, by growing Australia's critical minerals industry. Transitions to decarbonise require significant supplies of copper, cobalt, lithium, and other critical minerals. The reliable supply of critical minerals to meet energy needs and develop future technologies is a global race as strategic partners attempt to ensure supply reliability. As Australia considers its future resource industry, the demand for critical minerals commodities will create opportunities for investment and strategic partners to continue to underpin the sector's expansion, creating highly skilled, highly paid, and secure long term professional employment opportunities.

As Australia once again faces an intensive scaling to service the global market demand for commodities, the need for agile and free trade settings will be essential in delivering the access and reliability of inputs to enable the rapid expansion of operations across Australia's resources sector.

³ <https://www.au.emb-japan.go.jp/files/100166710.pdf>

⁴ <https://www.au.emb-japan.go.jp/files/100166710.pdf>

Recommendations

<p>Business Operating Environment</p>	<p>Standards Deepen regional engagement through Australia's global leading professional standards and best practice frameworks.</p> <p>Investment Facilitate investment through major regional conferences and forums to support continued innovation and expand downstream opportunities.</p> <p>Social Responsibility & Performance Advance geostrategic leadership by championing the adoption of Australian Environmental, Social and Governance (ESG) frameworks, competencies, and training.</p> <p>Future Workforce Augment existing regional partnerships to support skills development, professional mobility, and workforce sustainability in the region.</p> <p>Trade Diversification Exploring strategic partnerships such as the QUAD, AUKUS, and key free trade collaborations to further trade diversification and secure essential supply chains.</p>
<p>Technology & Emerging Opportunities</p>	<p>Technology Facilitate the uptake of Australian resources processing, technology, automation, and capabilities in partnership with AusIMM as the peak body for resources professionals within the Australasian region.</p> <p>Critical Minerals Support an Australian Industry-led strategic White Paper policy process, utilising professional expertise to identify and explore the settings, risk management, and investment required to successfully develop the critical minerals industry.</p> <p>Disaster Management Maintain an expert disaster management task force comprised of Australian resources sector professionals and experts, which is deployable to support regional disaster prevention and response efforts.</p>

Mining in APEC

APEC is the peak regional body for economic cooperation in the Asia Pacific region. APEC member economies account for approximately 70 per cent of all mining output and consumption, including most of the World's bauxite, copper, iron, nickel, silver, tin and zinc.⁵ The resources sector supports Australia's engagement with APEC partners on energy, science, technology, innovation, and metrology through its people and professional standards.

The mining industry operational scope covers an extensive range of economic activity that encompasses trade in goods and services. The mining sector's ability to operate and effectively export fundamentally relies on services such as engineering, project management, construction, research and development, technology, blasting and drilling, water and waste management, environmental rehabilitation that feed into the sector.

More than 150 individual professions are required to support the scale of the national strategic endeavour that is Australia's resources sector.

The mining, mineral and metal industries are critical in the APEC region, occupying close to 75 per cent of all global mining trade and investment.⁶ As direct opportunities and downstream operations expand into the region, particularly in developing economies, there will be increased risk and occurrences of serious incidents.

Having a consistent response framework and a network of experts to assist when mining operations have problems is a leadership role Australia could take up in the region. With the expert knowledge, resources, and professional development already standard best practice in the mining industry, developing this into a regionally capable response function would be a small investment to have the ability to provide a considerable regional engagement tool.

⁵ <https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Mining>

⁶ *ibid*

Australia's Strategic National Endeavour

Australia's leading role in mining globally is derived from the high regard and respect, stemming from its commitment to advancing and leadership in developing industry best practices. The mining industry is a significant part of Australia's thriving economy, accounting for eight per cent of the gross domestic product (GDP). The Australian mining industry amounts to 75% of the country's exports, contributes significantly to employing Australia's workforce, and increases Australia's living standard through higher incomes and flourishing economic conditions⁷.

Australia has a robust mining equipment, technology, and services (METS) sector with leading developments in innovation servicing the industry. Mining contributes billions of dollars to federal and state governments each year in taxes and royalties and accounts for ten percent of GDP. This funding assists all industries in Australia, making way for new schools, infrastructure, roads, hospitals and more. Major companies in the resources sector donate funding to support community programs and scholarships across our country. Inclusive of the METS sector and supply chains, the mining industry employs over 1.1 million professionals in Australia⁸.

