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Keynote Address –
Speaking Reference Notes

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Chairman
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CHECK AGAINST DELIVERY

Mr Chairman. CEO of the Colombian Mining Association, Mr Santiago Angel, distinguished guests.....

Buenos dias.

Mi Espaniol no es mui bueno. Mi Ingles es solo un poco mejor. Mi Americano es aun peor. Asi-ke si me lo permiten..... voi a ablar en Australiano.

It is an absolute pleasure to be invited to address this Conference both in my former and current capacities.

Santiago has asked me to take a global perspective on "*where the mining industry is going in the face of current depressed commodity prices, and how should companies go about addressing the hurdles confronting them*".

And Santiago would like me to do this in about 30 minutes....!!!

This is indeed a challenge and a compliment that you consider I might have some answers to a very complex question.

So, to try and do justice to Santiago's request – I will break this presentation into 3 parts:

- first, the demand – supply equation – which is heavily dominated by supply side movements or lack thereof in response to depressed prices, more so than any material structural changes to demand, which, surprising to many, is more of a constant than a dynamic variable in the current depressed state of the industry – and in this I will emphasise those minerals of direct interest to Columbia;
- second, what successful companies are doing in managing the challenges of a less buoyant market, principal among them, a structural deterioration in their competitiveness, productivity growth and access to capital as the industry necessarily shifts from the price and investment led growth of the first decade of the so called "Millennium Mining Boom" to volumes and margins; and
- third, what governments need to be doing to support mining companies transform their businesses and to create an environment conducive to investment and sustained growth.

First, to demand and supply with an accent on those minerals on Columbia's radar...

About this time last year, when I was last here as your guest, I was far more bullish about the potential recovery in commodity prices than appears to be evident today.

Even though I am still more of a bull than a bear, I have come back to the field in moderating my outlook for the near to medium term.

.....not because growth in demand has moderated , but more because the supply side has not, to date, proved to be anywhere near as elastic (directly responsive) in response to falling prices, as I thought would be the case a year ago.

This is manifestly so in iron ore and coal, more so than in the base metals and precious metals.

If we think the current depressed state of the industry's circumstances are as a consequence of slowing demand for our products I suggest we are misreading the underlying fundamentals to both demand and supply.

A significant part of the industry's predicament today lies in the adverse supply side legacies of the first decade of the so-called "millennium boom".

In redressing the industry's circumstances and improving it's near term prospects this is where the real value lies - and much of it lies within our scope of influence.

It will be to the industry's folly if it merely waits for the next upswing spin of the price cycle to be the industry's next point of salvation.

But before I get into the supply side challenges, you have asked me to underscore why I am so upbeat on the demand side–

.....it will be no news to anybody here that growth in demand for minerals products and energy are directly correlated to global economic growth and the nature of it.

For us, our industry's growth is directly correlated with the socio-economic development of the emerging economies, more so than the developed economies.

Of course, the OECD economies are a critical bedrock to global growth – both in absolute demand for our products and as a competitor to the emerging economies for global custom – for, global mining companies foreign direct investment in exploring and developing emerging economies' natural endowment and then in competing for access in supplying global markets.

But it is the global economic and social re-weighting between the developed and emerging economies that is so defining our prospects. And be under no misapprehension this change is secular, structural and sustainable.

In this I see little material shift to the current global growth trajectory over the near to medium term.

The bi-polar global economy will continue although this will narrow.

The OECD economies are recovering albeit slowly.

The emerging economies will continue to carry the weight of global growth although at slower rates of growth, but off a much larger economic base – accounting for ¾'s of global growth and over 50% of global GDP.

And the developed and developing economies are “re-establishing” if not deepening their trade and investment mutual interdependence post the excesses of the GFC, most notably the relationship between the USA and China.

The USA represents 25% of the global economy and is projected to contribute 25% of global growth in the near term, comparable with China's projected contribution of 22% of global growth off a base today of 10% of the global economy.

Together, they are the twin engines of global growth.

The super cycle of growth in demand for our products has well and truly transcended the industry's traditional boom bust commodity cycles to a “new normal” growth trajectory – even if near term moderating demand might suggest otherwise

There is and will continue to be cyclical volatility around the longer term growth trend, but my view is that there is more substance in the underlying fundamentals of this global structural adjustment – and its impact on demand and supply of minerals resources – than there is risk in the cyclical volatility – notwithstanding the rather dramatic fall in minerals commodity prices through 2012-15.

There are 2 major reasons underpinning my confidence:

- the underlying emphasis on open market structural reforms across both the developed and developing world, and
- the emerging economies rates of growth driven by urban population growth, rising middle class purchasing power, increasing industrialisation and emerging growth in the services sector, and the current and prospective development of their resource rich endowment becoming significant global suppliers.

First... open market structural economic and social reforms are making a comeback in the developed economies and are taking on even greater prominence in underpinning continued growth in the emerging economies - if not somewhat subdued in some.

The underlying **fundamental driver** of this enduring structural change has been the consistent and persistent embrace of the market, across the globe.

