

Mines & Money keynote address

8.30am Wednesday 1 December

To be delivered virtually

Decarbonisation and mining's critical role in the green economy

Good morning, ladies & gentlemen and thank you for the opportunity to speak to you all today. I'm so sorry that I can't be with you in person, but I was in South Africa last week and am now isolating at home. *[Pause]*

This is a subject very close to my heart – the critical role mining plays in society and ever more so as we look towards a cleaner, greener global economy. There is no doubt that the world is an entirely different place from what it was ten years ago and the pace of change is something to behold. We have seen enormous advances in so many fields of work – in technology, in transport, infrastructure, health and education.

And on this journey, enabling this incredible human progress, mining continues to play such an essential role. The global human population – almost nine billion people – with an ever greater proportion entering the so-called “consumer population” – simply cannot be supported without mining.

But despite mining's contribution to almost every aspect of modern life, the industry is still seen as one “that takes more than it gives”. Yet mining in 2021 is an entirely different ball game to when I started my career over 40 years ago, and like many things, that pace of change is also accelerating, which offers such widespread opportunities for our industry. Take productivity, for example:

We've all heard this.....that to produce a unit of copper today as compared to 100 years ago, you need to move 16x more rock, use 16x more energy, and use double the amount of water. Up until now, our industry has solved the supply challenge by scaling everything up – bigger was better. That is clearly

no longer sustainable, nor is it acceptable. We need to be far smarter than that and this is an exciting time.

Across the world, our industry is on the cusp of a significant change led by the accelerating pace of technological innovation. Digitalisation, automation, new separation techniques and artificial intelligence are all opening up opportunities for the industry to be safer, more productive and more environmentally and socially sustainable.

Simply put, mining enables our modern lifestyles, from food production, construction materials, mobility and transport, to clean energy and communication solutions, and the occasional piece of luxury diamond jewellery – around 45% of the world's economic activity, directly or indirectly, is driven by mining.

All this while disturbing only a small fraction of the earth's surface – just 0.04% of global habitable land. Genuinely, it can be held that we are the world's most vital industry to help ensure the future health of our planet.

And, as we all know, the future health of our planet has never been more precarious and urgent. *[Pause]*

Climate change is one of the defining challenges of our time. We cannot ignore or underestimate its global impact, and implications for every sector of the economy and human life as we know it today.

The science has become clearer over the years – we need to do all we can to deliver the ambition of the Paris Agreement – which is to constrain global temperature rise to well below 2°C, and ideally 1.5°C. To achieve 1.5°C, emissions will need to halve by 2030, and reach net zero by 2050.

Mining is essential to that low carbon future – the metals and minerals we produce are needed for the world to decarbonise – copper, nickel, greener steel, PGMs – and at far greater volumes than we produce today. We all know that, and the World Bank’s “Minerals for a low carbon future” report (2020) and the International Energy Agency’s “The Role of Critical Minerals in Clean Energy Transitions” report (2021) are both emphatic on this point.

And we’re going to need many other metals and minerals too – lithium, cobalt, and let’s not forget more effective fertilisers too.

As a little aside, this is critical, actually, so that we can feed the growing population using less farmland, with less chemical pollution from run-off, while preserving precious forest that absorbs CO₂, or even helping it to expand forested land in some cases.

We must reduce carbon emissions and protect the ability of the planet to absorb the carbon we will still emit. If those fertilisers also offer a very much lower carbon footprint and help repair soil health, even better! I’m talking my own book to a degree, but the polyhalite that we will be producing in northern England is just the sort of fertiliser product we need to disrupt the established practice of just throwing more of the same onto the fields and hoping, all the while doing more environmental damage.

But back to metals, as the global economy shifts with society’s demands for change, the question is where will these materials come from?

We’ve all heard similar stats to this before, but even if copper scrap doubles by 2040, primary copper demand is likely to be much higher than today and, to meet this, the mining sector needs to develop more than 30 new, Quellaveco-sized mines in the next 20 years, even at a pretty conservative end of the demand forecasts. When you think about the fact that it takes 15 to

20 years to get a project like Quellaveco into production, you start to grasp the enormity of the challenge facing us.