The scope of the Australian mining industry is a genuinely national endeavour with operations across the country. The mining industry occupies a vital role in employing, training and expanding opportunities for Australia. The sector's support for diversity has supported skills development and professional opportunities. The options across Australia are viable and create a significant opportunity to develop case studies and facilitate regional engagement through sister city relationships and embedding bi-lateral arrangements within State mining industry operations.

Evaluating the depth of the sector by region provides a unique consideration of the scale of activities in Australia. The different regional focuses support parallel lines of dialogue and engagement to widen the discussion in deepening strategic regional relationships through needs-based access to minerals and Australia's highly skilled mining professionals who deliver the endeavour.



⁷ <https://www.industry.gov.au/data-and-publications/australias-national-resources-statement/the-australian-resources-sector-significance-and-opportunities>

⁸ <https://lmip.gov.au/default.aspx?LMIP/GainInsights/IndustryInformation/Mining>

Australia & Japan

Japan-Australia Economic Partnership Agreement (JAEPA)

In 2015, the two countries signed the Japan–Australia Economic Partnership Agreement (JAEPA). This Agreement has now given exporters in Australia vastly improved market access into Japan and their investment protection.

The stability of Australia's commercial relationship with Japan has seen significant investment in developing the Australian resources sector and industrial base. Continuous investment in major Iron Ore projects, highlighted in 2016 with the celebration of the 50year Iron Ore investment partnership with Rio Tinto, has enabled considerable opportunities for resource professionals in committing to stable jobs created within the industry.⁹ As Australia's second-largest source of Foreign Direct Investment, Japan is built on a history of project collaboration and exploring new endeavours. Successive Japanese governments have been instrumental in their influence on trading houses, driven by their strong support of resource investment opportunities in Australia.

It is not surprising that Japan has already invested in and is supports Australia's emerging rare earth sector



⁹ <https://www.riotinto.com/en/news/releases/Fifty-years-Japan-Iron-Ore>

Japan's OGMEC and Sojitz Corporation are vital investors in WA based Lynas Corporation. As the opportunities identified in the Australian Government's Critical Minerals Strategy develop, further options are to deepen the bilateral engagement and trade with Japan in the Critical Minerals space.

The rapidly emerging demand for low emissions technology development has already facilitated direct funding engagement, with the ability to grow into a scalable trading enterprise. Japan's role in Australia's critical minerals sector is a large opportunity, with Japan is capable of being a significant strategic partner in developing Australia's downstream industries. Particularly in Australia's Lithium and Battery Metals industry, the rapid demand shift for renewables and clean energy has created a sizable change in the demand for critical minerals. Australia can supply the world's increasing demand, playing a pivotal role in developing clean energy technology through the supply of essential minerals and the R&D development of the leading intellectual capacity of Australia's resource professionals. The AusIMM (PAPER LINK) highlighted the significant opportunities for developing Australia's lithium and battery metals sector, and countries like Japan will be key strategic partners in securing this industry development.

The Australian and Japanese Government's commitment to collaborate and coordinate efforts to achieve decarbonisation by providing financial support to develop and deploy low and zero emissions technologies creates significant opportunities for the resources sector and the professionals leading the scientific research into new and better environmental management and technology.

Industry 4.0

The global shift to tech, data, and the cyber economy is disrupting how we live and the governance systems and structure in effect. Technology disruption has fundamentally shifted how business operates. The race for technology superiority is a deeply geopolitical competition contingent on access to critical resources. Likewise, it creates demand for a host of critical minerals, thus increasing the geostrategic relevance and opportunity to advance Australian interests through the resources sector. -

***Japan is a natural partner to support
Australia's industrial digital
transformation and creation of clean
technologies***



The paradigm shift towards renewable energy and artificial intelligence (AI) implications dramatically impacts political power and State interactions. The rise in state-sanctioned cyberattacks and the slow response to cyber control regulation have intensified conditions, resulting from the prolonged isolation of the Pandemic.

As the global demand for technology increases, States are moving to secure their critical mineral supply chains. The demand shift will require skills development to ensure future workforce requirements can sustain the industry's operations—this rapidly developing opportunity for Australia in the bilateral engagement of regional geopolitical architecture.

