RioTinto

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The 26th World Mining Congress, 2023
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Brisbane, Australia

Thank-you Jillian, it is great to be able to talk to you this morning from my hometown here in Brisbane.

I would like to begin by acknowledging the Traditional Owners on both sides of the river – the Jagera and Turrubal peoples, and also extend that respect to all other First Nations people in the audience today – welcome to Brisbane!

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When we are thinking about transformation in mining I can't help but think back to my early career as a geologist when the most important thing in our business 30 years ago to have a successful mine was two things: you needed to have the best orebody and also competent people who know how to develop and mine.

Once these key ingredients were established, everything else could follow after that.

The mining industry was seen as a key component of development, and primary industries were valued for the role that play in building multi-generational industries, often in remote areas of the world.

It is clear over the last few years that mining is back on the agenda.

It is great to see governments place an emphasis on critical minerals, and we saw an example of that yesterday with the critical minerals strategy announced by the Qld Government.

The last few years as decarbonisation, critical minerals and increasingly complex geopolitics have put the importance of mining back on the global agenda, it is clear that there are still some elements of what was true last century that still hold – a good quality resource and great people to develop and mine it are still important. A very strong ability to partner with communities, stakeholders and governments as well as other industry partners has also become an event more important factor for success.

Equally, how mines were built 150 years ago, when Rio Tinto was first established, is not how mines of the future will operate, and our ability to mine sustainably and responsibly are key to success.

The world has changed.

And Rio Tinto is changing with it.

And this is what I would like to focus on today……I want to talk about three things today:

1. Technology – how we use our expertise to drive change.
2. Partnerships – we know we don't have the answers and need to work with others to find them.
3. People – still a cornerstone of how we work successfully and still holds true 150 years later.

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Firstly, the road to net zero.

Today Rio Tinto is a 150-year-old diversified miner, operating in 35 countries where we produce iron ore, copper, aluminium, boron, diamonds, titanium dioxide and a range of other critical minerals and other specialty materials for the clean energy transition.

At Rio Tinto, we are focussed on decarbonising our own business, as well as continuing to produce materials that the world needs to transition to a low carbon future.

Beginning in 2021 myself and other members of Rio Tinto's Executive team spent considerable time engaging with governments, customers, and suppliers on the need to work together and address climate change with urgency – there is no single solution to this and we need to look at all options:

Two weeks ago I saw a great example of this at Boron in California, where we are now operating our heavy mobile equipment fleet on renewable diesel. This is one of many initiatives to decarbonise open pit operations.

I appreciate many are sceptical about the ability of the mining industry to deliver on the climate front, beyond issuing ambitious and long-dated targets. That is why we are sharing a clear pathway to material reductions by the end of the decade.

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So, what exactly are we doing at Rio Tinto?

Firstly, we are accelerating our own decarbonization, switching to renewable power, electrifying processing, and where possible, running electric mobile fleets.

An example in Madagascar is the construction of a wind and solar plant in the remote south east to power both our mineral sands operations and the local town.

Secondly, we are increasing our investment in R&D to speed up the development of technologies that will enable our customers to decarbonize. Technology and partnerships have a key role to play.

And finally, we are prioritising growth capital in commodities that are essential for the drive to net zero, such as the acquisition of the Rincon lithium project last year in Argentina, and the ongoing exploration activites for critical minerals such as copper globally and also here in Queensland.

Let's now take a look at some of our investments in assets, technologies and partnerships that are transforming our business.

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The image on the screen is of scandium alloy, a which is considered a critical mineral by the United States, Canada, Australia and the EU.

Most of the current world's supply is used in solid oxide fuel cells to improve performance, and also has great potential as an alloy with our low carbon aluminium – making the aluminium much stronger, more flexible and heat resistant – and is used in aerospace, defence and sporting equipment.

Today in Quebec we have a commercial scale plant which is producing high quality scandium oxide. It involves an innovative circular process developed by our team to extract the scandium oxide from the waste streams of our existing titanium dioxide production, without the need for any additional mining.

In fact in two years, we have gone from testing a process to extract this critical material in a lab, to being able to supply about 20% of the global scandium market.

