



CONFERENCE PROCEEDINGS

4TH OECD MEETING OF MINING REGIONS AND CITIES

Diversified and liveable mining regions in the
context of the green transition

20-23 June 2023
Karratha, Western Australia

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The OECD's Centre for Entrepreneurship, SME's, Regions and Cities and the City of Karratha hosted the 4th OECD Meeting of Mining Regions and Cities on 20-23 June. A diverse representation of policy makers, industry representatives, academics, and civil society organisations gathered to discuss the challenges and opportunities of mining and regional development. Attendance was high with 245 participants from 12 countries. The two-day conference focused on two pillars:

1. Diversification and green value chains
2. Liveable and sustainable mining communities

The panel discussions delivered by 60 speakers from across the public and private sector highlighted the rapid transformation of the mining sector towards more sustainable practices and conceptualisation of new models to address issues such as engagement with Indigenous peoples and risk taking for government.

The meeting also featured an informal pre-conference discussion (20 June) that focused on how circular economy practices in and around mining operations can be used to foster sustainable regional development. This facilitated lively discussions that flowed into the remainder of the conference as attendees engaged in Q&As with speakers around issues of liveability, green energy transitions, and stakeholder engagement. The event concluded with the announcement of the 5th Meeting in Greater Sudbury, Canada in 2024 and organised field trips of a mine site visit or rock art tour (23 June).

Main Takeaways:

Mining is undergoing a momentum of change, with many companies investing in new areas including renewable energy, automation and sustainable processes (e.g. green iron). Mining companies are under increasing pressure by society, investors, and policymakers for better sustainability practices. Examples showed how the industry appears committed in its relationship with the natural environment and obligations to net-zero goals and increased circularity.

There are new avenues to advance circular economy and renewable energies to improve sustainability, while opening business opportunities. For example, exporting carbon-free raw materials/minerals and facilitating mid/downstream processes in remote places (e.g. green ammonia, on-site value-added to critical minerals).

Against this backdrop, discussions from the event suggested that governments and companies need to involve communities more meaningfully to ensure that they also benefit from mining development and environmental impacts are reduced. For example, empowering and including Indigenous peoples in decision-making, environmental monitoring, and co-ownership of benefits.

Engagement with Indigenous Peoples and the benefits they receive calls for a new model of development that can deliver more equitable outcomes for traditional owners. Mining on Indigenous land need to respects Indigenous rights and deliver benefits in a non-paternalistic way focusing on building wealth of Indigenous Peoples over the long-term through self-determination. Some Canadian practices have been moving in this direction.

New governance mechanisms are warranted that allow for proactive planning and risk taking. For instance, through living labs on circularity and unprejudiced support for Indigenous Businesses. Governments need to take more leadership in anticipatory planning of mining regions, coordinating companies' investments and social initiatives, and guaranteeing that local communities have the capacities to diversify their economies. This requires long term forward looking planning practices using a whole of government approach across federal, state, and local departments.

Local businesses and entrepreneurship play a pivotal role in facilitating diversification with opportunities to take advantage of the regions strategic position as a potential leader in the renewable energies space and to help facilitate solutions to the challenges facing the region.

CONFERENCE OPENING AND WELCOME

Ngarluma elder, Mr Keith Churnside welcomed the audience to Ngarluma land before the opening of the conference.

REGIONAL DEVELOPMENT AND ECONOMIC DIVERSIFICATION IN MINING REGIONS



"Peer learning is at the core of the OECD's support for making mining regions more resilient, more sustainable, and more inclusive."

Mathias Cormann, Secretary-General of the OECD

Mathias Cormann, Secretary-General of the OECD opened the conference, highlighting the significance of the Pilbara region as the largest iron ore producer in the world and its strategic position in the renewable energy transition to help meet the increasing global demand for critical minerals. He acknowledged that whilst no two mining regions are identical, they share similar characteristics, challenges, and opportunities in contributing to long-term growth and prosperity and meeting sustainability expectations. The [OECD Mining Regions and Cities initiative](#) has been collecting and analysing policies and best practices across mining regions to help communities seize opportunities in diversification, sustainability, and providing greater opportunities to local populations. Mining regions have the opportunity to leverage their activities to lay the ground for long-term growth and prosperity and to meet sustainability expectations.



The Honorable Don Punch MLA, Minister for Regional Development, Disability Services, Fisheries, Seniors, and Ageing, Volunteering

urged conference discussions to focus on the relationship between mining and communities and how that builds a future for improved wellbeing. This includes focusing on liveability, pride in communities, education and career opportunities within the region, services, benefit sharing, cultural respect, and economic prosperity. A diversified mining sector in the Pilbara, beyond iron ore (e.g. lithium, copper, and gold), will play a major role in this future as well as facilitating the green energy transition. Native Title and Land Use Agreements are important tools to ensure mining activities and the use of land is "in synch with [Indigenous aspirations](#)." Many mining regions across the globe share similar challenges in the wake of the renewable energy transition, making for a rich opportunity to share ideas and perspectives on how to transition to a low carbon future.