The rising intensity of the global technology race has, for example, created an acute supply strain for technologies used in computers, smartphones, tablets, cars, televisions, LED lights, household appliances like washing machines, microwaves, and a host of other consumer, commercial and defence technologies.

The 5G and AI deployment is another element of the tech race stimulating demand in the international minerals market. The geopolitics of a future low-emissions economy is of serious regional concern, with developing economies focused on access to low-emission energy technologies. The Pacific-Island Nations are particularly vocal on environmental impact and deepen ties with regional actors whose exports and support are vital in a carbon-constrained future.

The future success of the global renewable energy industry is entirely dependent on the mining sector and the vital resources it supplies for technology. The key to securing a lower carbon future is through minerals and mining operations. Yet, the industry is starved of easy access to capital as public perception condemns mining to be part of the problem. The ability of professionals to bridge the gap with public trust will be through the industry standards and best practice reestablishing the confidence to ensure the sustainability of the sector's social license to operate.

Critical Minerals

Critical Minerals are vital in driving global development, are essential ingredients for emerging energy, defence, communications, and transport technologies, and are crucial for regional security and supply chain resilience. Australia's resource professionals have the experience to develop Australia's opportunity as the potential global leader in the sustainable exploration, extraction, production, and processing of critical minerals.

Australia's Competitive Advantage

The long-standing investment from Japan has developed the bilateral relationship through the deep trust and respect established within the business sectors of both nations. The Investment settings of low cost and low sovereign risk combined with State government project facilitation services enabled Australian resources to develop as an investment-ready industrial complex.

The competitive advantage of Australia's resources sector is fundamentally driven by the quality of the professionals within the industry. Professionals are the key enablers of investment consideration confidence in the security of project investment. Our professionals have built Australia's reputation for:

- ✓ Highly educated and skilled workforce
- ✓ World-class pre-competitive geoscientific data
- ✓ The global industry leader in environmental and social standards
- ✓ Stable & transparent regulatory framework
- ✓ Industry-led and Government supported innovation
- ✓ Considerable export infrastructure



The resources sector can build on a substantial minerals endowment and world-class research, training, engineering, and technical capabilities to move up the value chain into the advanced manufacturing of battery precursor chemicals and finished battery products. Australia is the world's largest producer of lithium concentrates and mine and process other battery metals, including nickel, cobalt, aluminium, vanadium, graphite, manganese, uranium, and rare earth elements.¹⁰

Demand for critical minerals is a unique opportunity for Australia-Japan strategic economic cooperation

The global battery and energy commodities market is forecasted to increase by 25% per annum through 2028.¹¹ Currently, Australia realises only 0.53% of the lithium value in the lithium-ion battery value chain

¹⁰ Best, A and Vernon, C, 2020, 'State of Play: Australia's Battery Industries as at March 2020', CSIRO, Australia.

¹¹ Casson, B, Lewis, C and Martin, K, 2021, 'Outlook for Selected Critical Minerals: Australia 2021', Office of the Chief Economist, Australia; Department of Industry, Science, Energy and Resources, 2020, 'Responsible, Reliable, Ready for the Future: Australia's Global Resources Statement', Australian Government, Australia; Department of Industry, Science,

by exporting metal concentrates.¹² In a rapidly developing, politically complex, global market, the opportunity to capture a significant proportion of this growth is not only substantial but time-sensitive.

There is a substantial opportunity to build on Australia's minerals endowment and industrial capacity to attract continued capital investment and create growth in the Australian export market. AusIMM believes Australia can expand domestic minerals processing and value-added manufacturing through the resources sector. We also recognise an opportunity to adapt innovations within Australian mining for use in other sectors, such as defence, agriculture and space, in turn helping Australia capture more significant shares of the global market for cross application of mining technology.¹³

Leveraging Australia's leading technical and professional expertise to develop a strategic White Paper series addressing these and other opportunities in the region. The ability to export best practice operational management and training and skills development in the region creates increased opportunities for engagement and bilateral cooperation through the whole life cycle usage within the region. That driving demand for critical and rare earth minerals globally will force alliances around the supply, access, and control of these essential minerals.