And our recent acquisition of the Platina Scandium Project, New South Wales, when operational, will more than double our annual scandium production .

Scandium is emblematic of Rio Tinto's transformation in terms of what we mine and also how we mine.

- It is not a bulk commodity, although it is a very high value commodity – production is measured in tens of tonnes, not millions of tonnes.
- Our focus is on the technology, using existing infrastructure and waste streams to build a critical mass of product.
- As a result, we have diversity of supply of scandium from two jurisdictions, Canada and Australia, each with strong ESG credentials.
- Scandium is also an example of how countries such as Canada and Australia can benefit from synergies to increase the supply of critical minerals, which benefits each of their interests and society as a whole.
- In parallel to securing future supplies of high grade scandium oxide and developing high quality scandium alloys we will be supporting research and development on how this alloy can be used in more applications and grow the market supported by a secure supply.

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As part of its transformation, the mining industry needs to shift how it mines from a linear model to a circular model that explores opportunities for waste to be processed to create by-products that could be used by the mining industry or other industries.

Over the past few years, Rio Tinto scientists and engineers have been hard at work finding way to take traditional mining waste turn it into a useful product .

For example, 85% of waste material, some 400,000 tonnes, created by our aluminium operations in Canada, is used to make new products.

I have mentioned our scandium production from titanium dioxide waste streams. Another example is our Kennecott copper mine in the US where we have commenced the co-production of tellurium.

Tellurium is usually found in small, sparse rock deposits, making it difficult to mine at scale but at Kennecott, we have discovered a method to extract it from waste generated from the copper refining process.

Approximately 20 tonnes of tellurium will be produced each year at Kennecott. This is around 3% of global supply and a new North American supply chain.

As a result we have become one of only two producers of the critical minerals used in solar panels and other critical equipment in the US. We are now working on scaling up our production of tellurium. It is estimated that Kennecott will become the 6th largest producer of tellurium globally.

Waste is such a critical issue for us and this not only means our tailings but extends to mine closures and products such as scrap metal and demolition waste.

Earlier in the week we heard from Stephen D'Esposito, President of RESOLVE. In 2021, Rio Tinto joined forces with RESOLVE to launch Regeneration, a start-up that will use the re-mining and processing of waste from legacy mine sites to support rehabilitation activities and restore natural environments.

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How we mine at Rio Tinto is being transformed by the development of a suite of niche specialty products, boosting project economics and reducing our environmental footprint.

Blueberries is a word you wouldn't expect to hear at a World Mining Congress ……but this superfood is an informative example of using innovation to reduce waste and extract as much value as possible from the material we mine and process.

In Canada, we're working with blueberry growers to make a safe and effective fertiliser. The fertiliser is made from the anhydrite mineral in the waste from our aluminium operations.

Anhydrite is a mineral normally found in rocks – but we produce around 85,000 tonnes a year in Canada, as a by-product of our aluminium production process.

Research shows this mineral helps blueberry plants grow more fruit. Because it's local, it is cheaper than many other fertilisers. And it has the Canadian Food Inspection Agency's seal of approval.

We are also looking for ways to improve the way anhydrite is used in agriculture. We are funding research by two universities in Quebec, in partnership with the governments of Canada and Quebec, to provide even better data to farmers improve their blueberry yield.

The team in Canada has created other uses for anhydrite too, such as in construction, as an alternative to gypsum.

Blueberries are just one example of the transformative effect of full value of mining.

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Development of breakthrough technologies that will enable our mines and our customers to decarbonize can be seen throughout the business.

In Australia we have been pioneering remote operations at our Pilbara iron ore mines introducing the world's first autonomous trucks in 2008.

This was followed by the launch of an automated hub in Perth in 2010, which controls 17 mines, 2000 km of rail systems, four power stations and four port operations, 1500km away from the site.

Today at our Gudai-Darri, our newest iron ore mine in the Pilbara, we are partnering with global leaders in technology to ensure we remain at the pioneering edge of mining well into the future.

For example we're working with Caterpillar to develop a new fleet of autonomous, zero-emissions haul trucks, and Gudai-Darri could be the first mine in the world to use them.