On PGMs alone, the Hydrogen Council predicts that 18% of energy demand by 2050 will be met by hydrogen. This shift has the potential of creating at least four million new jobs globally and contributing significantly to new and clean energy supply across the world. In South Africa's case, there is an immense opportunity to lead the global drive for the development of the hydrogen economy.

PGMs underpin many of the technologies we need for a cleaner, greener future market and in the hydrogen economy.

Their appeal in jewellery is well known and their role in catalytic converters to reduce exhaust emissions is well established and will be in demand for many decades to come.

Then, as the world transitions to cleaner and more sustainable transport and energy, PGMs have an important role to play in the development of new and pioneering technologies – from new and more effective battery technologies, to food freshness, and of course the production of hydrogen and its use in fuel cell for power.

Finally, let's also not overlook the role of steel: wind farms, solar panels and the hydrogen economy all use plenty of steel and there is a lot more infrastructure growth to come across many developing countries when you consider the population curve.

For example, the installed stock of steel in a country such as India is extremely low – it's similar to the amount of steel that was in Europe a few generations ago.

And in order for steel to be relatively affordable, iron ore and met coal are required, at least for the foreseeable future in the case of met coal; iron ore is a necessity, of course. The higher quality that iron ore and met coal is, the better for reducing emissions and these technologies will continue to improve as our industry partners with the steel industry to accelerate cleaner steel production.

I could go on extolling the virtues of other mined products. It's clear, but for this transition, we need to ensure that mining is "climate-smart".

I am hugely encouraged by the progress we've made as an industry in not only reducing emissions but in also taking a more proactive stance in how we remodel our operations for a carbon-neutral future through, for example, displacing diesel power with stable, zero-carbon electricity or green hydrogen.

At Anglo American, we recognise our responsibility to support a transition to a low carbon economy and have clear pathways to reach carbon neutral operations by 2040.

This year we stretched ourselves further still and set our ambition to reduce our Scope 3 emissions by 50%, also by 2040.

Of course we know we cannot get there alone, particularly for Scope 3, so we are working with partners along our value chains and outside our industry to find technical solutions to decarbonise entire sectors. Global policy advocacy efforts and partnerships between government, industry and others are critical.

To deliver on these decarbonisation promises, we've have been re-thinking most aspects of how we operate for many years – and we are a long way down that road – to tackle the multi-faceted challenge of emissions.

Let me illustrate via a few examples:

We are increasing our energy efficiency and the role of renewables in our energy mix. Last year, a little more than one third of the electricity we used globally was drawn from renewable sources. By 2023, we expect to be drawing 56% of our grid supply from renewables.

We are looking to enable a renewables grid in southern Africa, aiming to unlock the value of our existing sites as locations for a geographically dispersed network of renewable energy sources across the country. Thus, generating renewable energy at scale and wheeling it through the grid to all different operational sites.

Our plan foresees a combination of off-site wind farms, on-site photovoltaic farms, potential pumped hydroelectric storage, and green hydrogen solutions - increasing the grid capacity of green energy by more than 50% in South Africa alone, and enhancing much needed grid stability.

Another major step is to displace diesel usage, starting with our thirsty mine truck fleet – accounting for approximately 10-15% of our Scope 1 emissions. Our hydrogen fuel-cell and battery hybrid pilot truck is being assembled in South Africa as we speak and it will generate more power than its diesel predecessor and is a world first for real world operating environment – a 220 tonne truck with a 290 tonne payload. Our haul trucks contribute up to 80% of the diesel emissions at our sites so by switching them to hydrogen we expect to be taking the equivalent of more than half a million internal combustion cars off the road.

Such technology will be the key to maintaining our social license to operate so that we, as an industry, can continue to provide the metals and minerals needed to transition to a low carbon future and for those metals to be accepted by our customers and society because they are responsibly produced.

What does a responsibly produced pound of copper look like? I am convinced the future of mining is about precision....to target ONLY the metal or mineral, with radically less waste rock, less water and energy and a smaller physical footprint, for every ounce, carat and kilo of precious mineral produced.

We've been on this for while – it's our FutureSmart Mining™ programme.