As governments wrestle with the twin policy imperatives of economic growth and social progress, there is no turning this tide of structural change – it is part of the furniture so to speak.

The USA has unleashed a new drive in manufacturing, including an increase in re-shoring capacity previously exported to emerging economies, has technologically launched itself towards energy independence, driven its already world leading productivity rates, and underpinned a fragile financial system with a boost to business competitiveness and investment confidence with a series of successful money printing bond issues under the banner of quantitative easing.

Income inequality and flat wages growth are signs that the USA still needs faster rates of recovery, and it's interdependence with the emerging economies, China principally, is critical – increased free trade and investment being the primary growth driver.

The EU continues to struggle under the weight of debt, toxic assets, weak underlying fundamentals, reform inertia, a culture of state dependency and social entitlements, and the real risk of deflation.

Although the EU continues to be a drag on global growth, new policy directions are starting to resonate, with what some call emerging shoots of growth indicators.

But the EU has similarly started its own massive program of QE to artificially peg the Euro lower and boost investment and structurally weak international competitiveness in product and capital markets.

The fall in crude oil prices has provided a positive stimulus to global economic growth feeding into lower energy and raw material costs as inputs to industrial activity, and increasing consumer purchasing power.

This coupled with the fall in the Euro – 12% against the TWI over the past year - has sponsored a renewed focus on exports. Already there has been growth in exports to GDP ratio's in Germany, France, Spain, and even some emerging signs in Italy.

The shift in the EU's culture to be more internationally engaged beyond the EU borders has been a key factor in a flight of capital into EU equity markets - both in the expectation that the QE will increase asset prices as it did in USA and Japan, and the emerging shoots of economic recovery and improving business confidence to invest.

And the world in general dodged an economic bullet when the feared backsliding on more open trade and investment in the aftermath of the GFC didn't eventuate in any significant way.

But a note of caution here – these 2 major drivers of growth in the developed world – lower exchange rates and cheaper oil prices – are camouflaging some underlying structural weaknesses which will come back to bite when these short term measures correct to the long run trend without continuing structural reforms.. As The Economist put it recently – there is a risk those emerging shoots of growth might get hit with a frost.

Of the emerging economies, China is the stand out reformer, starting its program of structural reforms back in 1979 transforming its economy from a centrally planned highly regulated, closed and protected, rigid economy to more open market oriented, deregulated and globally integrated.

Other emerging economies have similarly transformed their product, capital and labour markets, governance systems and regulatory institutions and embraced new technologies and accessed new sources of capital....

Significantly for future growth in demand, the emerging economies are not materially diverging from this path of socio-economic reforms

.... even if some of the signs on labour market reforms, resource nationalism and social activism here in some parts of Latin America might suggest otherwise.

Though, The Economist only last week reported rather optimistically that the “pink tide” of left wing governments in Latin America was ebbing even if not wholly embracing “Washington’s consensus” on market economics.

When you consider the magnitude of these countries structural change, you'd have to conclude that they have been managing well a quadrella of challenges – inflation, population growth, normalisation of monetary policy, and rebalancing growth to consumption from earlier emphasis on FDI and export led growth.

The “Asia factory” phenomenon of intra-Asian trade and investment has deepened as these economies become more “continental” and bolstered by regional savings, increasingly funding their own growth less reliant on the traditional capital and product markets of the West – what is often referred to as “decoupling”, providing some direct shielding from the adverse economic contagion of the West.

Already Shanghai is growing to rival New York as a financial centre. China's debt markets are forecast to grow from around \$US4 trillion last year to around \$US 27 trillion by 2030.

Justifiably, most of the focus is on China's growth – China accounts for nearly a quarter of the world's GDP growth, half the worlds' steel consumption, nearly half the worlds' base metals consumption, half the world's cement consumption, and will build half the world's new cities...

While there is much hesitancy in the commentary surrounding China's growth trajectory, this needs to be put into perspective in terms of its absolute growth, the policy drivers to that growth and its changing composition.

China today only has to grow at just under 7% per annum as the world's second largest economy to match its absolute growth at 10-12% per annum when it was the world's 15th largest economy at the start of the Millennium.

Most economists consider China to be facing structural headwinds to future growth, as the key drivers of growth – changes in labour, capital and productivity–slow down. But also conclude that the abrupt nature of China's slowdown is more cyclical than structural – pointing to China's 12th 5-year Growth Plan and reform agenda.

China's leaders have publicly recognised the imperative, even the urgency, for continued market reforms. In this, China is pushing ahead with its more open market reforms to SOE's, liberalising the banking sector, pushing further normalisation of its exchange rate, developing financial markets, and tackling pricing and taxation arrangements.

....and they want a modest downturn in GDP growth as they work through the rebalancing of their economy to a shift to consumption led growth with less reliance on FDI, exports and fiscal stimulus.

This in-turn entails increasing household earnings as they shift from lower paid to higher wage products and services, less savings as a proportion of income and a greater returns on savings.