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To support technology advancement we have research centres in both Australia and Canada that we have been operating for more than 50 years.

Employing around 2,000 people, the primary purpose of these R & D centres is to partner with academia and other scientific institutions in developing technologies to support the energy transition at our sites around the world.

Working with others is the key to solving some of the biggest challenges facing our industry as we travel the road to net zero

At Rio Tinto our R & D partnerships are multi-faceted and partners vary from start-ups, to governments, NGOs through to academia, suppliers and customers.

Here in Queensland we are working with Brisbane-based battery company Graphene Manufacturing Group, recently signing a $6 million joint development agreement to develop and use its next-generation graphene aluminium-ion batteries in mining trucks and for energy storage at sites.

The image on the screen is of our Technology Development Centre in Bundoora, Melbourne where we pioneered the technique to recover battery grade lithium from existing mine waste at our boron operations in California.

I have just spent some time at Bundoora where we are constructing an end- to- end battery laboratory to improve our understanding of battery production, manufacturing and chemistry.

At this lab we will build our own batteries, allowing us to test how our minerals and other products will perform in real-world applications, such as in an electric vehicle batteries.

Demand for battery minerals is expected to grow very quickly as governments and businesses take action to meet the goals of the Glasgow Climate Pact under the Paris Agreement.

And long-term electric vehicle and lithium demand forecasts continue to be revised upwards. The lithium market is expected to grow five-fold between now and 2030, with a significant supply-demand deficit expected from the second half of this decade. This means more battery materials are needed

To be operational by November this year, our battery laboratory will deepen our skills and expertise and ultimately enhancing our customer proposition.

This is exciting work, it is market creating and is a critical support for our Battery Materials business, established in 2021 as part of our strategy to to prioritise growth capital in commodities essential for the drive to net zero, such as our acquisition of the Rincon Lithium project in Argentina.

Across the world in Canada, it was at our research and development centre in Quebec that our scandium project was born.

There are so many more examples, but the message is the same in all of them – we need to partner with others to find the breakthrough technologies we need to move forward.

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The last thing I want to talk about today is the most critical- and that is our people.

I have mentioned that Rio Tinto is proudly 150 years old. We started copper mining in Spain in 1873 and this year we are celebrating our history that has transcended many continents and many spheres.

But we are also very much focussed on the future because what made us successful in the past is not going to do so in the future.

And none more so than in the area of people and culture where our priority is to build a safer, more respectful and inclusive workplace.

Implementing the 26 recommendations of the 2021 Everyday Respect Report is absolutely crucial to driving this change.

The Everyday Respect Report, an independent review commissioned by Rio Tinto and conducted by Elizabeth Broderick, former Australian Sex Discrimination Commissioner, provided alarming results and did not reflect the Rio Tinto we want to be.

The changes will not happen overnight. However, we are heading in the right direction, implementing the recommendations and finding better ways to support and empower our people.

But it goes broader and deeper than this. We are also embedding a change in mindset and behaviours throughout the organisation, driven by the set of values we want embedded in Rio Tinto's future DNA – care, courage and curiosity.

As a result we are prioritising time listening and learning from our people, communities and partners, as we continue to build better relationships.

And one of the great aspects of my job is to meet the many and varied people working in our Minerals portfolio around the world.

We have extraordinary people who are, for example,

- extracting diamonds from a frozen lake in the sub-Arctic;
- working on direct lithium extraction technology, 3800 metres above sea level in Argentina;
- developing new markets for critical minerals; and
- collaborating across laboratories, pilot plants and production facilities around the world, leveraging our existing asset base, processing infrastructure and technical knowledge.

These are talented people from all walks of life.

And we need more of them if we are to meet the challenge of producing the next generation of minerals, against a backdrop of climate change and the ever-increasing demands on the fragile planet that we all share.

We need to be innovative, and not rely on what made us to successful last century to carry us through the next. We need to keep exploring for new technologies to support the energy transition.

We need to meet societal expectations and partner with others to mine sustainably.

We need to leverage our people and skills to solve these problems for the future

Thank you for your time today.