Supply Chain Resilience

The Covid-19 Pandemic has escalated supply chain tensions due to restrictions on imports and exports and reduced operational capacity required to mitigate the effects of the virus and protect public health. The order lag times for the mining sector highlighted the ongoing need to have enterprise inputs easily accessible from various sources, including domestic operations.

The precarious supply chains for materials and labour have forced the mining industry to consider its operational approach more broadly. Despite the general success and agility of the sector's management throughout Covid-19, several prominent Australian miners attributed missing productions targets due to the supply chain disruptions and access to labour shortages.¹⁴

The general uncertainty of access to resources has become a considerable focus for the sector. It will create deep consideration about the enterprise value of having downstream processing near operations. The proximity value of colocations comes with significant investment needs, and Government supported facilitation settings to manage corporate risk in establishing new operational endeavours.



Energy and Resources, 2021, Resources Technology and Critical Minerals Processing National Manufacturing Priority Road Map', Australian Government, Australia.

¹² The Lithium-Ion Battery Value Chain – New Economy Opportunities for Australia, AusTrade, December 2018, Figure 31.

¹³ See for example Australian Government, 2021, 'Resources Technology and Critical Minerals Processing National Manufacturing Priority Road Map', available at: <https://www.industry.gov.au/sites/default/files/March%202021/document/resources-technology-and-critical-minerals-processing-national-manufacturing-priority-road-map.pdf>.

¹⁴ <https://www.dfat.gov.au/sites/default/files/partnerships-for-recovery-australias-covid-19-development-response.pdf>

ESG

Social responsibility and performance

Environmental, social, and governance factors are fundamental to the sustainability and financial viability of the global mining industry, including in Australia.¹⁵

Our resource professionals' strong global reputation in ESG best practice and standards, critically underpinning trust, confidence, and credibility of Australia's mining industry

ESG has a profound impact on sources, availability, time frames and costs for project financing.¹⁶ Mineral resource development opportunities are likely to be severely constrained unless projects and unavoidable legacies are agreed upon as acceptable by affected landholders/custodians in advance.¹⁷ AusIMM is taking a global leadership position in ensuring resources professionals meet the highest social responsibility and performance standards.

The AusIMM is developing leadership in ESG through a comprehensive Social Responsibility Framework, consisting of a [Social Responsibility Statement](#), our [Royal Charter](#) and [Code of Ethics](#), a [Chartered Professional Program](#) for environmental and social performance professionals, and [Professional Certificate in ESG and Social Responsibility](#) to lift awareness, understanding and competency across the mining sector.

AusIMM submits to the Committee that measures such as these are fundamental to attracting continued investment into the Australian resources industry and supporting its ongoing role as the number one source of export revenue for the Australian community.

AusIMM recommends the government partnership with AusIMM to advance geostrategic leadership through the regional uptake of the AusIMM Social Responsibility Framework. The AusIMM Chartered Professional Program and course offerings provide skills development throughout the region and is an opportunity to deepen discussions in strategic forums to engage regional partners in a dialogue about Australia's leadership on ESG and social responsibility in mining.

¹⁵ AusIMM Social Responsibility Statement, available at: <https://www.ausimm.com/about-us/governance/social-responsibility-framework-and-statement/>.

¹⁶ AusIMM, 2019, 'Social Licence Policy Development Forum Summary Report', available at: https://www.ausimm.com/globalassets/advocacy/slto_forum_report_final.pdf;

PwC, 2020, 'Aussie Mine 2020: Resources the Recovery'; Mackenzie, S, Everingham, J and Bourke, P, 2020, 'The Social Dimension of Mineral Exploration', SEG Discovery No 121. April 2020, pp. 16-28;

¹⁷ Lebre, E., Stringer, M., Svobodova, K., Owen, J., Kemp, D., Cote, C., Arratia-Solar, A., Valenta, R., 2020, 'The Social and Environmental Complexities of Extracting Energy Transition Metals', Nature Communications, available at: <https://www.nature.com/articles/s41467-020-18661-9.pdf>.