Peter Long, Mayor of Karratha welcomed the delegation to the City of Karratha and highlighted the rich cultural and geological history of the region. He described the region as "[the engine room of the Australian economy](#)." In 2022, the Pilbara accounted for 31.5% of total exports in Western Australia and 11.5% in the country in 2022. Despite the immense wealth of the region, the lack of diversification can create economic uncertainty due to the local economy's vulnerability to global commodity prices. Karratha also faces social issues such as destruction of Indigenous cultural heritage sites, a significant lack of housing, income inequality, and environmental impacts. Against this backdrop, the city is looking to diversify away from mining, exploring green industry initiatives such as the Pilbara Hydrogen Hub. In improving liveability in Karratha, the city has built significant infrastructure such as an arts centre, airport, hospital, schools, and sporting grounds. Mayor Long welcomed the OECD conference as an opportunity for knowledge sharing and collaboration in creating solutions for the challenges facing the Pilbara

Case Study: Pilbara



The OECD presented the [preliminary findings](#) of the Pilbara case study. Home to 28% of global iron ore production, the fourth largest lithium mine worldwide, and 70% of Australia's LNG, the Pilbara's mining sector contributes significantly to regional and national wealth. Existing services and equipment providers in the region, strategic location to Asian markets, cultural and natural amenities, and renewable energy potential are examples of strengths for the Pilbara's regional development as a global leader in the green transition.

However, the Pilbara faces several bottlenecks that diminish its attractiveness. This includes a lack of economic diversification that increases the region's vulnerability to economic volatility and reliance on fly-in-fly-out (FIFO) workers. In this context there is a lack of affordable housing, high living costs, inequality in work opportunities for women, and poor socioeconomic outcomes of Indigenous communities. High levels of industry activity in the region has also created significant levels of GHG emissions.

Comprised of a policy questionnaire, virtual meetings, and onsite meetings, the study identified recommendations across the following 4 pillars:

- Diversifying the economy inside and outside the mining sector
- Improving access and provision of housing and services in the Pilbara
- Enhancing well-being and development opportunities of Indigenous, with the consent of Indigenous leaders in the region
- Establishing a coherent place-based strategy with a long-term vision for Pilbara's development

The recommendations of the study were presented for feedback from participants at the conference. The OECD has taken this feedback into account to improve the recommendations in the final report. The launch will be the first week of October, during the Pilbara Summit.

Michael Heap, Director for Economic Development at the Pilbara Development Commission (PDC) reacted to the OECD's preliminary findings with the following observations:

- The increasingly unavailable and unaffordable state of housing in the Pilbara is a key issue. The PDC encouraged a collaborative effort to see progress in this space and find solutions to build a sustainable housing market.
- The PDC also welcomed future development of critical minerals projects. They expressed excitement for WA's Future Battery Strategy and noted opportunities that exist around circular economy practices and will continue to support work in this area including the Centre for Decommissioning Australia, CRC Time, the City of Karratha and Shire of Ashburton.
- The PDC also expressed excitement at the establishment of the Pilbara Hydrogen Hub and emphasised the role of the Clean Energy Training and Research Institute in providing required skills for emerging industry.
- PDC recognised the need for a long-term vision for the region, stating that the state government is already actively discussing this.

Case Study: Antofagasta

The OECD provided an updated on the case study of Antofagasta. This study presents the diagnosis, rationale, building blocks and recommendations for the forthcoming Mining Strategy of Well-being for the region of Antofagasta 2023-2050. The OECD, together with the Catholic University of the North, Chile, supported the regional government of Antofagasta in preparing this strategy, which prioritises well-being standards of citizens living in Antofagasta and promotes more sustainable mining.



The 5 objectives of this Strategy to deliver greater wellbeing standards in the region based on a competitive and responsible mining sector.

- Antofagasta is the world's leading copper and second largest lithium-producing region, with strategic importance for the global energy transition and for the economic development of Chile.
- Despite the wealth brought by mining activities, important gaps remain across communities in several dimensions of well-being.
- [The Mining Strategy of Well-being for the region of Antofagasta 2023-2050](#) is built on a new regional pact with a long-term vision that aims to leverage mining benefits to improve well-being standards and take advantage of the opportunities brought by the digital and green transition.
- The elaboration of the Strategy involved a variety of stakeholders to define its objectives, priorities and strategic projects.



“We aim to strengthen a path of sustainable growth that enables public-private collaboration in Antofagasta, based on the consensus of major agreements around common challenges in the economic, social, and environmental spheres.”

Ricardo Diaz, Governor of Antofagasta

Ricardo Diaz, Governor of Antofagasta emphasised the importance of the region in copper and lithium production to support the global green energy transition. He commented that the income produced through mining in the region "contradicted [his] personal experience" growing up in Calama, a town located next to Chuquibambilla, the largest open pit copper mine in the world. He noted that there were "no good medical centres, no roads that facilitated access and no projects aimed at providing better and more green areas." He acknowledged that mining is positive for Chile, yet it can hold challenges for the regions in which it operates. Collaboration of a diverse range of actors is necessary to tackle these challenges, valuing each of their unique contributions and placing humanity at the core of strategy. Ricardo Diaz welcomed the OECD's recommendations for the Mining Strategy of Antofagasta and the relevance of international experiences to assist the region on their path to sustainable growth and public-private collaboration.