This approach brings together step-change innovations in technology, digitalisation to drive sustainability outcomes, thereby transforming how we source, mine, process, move and market our products.

At its core, FutureSmart Mining™ is about transforming our physical and social footprint and it is via this programme that we are developing and implementing new technologies and digitalisation systems to create the future of mining.

This is about minimising our physical footprint while enabling us to supply metals and minerals in a reliable and predictable manner, safely and responsibly – while creating enduring value for our shareholders, communities and society as a whole.

If I just take one aspect of our FutureSmart Mining™ programme as an example.

Our Concentrate the Mine™ is an approach pioneered by Anglo American that integrates several enabling technologies to extract more metal, with less waste – all the while simultaneously reducing our water and energy consumption.

We do this with:

- new blasting technologies to improve ore fragmentation, increasing metal output and decreasing energy costs.
- bulk sorting technologies to ensure that we eliminate as much as possible of the waste rock before it enters the energy intensive crushers.
- and Coarse Particle Recovery to float particles larger than normal, which allows us to increase the recovery of minerals, and recycle more water with drier tailings – ultimately dry tailings.

Indicators in our Copper business suggest that the Concentrate the Mine™ concept has the potential to deliver a significant cost reduction, and productivity uplift of 30%.

Through a dual approach of novel technology and digital solutions paired with new capacity we are bringing online, we are increasingly able to deliver what the world needs and in the right way.

We must, though, commit to responsible innovation, recognising that there will be material changes in the nature of work across many industries. Such shifts will disrupt people's lives, and we all know that change is unsettling.

The transition to a low carbon world and the more efficient and responsible production of mined materials requires significant change, and while that change presents major opportunities for many, it presents risks for others.

We know we have a role in supporting host communities to thrive through and beyond the transition.

These effects will mostly likely be felt most acutely at the local level. New sectors will develop where others will need to diminish. Such change will require adaptation. The degree to which people are able to adapt will depend, in part, on the levels of support they receive from companies such as all of us participating today.

The transition to a low carbon world is happening at the same time as, and is in part being facilitated by, a series of accelerated and transformational technological advances, frequently referred to as the Fourth Industrial Revolution, or Future of Work.

The two combined increase the need for adaptability and resilience so that individuals, communities and societies can prosper.

We are continuing to explore what mining can do to help ensure a '*Just Transition*' – one that considers and addresses the impacts of this change on employees and communities.

There is no secret recipe to deliver a Just Transition, but we are making real inroads with one approach in particular that is integral to our Sustainable Mining Plan.

This is what we call Collaborative Regional Development which is an innovative partnership model to catalyse independent, scalable and sustainable economic development in regions around our operations – the objective being to improve lives by creating truly thriving communities that endure and prosper well beyond the life of the mine. We are well under way in South Africa with this work, and now also in Peru.

As we consider mining's critical role in the green economy, it is important to recognise that few industries in the world touch as many people as mining.

Mining matters...

- *It matters* to the young entrepreneur, who can use localised procurement opportunities to grow their business;

- *It matters* to the mineworker who can earn a good living for their family -- in an industry with generally well-paid jobs, compared to most other industries; and
- *It matters* to members of our host communities who benefit from the soft and hard infrastructure – like roads, bridges, schools and clinics – that tend to come with our operations.

In thinking about the next decade and what it holds, it is important to reflect on the power of being purposeful in how we envisage the future of mining.

Because in the end, this is all that matters: people. Our success as an industry is not only measured by the ounces, carats or tonnes we mine, but it is also measured whether we improve people's lives...sustainably.

To that end, as the world reckons with climate change and the needs of a growing global population, we must all play our part to reduce our reliance on carbon, and get emissions down, while also providing the raw materials required to meet those secular demand trends.

We have the opportunity to not only sustain and power human progress, but to do so in a way that is aligned to what society expects of us. That is how we will deliver enduring value – locally and globally.

This can be a world that is inclusive, humane, one that enables society's aspirations, and one that improves the lives of the billions of people that depend on our products – whether they know it or not.

We owe it to future generations to pave this new and sustainable path for mining.

Thank you.

2670 words = 23 minutes