Industry Standards

The Organisation for Economic Co-operation and Development (OECD) has estimated that standards, which set out minimum specifications, procedures, and guidelines for developing products, services and systems, impact 80 per cent of all global trade.¹⁸ The Commonwealth Department of Industry, Science, Energy and Resources facilitates Australia's export growth by supporting and leading international standards development. Multi-lateral engagements such as the APEC Sub-Committee on Standards and Conformance (APEC SCSC) are crucial drivers of exporting best practices and fostering shared learning and skill development. This leadership enhances Australia's global trade and provides consistency in management practices that enables ease of movement for professionals operating across jurisdictions in the mining sector. ,

Professional and technical excellence in mining strengthens Australia's global standing, continues to attract Japanese investment expanding opportunities in the partnership



Our resources professionals are amongst the most highly skilled globally, and our reputation technical and ethical leadership supports Australia's broader standing on the world stage.

Under the [Royal Charter](#), the AusIMM upholds standards and promotes professional best practices globally. The respect for Australian mining professionals, codes and standards, professional development and training sustains high demand for our skilled professionals. It strengthens opportunities for global dialogue and deepening strategic relationships through the resources sector.

Globally respected mining codes and standards

The demand for Australian mining experts reflects the global recognition of Australian mining standards, expertise and experience. This international recognition is core to the global position and competitive strength of Australian mining, and AusIMM exercises a leadership role in developing and promoting the highest ethical and professional standards through a range of codes, standards and professional frameworks, including:

¹⁸ OECD, 1999. Regulatory Reform and International Standardisation. Available at: <https://www.oecd.org/tad/benefitlib/1955309.pdf>

- The [AusIMM Code of Ethics](#), which ensures mining professionals uphold and enhance the global standing of mining professionals, has been translated into Mandarin and is supported by an established governance framework including By-Laws and Professional Conduct Regulations.
- The [AusIMM Social Responsibility Framework](#), discussed above, also outlines professional standards to support the sector's environmental, social, and financial sustainability.
- [JORC Code](#), the entire denomination of which is the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, which AusIMM co-parent with our partners at the Australian Institute of Geoscientists (AIG) and Minerals Council of Australia, and has been translated into Mandarin;
- [VALMIN Code](#), or Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets, also co-parented with the AIG.

The global mining community has demonstrated engagement efforts to align with Australian standards of professionalism and technical excellence. This global leadership position plays an essential role in supporting Australia's broader international standing.

Australia's best practice frameworks

The global mining community seeks opportunities to discover best practice upskilling methods from the respected Australian mining sector. AusIMM plays a crucial role in increasing the worldwide recognition and uptake of mining best practices, offering a wide range of globally recognised courses and training services to meet this demand.

More than 40% of the AusIMM flagship Professional Certificate in JORC Code reporting enrolments are outside Australia and New Zealand. A further example lies in AusIMM's work with the Global Mining Association of China in 2020 to deliver a five-day training program on the JORC Code in China.

The deepening interest in Australian practices and innovations across crucial themes shaping the future of the global mining industry include:

- Technology and innovation: operational efficiency, waste reduction and environmental performance.
- Health and safety: Australia leading progress towards a zero-harm industry.
- Sustainability: social responsibility and performance of the sector.

These avenues provide a mechanism for Australia's development and leadership and role of the mining sector to attract investment opportunities, strengthening the economy and prospects for professionals.

AusIMM invites the Government to collaborate on championing mining regulations, codes and standards across the Indo-Pacific region. Facilitating these efforts through existing regional forums, including, for example, the APEC Subcommittee on Standards and Conformance and ASEAN Regional Mining Forums, provide a significant regional leadership opportunity for Australia.

Future Workforce

The pace and scale of change in the resources industry have never been more substantial. The Australian mining industry is becoming more sophisticated, automated, and technologically advanced as it develops more efficient operational methods. Mining professionals will require different skillsets to maintain Australia's global competitiveness as the sector evolves. Ensuring the skills requirements of the future workforce are achieved requires coordination across the industry, Government, and universities. As the digital transformation of the industry continues to develop under industry4.0, the need to have reliable technology partners will be essential for continued success.

Japan is a natural partner to support and develop the digital literacy and opportunities of the resources future workforce needs.



The resources sector demands continued skills advancement as new practices become best practices. A trend is developing around attracting and retaining talent, particularly as Australian miners find themselves in direct competition with employers across various industries. This trend poses a significant challenge in the technological advancement of operations.