The services sector last year accounted for just under 50% of output overtaking the industrial sector – and household savings have flattened out at about 40% of household income. This means more labour intensive activity – more jobs at lower levels of growth – and higher wages feeding into greater domestic consumption as key drivers to GDP growth.

China is assisting a weaker housing sector introducing reforms to housing market financial arrangements, and reforms to the urban apartheid housing and education system – *hukou* – that shackles more efficient urbanisation and industrial growth.

They are not disposed to a “misallocation of capital” through further stimulus of inefficient state owned corporations, but are committed to continuing investment in transport and energy infrastructure as a key driver of growth over the medium term.

And the Chinese leaders appear not fazed by the emergence of shadow banking (less regulated financial institutions) which is less than a third of their total banking system. Rather, reports indicate they are working to appreciate how best to utilise this as their banks liberalise.

Added to which, as the Financial Times points out, China’s savings are high, hence they are not dependent on foreign creditors, and their borrowings have been for investment not consumption.

While many consider China’s debt to GDP ratio at 250% is high, China is well positioned to recapitalise their banks just as the USA and the Eurozone have in the aftermath of the GFC. Indeed, China is confident in their brand of state capitalism’s triumph over open market capitalism.

Added to which, China is well engaged in counter-cyclical investment strategies, emboldened by significant stores of FX capital in sovereign wealth funds, and driven by the imperatives of food and resource security – most recently a \$US47B investment in Pakistan in securing energy supplies and \$US25B in Venezuela.

Of course, this global development path is not just a China phenomenon – the Indian sub-continent, South-East Asia, Africa, Latin America and parts of Central Europe are all making substantial headway in structural reforms underpinning their extraordinary development and socio economic growth.

India is, rather uniquely among the emerging economies, predominantly a services economy, so its reform and growth path is different too. As it seeks to build its manufacturing sector its demands for minerals resources will similarly grow.

The election of a pro-business government and economic reforms (taxation and labour arrangements) that have stimulated infrastructure investment and increased exports of goods are credited with a rebound in economic growth, aided by lower oil prices which is India’s largest import.

In Africa, the economic and social development is hailed as a remarkable transformation. Over the past decade the continent has enjoyed economic growth in excess of 5% per year. Seven out of 10 of the world’s largest economies are in Africa, albeit off a low base.

And by 2050 Africa’s population will double to 2.4B with sub-saharan Africa’s population increasing by more than a billion people.

As you will know much better than me, the economic growth prospects for Latin America are a mixed bag, having enjoyed remarkable growth and development over the past decade, capitalising on economic and social structural reforms, and markedly increased foreign direct investment to support development of highly prospective minerals resources natural endowment.

The prospects for economic growth are a mixed bag across Latin America and particularly within the power houses of Brazil, Argentina and Mexico.

Declining commodity prices, a slow-down in major trading partners, stalled reforms, even backsliding to resource nationalism and emerging protectionism, coupled with domestic tensions in some of the largest economies, including political scandals and increasing social activism, are proving to be headwinds to investment attractiveness and growth.

Added to which lower oil prices are proving to be a double-edged sword weighing on the public accounts of the largest oil producers, Colombia, Ecuador, Mexico and Venezuela.

To my second major reason why global growth is on a new normal trajectory goes to the key growth drivers of urbanisation, industrialisation and the development of resources endowment in the emerging economies.

Urbanisation will continue almost unabated...

China is projected to continue to grow at around 7%/year and urbanise another 9 M people/yr. India growing even more strongly now at greater than 7% will urbanise another 12M/year, and with the rest of developing Asia will be urbanising its population at a rate of 16M people year.

To put this into perspective, China's urbanisation rate has more than doubled from 26% in 1990 to over 55% this year. Outside of India and China, 5 countries collectively in South-East Asia will grow their entire populations over the next decade at a rate equivalent to a new Brazil (190M people) each year.

But let me dispel the myth that this is just an Asian phenomenon as dominant as it is – Africa is projected to urbanise 30M people a year over the same period... and Latin America and the Caribbean are already more urbanised than Europe, but will add an extra 5M people to urban areas each year.

Purchasing power parity and minerals and energy per capita consumption intensities have a ways to run to peak demand...

If the emerging economies continue to grow at projected rates of between 5% and 7% over the period to 2025, that means an extra 2 billion people will build a purchasing power parity of middle class consumers – that's about 170 people/minute coming into a consumer market – like we enjoy today.

It's their growth trajectory that defines our demand prospects.

The per capita incomes of these countries is well short of the developed economies – China's GDP per capita is only 12% of that of the USA, and India's at 3% of the USA is arguably 20 years behind that of China in terms of development.

And they are well short of the point where demand for minerals commodities becomes insensitive to changes in income growth – in the order of \$US15, 000 to \$US20, 000 – often referred to as peak demand.

As per capita intensities approach the point of saturation where demand for raw commodities is insensitive to changes in consumer purchasing power, demand growth will increase at a decreasing rate – but don't confuse deceleration in growth with contraction in demand.