The report and strategy will be launched October 2023.

KEYNOTE: RICHARD COHEN MANAGING DIRECTOR OF RIO TINTO PORT, RAIL & CORE SERVICES

Richard Cohen, Managing Director of Rio Tinto Port, Rail & Core Services emphasised the growing importance of ‘listening’ for Rio Tinto, following the tragic destruction of Juukan Gorge, which saw a noticeable shift in the company's relationship with the community, particularly with traditional owners. Acknowledging the need for improvement, he highlighted the importance of introspection and a shift away from a short-term focus in interacting with communities and local governments. This included announcement of a ten-year partnership with the Shire of Ashburton and the City of Karratha.

Other notable partnerships include:

- Gemco Rail, to establish iron ore railcar manufacturing and maintenance in the Pilbara, where all rail cars for the Pilbara will be locally manufactured in Karratha.
- China Baowu, to explore decarbonisation opportunities in the steel value chain.

Looking ahead, to meet Rio Tinto's emissions reduction target of 50% reduction in Scope 1 and 2 emissions by 2030, the company is working to build skills and capabilities in the Pilbara, to potentially lead the renewable transition. There are significant renewable resources available in the region and opportunities for the Pilbara to become an iron making hub with access to reliable, low cost, renewable energy. Yet, there are challenges in the cost of building renewable infrastructure such as solar farms that need to be overcome through collective efforts including long-term planning and collaboration across the public and private sector.





"Mining is not sustainable, by definition we are extracting non-renewable resources. That doesn't mean that mining doesn't use sustainable technologies, and circular economy will increase that sustainability. Without mining we cannot have a green transition."
-Luis Martins, President, Cluster of Mineral Resources Portugal

Facilitated by Enrique Garcilazo, Deputy Head of Division, Regional Development and Multi-level Governance at the OECD, this panel reflected on circular economy insights from the pre-conference discussion.

Panelists:

Luis Martins, President, Cluster of Mineral Resources Portugal

Elsa Dominish, Research Principal, Institute for Sustainable Futures, University of Technology, Sydney Naomi

Boxall, Research Scientist, CSIRO, Australia

Main themes:

Consumption patterns:

- A critical barrier for sustainable livelihoods is the high rate of global consumption. Satisfying current consumption levels using renewable energy requires a significant increase in the mining of critical minerals. The industry is currently struggling to meet these demands. While demand-side policies need to make consumption patterns more sustainable, circular economy strategies can help reduce the environmental impacts of minerals supply.

Technical challenges:

- The circular economy is an appealing proposition, but with current technology is unfeasible and not economically viable currently. It requires a significant **"technological evolution for it to be a technical and financial reality."** – Luis Martins
- "Recycling is the last piece of the puzzle for a circular economy transition." There are considerations such as slowing the use of resources and extending product lifespan through reusing and refurbishing. - Elsa Dominish.

A holistic approach is warranted:

- Considering social and political aspects of a circular economy can be more challenging than the technological solutions.
- There are current gaps in data and information flows. Companies should be incentivised to share information.
- Sharing circular economy strategies and expertise across countries and regions can aid in the transition.
- Australia can take significant learnings from Canada on equitable benefit sharing with Indigenous peoples.
- Partnerships between industry and academia are essential (e.g. clusters and the support of regional bodies).
- The objectives of circular economy will be an essential component in achieving current Australian decarbonisation and climate policies/targets.

Regulation:

- Circular economy regulation takes long term planning as it involves most departments. An overarching approach is needed.
- SMEs and start-ups require additional support schemes as circular economy pursuits are capital intensive.

PILAR 1: DIVERSIFICATION AND GREEN VALUE CHAINS

SKILLS FOR THE FUTURE: NEW JOBS FOR THE GREEN AND DIGITAL TRANSITION IN MINING



Facilitated by Cali Calitz, Director of Desert to Coast Training & Assessment and Vice President of the Newman Chamber of Commerce and Industry, this panel focused on how to secure future ready jobs in mining regions and build the skilled workforce needed to for the green transition.

Dr Carlo Alberini, Mohammed VI Polytechnic University discussed new green developments in Morocco. Morocco has access to more than 70% of the world's phosphate reserves. Each mining town is equipped with its own infrastructure (power station, water etc) as well as amenities for daily life such as education, healthcare, and cultural facilities. In 2013, the Mohammed VI Polytechnic University (UM6P) was launched, surrounded by the New Green City of Benguerir. The old mining city of Benguerir was reconstructed physically and socially to create new job opportunities and to enhance sustainability. Within the New Green City is 'Techpark' a green technology activity zone for innovation professionals and entrepreneurs. This space is aimed at facilitating start-ups, training, and research and development.

Rebecca Tomkinson, CEO of the Chamber of Minerals and Energy of Western Australia discussed skills requirements for the future of mining. There are currently \$149 billion of new mining and resources projects in WA. Due to adaptation to global decarbonisation demands, there is a large skills shortage across the mining and resources sector. Technological advancements will require greater partnerships with education and training centres to up-skill and re-skill workers for the resource sector and beyond. Initiatives such as CME Digital Technology Program, supports WA teachers to deliver technological education in classrooms across the state. Partnerships such as these across higher education with employers, schools, and training providers are important to increase supply of necessary professionals.