The AusIMM has identified several key areas requiring action to ensure a sustainable and agile future resources workforce:

- Forecasting, to ascertain the future needs of the industry, map expected growth in the resources workforce and identified potential gaps and skills shortages
- Education, skills and training, with an expansion of education pathways to diversify progression and entry options across all mining-relevant fields
- Attraction and retention, to improve the perception of the resources sector and increase awareness of the breadth of established and emerging career opportunities, as well as the role of mining in providing future economic and social prosperity
- Equality of opportunity and adoption of community diversity by increasing inclusiveness and opportunities in the industry; and
- Collaboration across industry, Government, and academia to align approach for best practice industry settings

The AusIMM [Resources Education Collaboration Summit](#), co-hosted by AusIMM with the Victorian Government, is working to address these areas through several initiatives with industry, Government, and education partners.

The National Resources Workforce Strategy outlines various policies and programs to support a sustainable future resources workforce. This strategy is essential to ensuring the skills and talent needed to sustain the industry are met and provides a forum to address

The Government role in supporting the future of the resources workforce reflects the broader responsibility of the Government to drive growth in Australia's economy and support job creation through the Nation's major industries. The nature and scope of the resources sector will provide a unique opportunity to enhance regional connectivity through professionals. As Industry 4.0 substantially drives job demand across sectors engaging in digital transformations and operations to meet demand, Australia will require increased skills migration. As the Columbo and New Columbo plan have demonstrated, people's movement in engaging in study and work provides a unique connection that builds enduring ties. The framework model has been used to significant effect in developing meaningful soft power diplomacy.

Approaching future planning and considerations of the sector industrial landscape and operational construction establishes the need for regional engagement on deepening strategic treaties and sovereign agreements to develop new and more accessible pathways of mobilising the skilled professionals in the region.

Working Group on the Resources Industry Future Workforce

The AusIMM [Working Group on the Resources Industry Future Workforce](#) is an evidence-based approach initiative collating data from universities and industry to model the supply and demand and map gaps in the Australian resources sector. The Working Group comprises key personnel representing industry and academia.

There is a substantial opportunity to strengthen and project Australian leadership in the region through programs focused on expanding access to careers in the resources sector. In particular, the [APEC Women in STEM Principles and Actions](#) is an opportunity to increase engagement through scholarships, forums and further research addressing the barriers and opportunities for women in the mining sector and creating a regional focus on developing the skills and qualifications of women. As women in the region have more exposure to expanding their professional opportunities, there will likely be a significant shift in economic activity.

Enhancing professional development opportunities for women in the region not only assists in ensuring the sector's future workforce but also contributes to increased standards of living and economic independence. Although growing women's workforce participation in Australia is a priority of the Government, it should also be considered a regional engagement opportunity.

Conclusion

Technical and professional leadership continues to be the critical factor to success for the resources sector. The reputation and credibility of Australia's resource professionals is the competitive advantage factor that continues to create opportunities that deliver economic and social prosperity in the sector, Australia and across the globe with involved partners. The status and credibility of the Australian industry is an opportunity for greater engagement in value-adding enterprises and technology development, which should be a vital consideration of the continued diplomacy between Australia and Japan.

Australia's proximity to Asia continues to be a significant trade advantage for resource exports and advances Australia's geostrategic interests. As geopolitical dynamics shift around supply chain integrity, the rapidly rising demand for Australian minerals, standards, processes, and practices will increase as a significant Australian soft power projection component, particularly in the region. Japan one of Australia's most important allies in Asia and a key export market. As diplomatic relationships evolve with the QUAD and AUKUS, the strength of the Australia-Japan economic cooperation will provide considerable opportunities in developing clean technology and enterprise.

The significant role mining professionals play in the development of new technologies cannot be understated. Remote operations, AI, machine learning, IoT, are among a few of the considerable industrial landscapes that the Australian mining sector is fast developing, adopting, and improving that has significant cross over without industries.

Australia's opportunity to expand its resources sector and provide the critical raw materials necessary for modern and emerging economies to flourish in a decarbonised future will have challenges as it scales to meet the global demand. The whole of enterprise infrastructure, including downstream processing, advanced operational technology, and sufficient workforce supply. Japan is well placed as a leading global technology developer to provide strategic capability inputs beyond investment to enable the growth of the Australian resources sector.