Here I am talking demand growth rates as well as absolute demand. Although these emerging economies account for well over 50% of the world's consumption of metals, their per capita metals and energy consumption intensities have some ways to run to the point of peak demand, even if there are early signs of this starting to flatten out in the infrastructure intense commodities as the emerging economies move through the phases of economic development.

This is an important concept if you are going to run some prognosis on projected minerals commodity demand profiles.

China's growth in the first decade of the boom was heavily centred on the structurally intense phases of urbanisation and industrialisation fixed asset investment.

The steel making and energy minerals commodities – iron ore and coal – dominated their demand profile at remarkable growth rates, and

... and , copper and zinc, as many consider are more acutely aligned with the steel intensity phases than consumption growth.

As this phase of industrialisation tapers and they move more towards consumption driven growth and middle to upper income levels, so too will the profile of commodities **growth in demand** shift more towards minerals that support consumer goods and more elaborately transformed manufacturers, the services sector and energy production – the base metals, precious metals, platinum group metals, minerals sands and energy thermal coal and uranium.

That said, China still has long way to go to satisfy its industrial, housing and transport infrastructure demands as a staggering 9 million people a year continue to move to urban areas and as its manufacturing base and services sectors expand even further.

China's railway network is still shorter than that of the USA in the 1800's and car ownership is only a fraction of that in the USA and Japan.

China has less than 100 motor vehicles per thousand people, compared with Japan at 600 and the USA at 800 motor vehicles per thousand people.

But the growth rate of fixed asset investment has declined and so too the rate of increase in demand for steel making minerals – iron ore and coking coal, principal among them.

This will continue to slow and eventually plateau somewhere between the market saturated per capita consumption rates (ie. at their peak demand) of the industrialised nations – the USA at 650kgs of steel per capita and Japan and Korea at around 800kgs per capita.

Of course, China is not a homogenous economy and already some 10 provinces are well above these steel intensities at 1200 kgs/capita and most well below, the bottom 10 at around 100kgs.

These relative per capita rates respectively translate into around 800 MT and 1200MT of Chinese steel consumption per annum. The current level is at about 800MT and few commentators see it going much more than 850-900MT out to 2020.

If this is the case then China's iron ore and coking coal imports are similarly expected to plateau.

...although, there is the prospect of a marginal kick to imports as low grade uneconomic Chinese domestic iron ore production comes off stream – already 125MT has been retired, with expectations of more, though still short of additional capacity build elsewhere.

So, the take home message is that if China's steel demand for infrastructure continues at a decreasing, if not flat, rate of demand growth, its absolute demand stays constant at or just above today's consumption levels.

India's steel industry is primed for expansion, but at only a fraction of China's and not a material make up factor in the overall scheme of things, as India has been and will likely continue to be a net exporter of iron ore.

This all means that the contestable seaborne iron ore trade currently running at about 1.4BT is only projected to increase to 1.6BT by 2020

Coking coal will continue to mimic the demand curve of iron ore, though the demand supply balance is trending more in favour of current suppliers. Large met coal deposits are relatively scarce, there is little investment in greenfields projects, aside of Mozambique, and existing producers have laid idle brownfields expansions. The more acute market balance is reflected in a moderating of the decline in met coal prices.

Of the energy products – per capita energy intensities in the emerging economies are a fraction of developed economies – China is at around 50MBTU's per capita and India is half this again – compared with the average of the developed economies, net of the USA, in the range of 100-150MBTU's per person – and in the USA at circa 200-210MBTU's per capita.

Thermal coal, which I know is dear to your interests, has a strong long term future.

From 2010 to 2035, global primary energy demand is projected to increase by a third, global electricity demand by 69% and thermal coal by 48% – of which 90% of that growth will come from the emerging economies.

Electricity production is projected to double in India alone by 2025.

Coal dominates the world's new electricity generation projects under construction or approved – an additional 325GW – to put this in perspective, some 550GW of new coal fired capacity was built over the decade to 2013.

Coal and Uranium have borne a continual barrage of antipathy from community activists more on ideological grounds than any pragmatic consideration of their contribution to global energy needs and improved environmental stewardship in their continued inevitable growth in use.

If my time in public policy advocacy has taught me little else, it is that bad policy rarely endures the test of the market – whether that market is in the form of consumption demand or popular opinion.

Irrational positions just simply can't sustain themselves as open markets do their thing in determining the efficient and effective allocation of resources.

It is nigh impossible to expect the market to pay a premium for non-conventional energy over traditional energy sources if there is no tangible dividends to the consumer and/or to the environment.

And government intervention in the form of supporting subsidies is only sustainable if there is the budget to support the cost of Governments' pre-determined societal objectives, as the EU is fast coming to realise.

In base metals, the path of industrialisation is critical to the markets assessment of prospective demand.

If China approximates that of the west – Japan, USA and Europe– then theoretically China is close to the point of saturation – or peak demand – in Cu, Zn, Pb, and Ni.

However, if China's growth trajectory aligns more closely with the path of development of the faster developing economies of the East – South Korean and Taiwan - then Cu at circa 6kg/capita is well below South Korea and Taiwan at 16 and 30 kg/capita respectively.