Joanna Waterstorm Muller, Student Services and Operations Manager at the Pilbara Universities Centre (PUC) outlined the learning facilities and resources at PUC. PUC offer undergraduate, postgraduate, and professional development student pathways. These pathways aim to provide opportunities to young people in regional areas that have historically only been available in metropolitan areas. This includes being able to study higher education without leaving their community through virtual learning. PUC addresses barriers that students in the Pilbara experience so they can up-skill and cross-skill to meet the changing needs of industry. There are currently 255 students registered with the PUC, remotely and in person with 47 people graduating in 2023 and 20% Indigenous students. Developing local pathways for students can help meet the skills shortage in the Pilbara. PUC is working with industry to create bespoke courses to meet workforce needs.

Karen Ho, Director General, Department of Training and Workforce Development, WA outlined skills development necessary for the green transition. The Department of Training and Workforce Development has provided 140,000 training places through five TAFE colleges and over 200 private providers and services such as workforce planning, career services, and skilled migration services. These efforts have led to a 50% growth in apprentices in the last 2 years. To address skills shortages and support the clean energy transition there has been investment in low-fee or free courses, new programs, employer incentives, job ready employment programs, and upgrading TAFE facilities and equipment. Partnership with industry is also essential so the needs for up-skilling and re-skilling can be met for future skills titles that haven't been seen before.

UPSCALING LOCAL FIRMS TO SUPPORT DIVERSIFICATION, LINKED TO THE GREEN TRANSITION: THE ROLE OF LOCAL PROCUREMENT



Facilitated by John Acres, Manager of the Office of the Deputy Director General, Industry and Economic Development, Department of Primary Industries and Regional Development, Western Australia, this panel highlighted the importance of local procurement in the diversification of mining regions, linked to the green transition.

Ikkla Nyänen, Senior Advisor in Extractive Industry for New Business and Internationalisation Services, Business Joensuu, Finland spoke about the importance of "thinking globally, and acting locally." He introduced the Outokumpu Mining Hub, a public-private cluster working to provide sustainable solutions for how to utilise side rocks and tailings better. This includes material characterisation, forecasting, and water recycling and closure solutions. GTK Mintec, a global research and innovation platform of mineral processing and circular economy is also located in North Karelia, Finland, providing research internationally on smart tailings, digitalisation, and others. In his experience To involve businesses in diversification linked to the green transition requires a number of several conditions in place are favourable:

- Added value and clear aims
- Mutual trust
- Leading process
- Networking

Jeff Geipel, Managing Director of Mining Shared Value, Engineers Without Borders, Canada, highlighted the success of Australia in managing local procurement, including the gathering of data on local procurement, which leads to better management outcomes. Local procurement provides opportunities for economic development in mining regions with host country investment accounting for 71% of in-country expenditure. He stressed that "good governance of mining is about harnessing linkages between mining and local business" to ensure benefits flow into the regions where mining is taking place. However, local procurement brings challenges:

- It is not an end in itself, it needs to be part of a wider industrial development strategy.
- The green transition places additional pressure on harnessing local procurement for diversification.
- There are new obligations for suppliers and institutions as companies move to reduce Scope 3 emissions.

Mining Shared Value is working to create a Local Procurement Reporting Mechanism, a global standard format for reporting on local procurement inputs and outputs.

Susan O'Byrne, Project Director and Business Foundations discussed their work with SMEs to help them start, develop, and grow. She outlined the challenges of SMEs in operating as part of a larger supply chain such as reporting requirements, deadline targets, overseas competitors, and more recently, demand for decreasing environmental impacts. SMEs are eager for big customers consult with the supply chain about the main issues and then figure out how to collaboratively solve the problem. This will be a "whole of company or whole of government approach" that will require the dismantling of silos to ensure other departments aren't creating barriers to success such as legal and insurance requirements.

Fernando Cortez, General Manager, industrial Association of Antofagasta, Chile outlined Antofagasta's transition towards green mining through the use of renewable energy, electromobility, automation, water efficiency, and recycling. Key to this is the green management of supply and mining contracts including definition and promotion of green policies for suppliers, company training on green technologies, and sustainability evaluation platforms for suppliers. However, there are challenges for the green transition in mining such as knowledge of the market, available technologies, financing, and training.