If the Chinese economy grows at 7% CAGR this translates into a marginal increase in copper demand per annum equivalent to the current entire Indian market for copper.

Not all copper in China is for industrial use. Apparent usage, net of strategic reserves, is growing at around 1.8- 2% CAGR, of a total 3-4% CAGR. This rate of growth requires an increase in copper production of 6MT per year of which 4MT will need to come from greenfields sites.

It is a similar prognosis for Ni – at 1kg/capita versus 5-6kg/capita in the faster industrialising economies of the East.

Pb at 4kg/capita is below 6-8kg/capita for the West, and Zn is currently at circa 5kg per capita closely aligned with the West's point of saturation, but well short of 12-14kg/head of population in South Korea and Taiwan.

For the minerals sands' titanium oxides in paints – current per capita consumption in emerging economies is 2 litres/head compared to developed economies consumption at 81 litres/head.

Gold is unique of course in that price drives production not the other way round – and demand is a composite of increasing consumption demand in China and India and markets looking for strategic reserves of capital acutely attuned to global economic and socio-political uncertainty. The expectation of a tightening of monetary policy in the US, a strengthening in equity markets across Asia and in Europe and the USA, and declining growth in consumption in key markets has weighed down on gold prices.

The upshot though is that the emerging economies account for nearly all of the projected *growth* in minerals demand out to 2035 – for metals over 80% of projected growth and for primary energy 90% of the expected increase in demand by a third on today's global consumption.

The other driver of emerging economies growth is that they are resource rich – dominating the world's minerals reserves holding between 70% and 95% of the global distribution – and are rapidly developing this natural endowment.

These emerging resources rich economies, including in Latin America of course, have chartered a course adopting economic, social and political reforms that have materially reduced the sovereign risk of doing business in their jurisdictions.

And by virtue of their economic and political reforms, the embrace of new technologies and attractiveness to new sources of investment capital, they have been able to rapidly gear supply, boosting national GDP and consumer purchasing power, and competing well for global custom.

Though, momentum has subdued somewhat on depressed commodity prices, concerns of increasing sovereign risk on account of stalled economic reforms, resource nationalism and increased community opposition, capital overruns, infrastructure constraints, and limits on water and energy.

On the supply side more generally, as I said at the outset this is where structural adjustment in response to depressed commodity prices has lagged expectations, and is the key factor affecting current and prospective commodity prices, far more so than any moderating in demand.

This has meant that the price elasticity of supply has been less responsive than I expected.

The key factors being the imperative to increase volumes to reduce unit costs (both opex and amortise sunk capital), to improve margins, and in the drive for productivity and in the case of coal in Australia, the overhang of take or pay contracts, and in building market position as a counter-cyclical strategy for when the market inevitably turns as demand catches up and exceeds supply.

But this cannot continue as lower prices reduce margins on brownfields expansions, reduce the incentive to invest in new capacity, and force less competitive operations to close.

What all this means is that:

- minerals demand is on a steadily increasing trajectory, but with some cyclical volatility around a longer term trend of growth and a shifting profile of metals consumption and per capita intensities in the relatively rapidly growing emerging economies;
- the price elasticity of supply has proved more inelastic (less responsive to decreasing commodity prices) than projected 18 months ago, and in some cases – iron ore and thermal coal – is likely to continue to challenge economic gravity as major producers continue to exercise cost competitiveness in increasing volumes (unit costs) and chasing market share – supply will mostly flat-line than contract as investment in brownfields and greenfields expansions are somewhat more subdued beyond earlier growth plans as the market rationalises;
- demand will catch up to supply and in some commodities exceed supply on current projections – as the market balance tightens it will again support prices above the long run marginal costs of production;
- cost cutting has meant that the long run marginal costs to support viable production have similarly come down which will be a dampener on the extent of price recovery
- few analysts expect the market balance to start to favour demand for another 12- 18 months out to end 2016 into 2017
 - though this could be longer for iron ore and thermal coal which is expected to take longer to constrain increases in supply, even though the current market balance heavily favours the supply side and is projected to do so even without further additions – correction here will inevitably move to contraction before demand catches back up to current supply profile.
 - base metals Cu, Ni, Zn, and Pb, along with uranium and minerals sands are projected to be more responsive to depressed prices, curtailing supply growth more quickly, and then in supply deficit within 18 months to 2 years as the combination of increasing demand and flat-line supply coincide

All of which brings me to the second topic... the challenges and responses of the industry within this environment... the industry globally, not just here or in Australia, is confronting the structural deterioration in its competitiveness, principally on account of its own actions through the first decade of the Millennium Boom, more-so than external factors affecting its operating environment.

How countries and companies respond will determine their sustainable competitiveness, attractiveness to investment, and prospective economic, social and environmental dividends to the continued development of their natural resources endowment.

The so called boom years in that decade from 2003/04 – was a period of unabashed price led growth.

The primary determinant of competitiveness then was how quickly companies and their host nations could remedy capacity constraints to supply – an overhang from the capital strike of the 1990's when Co's were barely recovering the cost of their capital, and productivity gains were traded away to consumers in lower prices.

The drive was for absolute production – operating systems, performance measures and accountabilities and the business culture was all about growth – almost irrespective of the changes to the structural deficiencies in their operating platform.

Costs always rise to revenues (what the market will bear) when there is still profitable margin in it... and in the drive for capacity and project pipeline growth, increased equipment and labour costs and lower ore grade operations were, understandably, justified in continuing gross margins,

... even to the point that NPV project determinations were given greater confidence in spot prices than the long run equilibrium of marginal costs of production.

The inevitable day of reckoning was easily dismissed when the underlying structural fault lines were camouflaged by high prices and, based on spot prices, economically good ore bodies, and debt and equity markets were encouraging growth over opex and capex efficiency and discipline, and underlying productivity growth.

While the positives to this period of unabated expansion should not be dismissed – massive investment in capacity and growth and a huge windfall to our countries' economies...

... as is evident today, this drive was without sufficient regard to the longer term structural consequences to supply competitiveness and business performance.

The industry ran headlong into the perfect storm:

Mitchell H Hooke – Keynote Address – Speaking Reference Notes – Colombian Mining Conference, April 2015 – Cartagena, Colombia

- as supply caught up to demand much faster than most expected, as new capacity came on stream including the surprising strength of the emerging resource rich economies and persistent supply proving to be more inelastic to declining commodity prices than expected;
- as access to resources narrows both in terms of land access and declining ore grades and that are deeper – increasing energy costs, strip ratios, costs at depth;
- as product and capital markets tighten in the face of uncertain global economic growth and socio-political instability especially in Russia and the Middle East;
- as societies' expectations intensify complicated by a resurgence in societal community activism transcending the conservation/environmentalism platforms to land access and communities right of consent/veto, generating a renewed and more complex assault on parts of the industry's social licence to operate;
- as governments' regulatory and fiscal demands increase, manifest in inordinate delays and often draconian conditions to project approvals, loading of excessive requirements for social and physical local infrastructure to the point of mandating local content in goods, services and employment, and in renewed resource nationalism as governments look to mining to repair fiscal positions.

Against the backdrop of less buoyant market conditions, today's miners face an excessively and unsustainably inflated operating and capital (project capital intensity) costs structure, operational inefficiencies, poor and declining labour and capital (multi-factor) productivity, poorly performing assets, and an erosion in social and regulatory licences to operate.

The accent on drivers of value has necessarily shifted from the price led growth of the last decade to:

- production volumes to reduce unit costs and protect market position;
- margins and free cash flow for dividends to shareholders and retained earnings for sustaining and new project capex;
- productivity improvements—both labour and capital – the priority being labour productivity and equipment performance; and
- capital discipline to redress unsustainable capital intensities, and improved assets on the balance sheet.

The industry's austerity drive has made significant headway on reducing operating costs and capital expenditure, improving cash margins and rebuilding balance sheets.

But as an industry we are really struggling to redress the structural deterioration in multi-factor productivity and to stem the antipathetic community tide on our social license to operate.

Cutting costs and increasing volumes is proving to be a poor proxy for real and sustainable core productivity growth – this was exceptionally well articulated in a recent study by PwC – *Mining for Efficiency*.

Productivity growth is the pre-eminent challenge facing the industry. It is the primary driver of sustainable competitiveness and returns.

Productivity growth won't be satisfied alone by technological innovation, austerity measures, increased production, or the saviour of public policy reform – as critical as each is to that complex equation of value add – rather, it is a multi- faceted complex of all these drivers of value add.

But there is one constant – you can't have productivity growth without change – in this sense productivity is virtually synonymous with innovation.

But don't confuse invention with innovation.

Creativity generates knowledge and the way it may be used, but the real value add lies in the application of that knowledge – what we all call execution – not in the knowledge itself

– and the manner of its application is where key value add differentiators lie all other things being equal.

Our experiences at Partners in Performance (PIP) is that the innovation that really counts is a much richer equation than exogenous (originating externally) technological advances and public policy and improved operations that increase absolute output and cut costs, as imperative as each is to improved performance.

I put it to you that there is a real depth of untapped potential in value add productivity and improved competitiveness in getting the business culture and integrated systems right for real and tangible synergies throughout the supply chain – and these are principally within each businesses own scope of influence, notwithstanding there are some mitigating factors, labour laws especially so.

The gains are considerable and at relatively little or no cost.

This is far more of a behavioural challenge – the way people act – than a technical one.

And it involves a whole of business transformation – a cultural shift in the modus operandi – and you only have to look at the standout operational features which we consider to be key success factors of those Companies successfully addressing the challenges of the new operating environment.

I have identified the top 7– a bakers half dozen – 6 plus 1.

First – a systems approach

Few of us would contest that our business success in the next decade will be more dependent than ever on the efficiency of the entire export supply chain, from exploration and initial development through to final shipment...