PARTNERING WITH INDIGENOUS COMMUNITIES TO UNLOCK BUSINESS OPPORTUNITIES AND BOOST REGIONAL DEVELOPMENT

KEYNOTE: PROFESSOR PETER YU

Prof Peter Yu Vice-President, First Nations Portfolio at the Australian National University, Deputy Chair of the Northern Australian Indigenous Land and Sea Management Alliance, and Chair of the Australian Advisory Group to Rio Tinto discussed economic opportunities for traditional owners of the Pilbara. He highlighted the significant history of resistance of Indigenous people in the region and acknowledged the large-scale impact and global scrutiny surrounding Rio Tinto's destruction of Juukan Gorge. Negative impacts on traditional owners present risks for companies in the context of an increasing trend towards global responsible investment. Prof Yu highlighted that "Pilbara's First Nations people have not benefitted equitably from the Pilbara's immense wealth" he remarked "this should send alarm bells that something is fundamentally wrong ." He called attention to the confidential nature of Native Title agreements where little traditional owners have a restricted control of their assets. Future indigenous economic engagement should disregard past paternalistic policies and pursue equitable systems of benefit sharing and commercial relationships between native title holders and resource companies. The state government plays a significant role in creating a policy and regulatory framework to realise this future, yet ultimately Indigenous peoples must lead this reform.



"A strategic reform agenda will require an unprecedented collaborative partnership between the mining industry, first nations peoples, and the government."



Facilitated by Chris McDonald, Honorary Associate Professor, First Nations Portfolio, ANU, and Assistant Secretary, Enterprise and Budget Strategy at the Australian Department of Agriculture, Fisheries, and Forestry, this panel discussed partnerships with indigenous communities and indigenous led development.

Panelists: François Langlois, CEO, Ngarliyarndu Bindirri Aboriginal Corporation, Alicia Du Bois, CEO, Royal British Columbia Museum, Canada, Dawn Madahbee Leach, General Manager, Waubetek Business Development Corporation and Chair of the Canadian National Indigenous Economic Development Board, and Kevin Guinness, Yindjibarndi leader and Director of NYFL

Unequal sharing of benefits from mining:

Despite the enormous wealth produced by the sector, Indigenous peoples are locked out of economic prosperity and opportunities. The economic model of the Pilbara is failing to improve wellbeing standards. Sean-Paul Stephens remarked that "[prosperity has not been shared](#)." Roebourne, with a large Aboriginal population, is in a resource rich region, yet has one of the lowest social and economic standards in Australia. Similarly, Canada exports \$300 billion of mineral resources per year, yet the Indigenous communities in these areas experience dire socioeconomic outcomes as well as lasting environmental damage.

Indigenous led enterprise:

There are significant opportunities for Indigenous led enterprise in the Pilbara, yet enabling structures need to be created. This includes moving beyond local procurement to support Indigenous equity participation in resource projects. The government and investors in Australia need to recognise the risk involved in continuing to lock traditional owners out of opportunities and benefits from mining. A large barrier to Indigenous engagement in the workforce and business opportunities is the lack of cultural safety. To François Langlois, "[culturally safe means understanding the number of issues why an individual cannot turn up to work in the morning or is not on the bus, understanding the challenges happening at home](#)." Greater attention should be paid to ensuring commercial spaces are accessible for communities. One way to ensure this is by supporting visions led by Indigenous peoples. This includes valuing Indigenous knowledge and culture, supporting efforts to capitalise on this knowledge, and creating systems that prevent 'black cladding,' where non-Indigenous businesses boost their Indigenous share holder base to win contracts. In Canada, banks play a significant role in supporting Indigenous led economic development through lending and trust support.

Capacity building:

For indigenous communities in the Pilbara, there is a strong appetite for economic participation. However, the lack of access to basic needs hinders the ability for communities to pursue these opportunities. In addressing this disparity, long-term investment and planning for the future is essential. Partnerships play a role in developing the right ecosystem for people to pursue their objectives and government should be responsible to fill the gaps where industry players fail to provide support. In Canada, bodies such as the First Nations finance authority and the First Nations Major Projects Coalition assist communities in sharing best practice on impact benefit agreements and equity ownership deals. Dawn Madahbee remarked that "[when first nations prosperity occurs so does regional prosperity](#)."

FOSTERING AN ENTREPRENEURIAL CULTURE AND AVOIDING LOCK-IN EFFECTS



Facilitated by Eliza Carbines, Director of Tender Relief, this panel focused on fostering an entrepreneurial culture outside of mining activities.

Meredith Armstrong, Director, Economic Development, City of Greater Sudbury, Canada

encouraged the following focuses in building capacity in SMEs:

- Becoming shock resilient by reducing reliance on traditional customer base. Marketing local expertise globally.
- Innovating products and services for other market and sectors.

Government plays a role in SME capacity building in Sudbury through initiatives such as the Northern Ontario Exports Program, the Regional Business Centre, Innovation Quarters Business Incubator, and Sudbury Catalyst Fund. Fostering a business culture that values sustainable growth in a region over ventures with an exit strategy is crucial. Overall, a holistic approach is needed to attract workers and increase liveability in mining regions.

Brigette McDowell, Founder of Powerhouse and CEO of Cheeditha Energy, Australia discussed the main challenges faced by entrepreneurs in the region:

- Access to training and mentorship
- Cost of living which makes it difficult to cover start up costs
- Lack of diversification away from mining reduces entrepreneurial culture

However, there are opportunities for entrepreneurship to assist in solving issues in the region such as housing shortage and lack of diversification. Some benefits to engaging in entrepreneurship in the region are:

- Limited competition Large contract size
- Strong community support

Rodrigo Sfeir Yazigi, Deputy Dean for the University Catholic of the North, Antofagasta, Chile

presented his ideas for avoiding lock-in effects in mining regions. He encouraged the following activities to address dependence on the mining sector:

- Research and development in key sectors.
- Diversifying the economic base including supporting the growth of other sectors.
- Fostering competitiveness such as creating policies that promote competition.
- Promoting collaboration between sectors can help stimulate innovation.
- Investing in education and training that suit the changing needs of the labour market and involve a variety of sectors.
- Encouraging local entrepreneurship including funding resources for entrepreneurs, business incubators, and simplifying bureaucratic processes.
- Fostering foreign trade can provide access to new markets and opportunities.