As one study commissioned by my old organisation the MCA, observed “rebooting the boom places a premium on cost control, timeliness, flexibility and adaptability along the full length of the minerals supply chain”

... yet, there was too prevalent and remains an emphasis on operational silos, virtually or clearly absent a systems and disciplined systematic approach, where integration, interdependency, are the key features.

The more successful operators are

- fixing the integration gaps in their mining and supply logistics operations – building a culture of team operational integration and interdependency and continuous improvement
- ...underpinned by a systematic and systemic approach to planning and delivering performance value drivers;
- a systems approach to replanning – a feedback loop across the entire operation from the initial mine plan through construction, ramp up and full production – a whole of systems approach to the asset operations and in redesigning/reconfiguring aspects of the original mine plan;
- established transparency and accountability in each and all aspects of operations built around a system of actions and reactions – clear, defined, prioritised, effectively communicated and necessarily flexible – a disciplined and focussed management system of integrated behaviours;

Second – cultural change and capacity building for systems operations

A real life successful mine manager recently commented – “poor culture will eat systems for breakfast every day”.

This goes to the critical importance of getting the right operational culture embedded in teams at asset level and throughout the Company as a whole.

Culture often means different things to people.

The way I look at it? – it goes to the non-physical forces of change – the way people behave – as an integrated system of learned behaviour patterns that produce change and inhibit change in the perpetuation of ideas and practices within current operating structures.

Attitude begets behaviour so it has to start at the top and be embraced throughout as a collective responsibility.

The systems are the substance to what we do, their efficiency and effectiveness lies in their execution and that is a product of our collective functional skills and people skills.

By people skills I mean being able to relate to and lead teams, by understanding that internal competition is rarely conducive to combined achievement, and as one great statesman said “success is far more likely if there is little consideration of who gets the credit”.

According to specialists in this field, this is not inimical to our western culture where attribution for success is more defined in the efforts of the individual than say in Asian cultures where success is characterised more from a situational perspective.

Asian cultures are more likely to explain the behaviour of others in terms of situational factors including relationships, whereas we westerners are more inclined to look at the individual as the root cause.

I tried to be different from my western roots.

When I played football it was not who scored the try or kicked the goal but how we did it and could we do it again – similarly, I was never really concerned as to who dropped the ball, or missed a pass, but how we would remedy the situation and prevent it from occurring again, as a team.

In this respect business leadership are competent

- in building a culture of team – of individual enterprise, personal accountability, and collective responsibility;
- in managing the key intersection – the sweet spot – between the objectives of the CEO/Board and asset operational management in effecting real and sustained business transformation changes;
- in building greater skills capacity in systems thinkers and practitioners, and a cultural shift in behaviours – all in concert as part of a holistic integrated collaborative chain of value add;
- in understanding the difference between wants and needs and the ability to turn needs into wants within the team and external parties – in driving costs and capex in the pursuit of cash margins, they are focussed on driving bottom line outcomes within a culture of business transformation.

Third – capacity building for systems dominated operations

Systems thinkers and practitioners do not come naturally to our skills portfolio of functionally specific disciplines.

While we often talk about the importance of the intersection of hard engineering and soft engineering, it's not something as an industry we would claim to do well.

This is understandable when you reflect on the professional and technical disciplines that make up our operating DNA – engineers, earth scientists or geologists, environmental scientists, metallurgists and other forms of minerals processing, technical trades and machinery operators, accountants and other financial disciplines, IT specialists, etc.

These are all fairly matter of fact functional specific, linear and logical physical dimensions to our industrial activity – again as each is so vital to do what we do.

There's not a lot of people aptitude and behavioural systems inherent in our vocations until we get to the point of application.

And long-time observers of this industry tell me that we dispensed with many of our system thinkers in our rush for production or simply didn't replace those who retired after having had such an impact in the '0's when companies were superior functioning units as evidenced by their productivity performance alone.

The imperative today is to return to that operating mantle by continually building capacity and enduring capability in people management skills throughout the operational team such that culture and systems are enduring – in this training, mentoring and incentivising individuals without compromising cohesive achievement is key.

Fourth – differentiating and emphasising the real value drivers

There can be no question the industry has cut costs and deeply – but there has been an unmistakable tendency to cut costs “across the board” indiscriminately of systematic analysis of the relative value drivers.

... and, more from the perspective of inputs than net outputs, and with insufficient regard to the specific circumstances of the workplace arrangements and operational practices at each asset.

Those driving for longer term sustainable outcomes are:

- more keenly differentiating the value drivers and performance metrics in asset operations and more particularly equipment productivity – annual output/capacity of input (is a huge factor in labour and capital productivity);
- dispensing with underperforming assets, preferring to be a lower order operation in terms of size and scale in deference to margin protection and balance sheet repair and build;
- exercising capital discipline in determining project NPV on basis of long run marginal cost equilibrium, not deferring to spot prices on either the upside potential or current downside overshoot of the underlying physical parameters of the market;
- increasingly determining project NPV's on a portfolio basis than asset specific, especially where their activities in being either long or short on the market has a material bearing on product value;
- placing greater strategic accent on shaping price side revenues – in moves to integrate production and marketing, even to trading for real time market intelligence in managing supply onto the market for price effect, for product differentiation and for better intelligence on competing assets.