Facilitated by Jose Enrique Garcilazo, Deputy Head of Division at the OECD, this panel investigated key lessons from transition processes to reduce and eliminate carbon emissions and provide alternative uses of mine sites for the surrounding communities.

Professor Fiona Haslam-McKenzie, Director, Centre for Regional Development at the University of Western Australia shared the work CRC Time is conducting on post-mine transitions. She remarked that there is strong demand for transforming mines after use. This transition requires:

- A shared vision developed and championed by all. This includes planning for closure during the initial planning of the mine.
- Considering that not all mines can be rehabilitated, the benefit of transforming the mine must outweigh the cost.
- Knowing how to optimally apply funding for transitions.
- Considering regulatory requirements and stakeholder values and aspirations. Technical feasibility including considering integration, scale, and forecasting to biophysical dimensions.
- Knowledge, skills and supply. Companies should be encouraged to share data with each other to enable understanding of regional impacts.
- Some examples of mine repurposing in Australia include Stawell Underground Physics Lab in Victoria, Lake Kepwari and Collie Community in WA, and Shire of Coolgardie waste facility, Kambalda Airport, WA.

Jan Bondaruk, Deputy Director for Environmental Engineering at the Central Mining Institute, Poland discussed the GIG Research Institute's work on practical solutions to issues facing the mining industry. This is against the backdrop of the European Green Deal, a set of policy initiatives that will assist 93 territories in the EU on reaching net zero by 2050. This includes the Initiative for coal regions in transition (2017) and the Just Transition Mechanism (2020). These activities focus on sharing knowledge and experience between EU regions and involving various stakeholders to provide technical assistance, open debate, and create knowledge on the just transition agenda. Strategic challenges facing Poland's transition away from coal include:

- Reindustrialisation and revitalisation
- Cooperation between the administration, industry, and science
- Finance and new business models
- Innovation and integration of knowledge

Jayne Baird, Vice President Carbon Solutions, Woodside Energy also participated in this panel.

PILAR 2: LIVEABLE AND SUSTAINABLE MINING COMMUNITIES

MEASURING WELLBEING IN MINING REGIONS



Facilitated by Andres Sanabria, Policy Analyst/Economist at the OECD, this session discussed approaches to measuring local well-being in a mining context and how these approaches can be used to inform policy frameworks and strategies.

Kieren Moffat, CEO of Voconiq, Australia discussed Voconiq's science-based approach to measuring wellbeing and the need to "bring communities directly into the conversation about what it's like to live in those places and how we're going to work on building wellbeing and resilience together." Voconiq captures wellbeing metrics and resilience measures through surveys, statistical analysis of material issues, and tracking across time. The critical elements of this analysis are community opinions on what wellbeing looks like and what is driving positive and negative trajectories around those activities. This analysis provides the relative importance of key metrics in predicting trust between a company and community and acceptance of their activities, both key factors in a company's social license to operate.

Rebecca Burton, Deputy Director for the Initiative for Responsible Mining Assurance (IRMA) discussed standardisation of targets and expectations in advancing sustainable mining practices. IRMA's standards include audits that engage with all stakeholders to gain an understanding of the mine site impacts. Additionally, the system is revisited each month by governance that represents the mining, purchasing, NGOs, labour, communities, and finance sectors to decide on the key concerns and standards in responsible mining. This includes creating standards that are realistic to achieve. In driving change, these standards allow for companies to meet the growing demands of customers in addressing environmental, social, and governance concerns.

Stuart Nahajski, General Manager Industrial Lands Authority at Development WA outlined the recent increase in developments across Karratha as well as the WA Planning Strategy Principles that span across environment, community, economy, infrastructure, and governance dimensions to inform new developments. He also discussed employment areas in Karratha including light Industrial, general industrial, and strategic industrial (international/export) and emerging industries such as renewable energy. An upcoming potential project in Karratha involves inner city apartments that in their development will include Indigenous participation through Native Title negotiations and proponent impact statements on local housing and social services.

Virginia Miltrup, CEO of the City of Karratha discussed the history, growth, and economic activity of Karratha. This includes measurement of wellbeing and liveability of the area through surveys to reach the goal of "becoming the most liveable city in regional Australia." Karratha has seen significant investment in infrastructure over the past ten years including the Red Earth Arts Precinct, Recreation Facility, and airport upgrade.

Karratha's liveability survey data show that liveability demand is strongest for increased efforts in:

- Entertainment and events
- Crime and safety
- Facilities and assets
- Housing
- Natural environment.

The largest issues for residents are:

- Cost of living
- Access to health services
- Housing
- Safety and policing
- Education

HARNESSING THE BENEFITS OF THE ENVIRONMENTAL TRANSITION IN MINING REGIONS



Facilitated by Chris McCombe, General Manager Sustainability, Minerals Council of Australia this panel explored how public policy can support better environmental performance in mining regions and help reduce negative environmental externalities, all while linking these environmental measures to new opportunities for regional development.

Dr David Fleming Munoz, Economist, CSIRO discussed environmental externalities and how mining regions can address them. These risks include tailings, water management, mine closure, health concerns, and emissions. Mining activity can therefore have local, regional, and global externalities. He presented the Powering Australia Plan that aims to create jobs, reduce power bills, and reduce emissions through increased renewable energy projects. Additionally, The Compact, a US-Australia agreement will reduce the cost of clean energy technology with a focus on standards, workforce, training, and community engagement.

LaurentTrost, General Manager,Yara Pilbara explored the opportunities that can emerge through addressing climate change. Yara is a multibillion-dollar processing precinct adapting their business and scaling knowledge to deliver solutions to address climate change, food shortages, and deforestation. Tackling these issues “requires a mindset to constantly seek innovation, collaborate with those who have expertise and an appetite for problem solving.” Yara is now a leader in developing capacity for the production of clean ammonia. However, large scale renewable generation has challenges such as access to large areas of land and development of multi use infrastructure.

Katie Valentine, Head of Decarbonisation Integration and Execution, Fortescue Metals Group also participated.

PARTNERING WITH THE PRIVATE SECTOR TO IMPROVE ENVIRONMENTAL AND SOCIAL OUTCOMES: FROM ESG TO LOCAL ACTION



Facilitated by Trish Barron, Director People Place Community at the Pilbara Development Commission, this panel discussed how regional governments can partner with private companies to ensure environmental, social, and governance (ESG) actions have greater impact.

Michael Blakiston, Partner, Energy & Resources Group at Gilbert + Tobin highlighted that "ESG represents a major shift in terms of what we are going to face as a state, a nation, and a world." The competitive nature of resource companies is changing with capital providers emphasising the importance of environmental and community demands that require a reduction in negative impacts and the sharing of benefits. This has resulted in projects that produce solutions to ESG issues such. However, coordination with local government is lacking.

Ben Chalmers, Senior Vice President of the Mining Association of Canada discussed the Towards Sustainable Mining (TSM) framework that helps to improve engagement between mining companies and community. In order to gain TSM membership, companies agree to components such as following guiding principles. creating performance indicators, undergoing independent verification, publicly reporting facility level reports, and establishing a community of interest advisory body. The standards span across many ESG dimensions, with indigenous and community relationships as central and provide companies with a rating level from C to AAA. It focuses on collaboration rather than just engagement and outreach.

Elise Gore, Director & Management Consultant at Sustainability Focus highlighted the growth incorporate philanthropy over recent years. However, many of these pursuits don't create maximum value creation for communities. Through community engagement, Sustainability Focus found the following main challenges:

- Challenging grant applications
- Limited funding for operations
- Limited opportunities to collaborate and share resources across the sector



Facilitated by Ryan Victa, Principal Policy Officer, Planning and Strategy, Infrastructure Western Australia this session explored practices in managing supply of housing and infrastructure (e.g., water, energy) in a sustainable and efficient manner.

Luana Cormac, COO, Investment Territory, Australia highlighted the common experiences of regional towns in relation to housing and infrastructure, these being:

- Volatility in price and supply/demand
- Challenges with housing stock quality and style not aligned with demand preferences
- Difficulty and higher costs to access finance in regional area
- Higher construction costs due to 'remoteness'

To address challenges, Investment Territory developed the Accelerated Regional Accommodation program that facilitates housing development and guarantees via long term leases. Luana Cormac also discussed the First Nations Clean Energy Strategy and the importance of access to housing in enabling Indigenous communities to participate in the green transition.

George Wilkinson III, Researcher & Management Consultant, Australian Urban Design Research Centre & the Centre for Regional Development, University of Western Australia presented his research on uneven development and regional inequality in Australia. He attributed these outcomes to centralised institutions where local government has low levels of fiscal, political and administrative. He remarked that "the Australian Federal Government collects over 80% of all taxation, that's higher than some dictatorships." He argued that regions aren't 'failing' to capitalise upon opportunities, they never had enough agency to be accountable. To solve this, regions need to "be loud" and engage in more "fist pounding on the table." Municipal bond markets should also be considered in Australia.

Bill Scanlan, Partner, Infrastructure Advisory, EY, Australia presented his optimism for northern Australia as well as key structural issues that need addressing. He highlighted the high costs of housing in Karratha, a city with considerably less facilities than Perth and house price fluctuation that dissuade people from settling in Karratha. He stressed the lack of increase in resource company taxes and royalties despite significant profit growth each year. An EY study found that an 'in-house' or regionally and locally focused model of delivery would save the WA government \$25 million a year and increase gross regional product by up to \$335 million over the next decade.

Professor Julie Tian Miao and Professor Nicholas Phelps, University of Melbourne presented their research project on housing market dynamics and affordability in resource-based communities. They found that:

- Mining commodity prices were more volatile than housing prices.
- Perth has smoother housing price cycles compared to mining towns.
- Housing prices of mining towns and commodity prices experienced similar troughs and recovery durations.
- Housing prices tend to be less elastic when commodity market is in contraction.

They argued that investment potential in regions has not been realised and radical solutions might be needed to address these unique and complex challenges.

Audience members highlighted the need to go further than outlining the challenges regarding housing, towards defining solutions.



Facilitated by Lee Reddell, Director Development Services, City of Karratha, this panel discussed how mining regions and cities can attract more women and youth.

Amber Rowntree, Senior Manager for Social and Economic Development, ICM discussed the need to make the mining industry attractive to women and youth to fill skills shortages and diversify mining communities. ICM launched diversity, equity, and inclusion (DEI) updates to their mining principles. This includes eliminating harassment and discrimination from workplaces, steps to achieve gender equity, and importance of ensuring psychological safety. In improving community resilience, ICM focuses on 'skills uplift' across both technical and job skills and personal development and community focused skills. Amber highlighted the perception of mining as a “dirty business” which dissuades young people. To address this, education and nuance is needed to show the role of mining in the energy transition and the breadth of work available across in the mining sector.

Katelyn Cox, Member, Youth Advisory Group, City of Karratha provided her perspective on attracting youth to the mining industry, as a 17-year-old community member. She highlighted the lack of diversity in the Youth Advisory Group in Karratha before explaining the opportunities available to young people in the region such as traineeships and jobs. However, there are challenges for young people such as a lack of diversity in job opportunities, distance from universities, the cost of living, lack of activities for young people, and a lack of public transportation. Many of these issues lead to most young people moving to Perth or other metropolitan areas after high school. Katelyn urges policy makers to consider how to change replant aspects of Karratha into an attractive place for youth to live.

Kristiina Jokelainen, Founder SmartNorth, Finland outlined the challenges for Finland in competing with other mining jurisdictions around the world. These challenges are education opportunities in mining related fields, and the reputation of mining companies. To address these issues a collaboration of actors is needed. In Europe, on average there is between 12-20% female employment in the mining industry and in Finland “the women are the ones who are leading the community relations.” It is a challenge to attract young people to the sector in Finland. This requires collaborations with education institutions with a focus on meeting the skills required for the sector. Creating regions and job opportunities that are attractive for families is also crucial in filling job shortages.

Marcelo Cortés Carmano, Dean Faculty of Engineering, University of Antofagasta, Chile discussed issues for Antofagasta in attracting people to live in the region. Many people find the capital of Chile, Santiago, a more desirable place to live. The main challenges of attracting youth and women to Antofagasta are:

- Education. All high-reputation universities are located in Santiago.
- Safety and security. If a city does not offer security, it is unlikely to attract people to live there.
- Inclusion. Programs such as Acacia seek to increase inclusion in universities and decrease the rate of dropouts.

CLOSING SESSION AND NEXT STEPS

Peter Long, Mayor, City of Karratha reflected fondly on the sharing of expertise and experiences from across the globe during the conference. He urged the OECD to focus on advocating for an increase in financial benefits from mining companies directly to the regions they operate in. He thanked all those who organised and were involved in the conference, looking eagerly towards 2024's conference in Sudbury, Canada.

Meredith Armstrong, Director, Economic Development, City of Greater Sudbury, Canada

announced the 5th Meeting of Mining Regions & Cities to be held in Sudbury, Canada in 2024. She stressed the importance to continue these conversations at the next conference, especially issues pertaining to Indigenous peoples. Meredith commended the focus of this conference on wellbeing and encouraged further discussions that link all issues pertaining to mining operations, impacts, and challenges.

Jose Enrique Garcilazo, Deputy Head of Division, OECD provided closing remarks, celebrating the diversity and richness of knowledge shared across the conference. His key takeaways from the conference were:

- Despite geographical distance, shared challenges and experiences exist between mining regions across the globe.
- Circular mining practices are key in addressing employment, inclusiveness, and the green transition.
- Diversification is an essential area of focus for mining regions, specifically looking at critical mineral exploration, the development of new supply chains, value adding, engaging with universities, and exploring sectors outside mining.
- In up-skilling and re-skilling the workforce, the challenges of automation need to be considered.
- A new equitable sharing model between mining companies and Indigenous communities should be created to address the impacts of mining on Indigenous communities. The model needs to transform from "one of flows, that is giving payments on a yearly basis, to one that is building wealth on a yearly basis."
- The importance of data and tracking information.
- Mining is going through a transition. This change will produce investments in renewable energy and sustainable processes, calling for new sustainable models and partnerships between government, communities, and the private sector.
- The transition brings with it the following considerations: Addressing risks that come with change
- Thinking towards the future in policy design.
- Balancing power dynamics between mining companies and communities.

He thanked the City of Karratha for hosting the event, the organising staff that made it possible, and his colleagues for their work on this initiative.

Conference [recordings](#) and [presentations](#) are available to view online.



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We thank you for your continued support in the development of the OECD Mining Regions and Cities Initiative.

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