Fifth – increased transparency, accountability and technology to operating systems for greater granular visibility and controls

- benchmarking operational targets for productivity and competitiveness performance measures;
- ensuring functional capability and operational interdependency is rated, matched and reviewed to each and every task within the profile of the specifics and complete integrated operation eg. a continuing deficiency is the personnel requirements matched to the procurement and logistics tasks across the asset and business wants and needs;
- digitising theoretical practices and real-time operational data – some call data capture management practices – automated reporting for vastly improved short interval control.

Sixth – commitment and skills in earning and maintaining a social license to operate

A social licence to operate is the unwritten social contract with the surrounding or host community to operations, which is as important as a regulatory license.

The open market reforms that have so profoundly transformed global trade and commerce and the distribution of global economic growth, have also significantly changed society's attitudes and expectations of governments and business, society's demands for sustainable development, and a say in the decision making processes at all levels of governance and operations.

Companies who are successful in meeting these expectations have some defining characteristics:

- they have long moved on from the mantra of decide announce defend, to engage, listen, learn and builds empathy both ways;
- they recognise community empathy is a defining criteria in building support – to which equity is a vital ingredient – if not direct equity in the way capital markets look at it, but equity in job opportunities, commercial opportunities in local content provision, community benefits in the development and construction of social and physical infrastructure, and a real and tangible take on what intergenerational benefits means for their children and beyond – and even if it is “just a say” in what's going on;
- they clearly understand and respect the differential in free prior informed consent from a veto power – the latter being the responsibility of the sovereign state, not an indeterminate and or ill-defined community;
- their practical commitment to sustainable development is not diminished – defined in the 3 pillars of dividends to their operations not just financial, but social and environmental too. There has been a tendency in tough times for this to be considered soft issues and banished to the ranks of discretionary expenditure. And yet the practical implementation of sustainable development has become a defining factor in earning and maintaining a social licence to operate with host and or neighbouring communities, and even the community at large, if not always readily apparent;
- they are acutely attuned to risk management strategies that will mitigate against and manage catastrophic circumstances – emphasising before the fact prevention than after the fact remedies.

And lastly – in my bakers half dozen of key determinants – counter-cyclical behaviours....

In some aspects in the mining industry our collective behavioural patterns are a fault line in our development.

For all our acknowledgement that ours is a cyclical business we are characteristically pro-cyclical not counter-cyclical – by this I mean we tend to follow the cycles and not lead them, being far more reactive than proactive in the product and capital markets, the court of

public and local community opinion, and the vagaries of public policy, tending to be reliant on the next spin of the demand cycle for our ultimate salvation.

In this we appear to be somewhat captured by the circumstances of the immediate without sufficient regard for the longer run underlying fundamentals of the market – and we are as a collective inclined to act without even looking outside the box, let alone thinking about it.

We tend to reinforce both positive and negative sentiment to the point where markets, communities and governments tend to overcorrect beyond the natural order of things, both on the upswing and the down swing of the cycle exacerbating the inherent volatility of our industry, and our interdependent markets.

Investors are excessively cautious to increasing investment in resources, impatient with the industry's performance and looking in different directions for return on investments. Our behaviour in this regard is reinforcing the risk adverse climate in debt and equity markets already spooked by the market correction.

If the current unrelenting austerity, tactical, focus becomes more akin to foetal position-like behaviour, than a more strategic positioning on the cycle, the real risk is that we are again caught short, on the back foot dragging on the cycle, rather than pre-empting it.

Those who appear to be managing the austerity and counter-cyclical mix well are focussed on getting ahead of the cycle – when the inevitable supply correction occurs.

These companies are generating strong balance sheets, preparing and prepared to invest against the cyclical flow, and are disciplined in their project or asset management – looking to be better positioned for the anticipated supply shortages as the market corrects.

- driving for improved technology in exploration, production and processing, transport and in product differentiation and/or product arbitrage;
- pursuing asset build and or replenishment by maintaining exploration expenditure and/or in acquiring others exploration activity (outsourcing) and cheaper stranded or stressed assets;
- asset management flexibility – the ability to change capacity utilisation to reduce or increase production in response to market conditions – in the current environment, idling uneconomic assets including parking equipment, transferring resources to where they will be most strategically used.

As always, the proof is in the eating of the pudding. The gains from these complex of factors are really quite staggering, and not just found in the low hanging fruit. From our experiences:

- multi factor productivity improvements across globally diversified companies as an entity are reported in the order of 20% – worth billions to the operating bottom line and balance sheet;
- equipment productivity performances climbing closer to name plate capacity and rivalling global standouts eg. in one operation in Australia longwall coal mining labour productivity has improved from the low depths of 7,000 tonnes per FTE to approaching 20,000 tonnes per FTE, and targeting best practice of in the order of 27, 000 tonnes per FTE;
- at the same site, they have reduced overall production costs by 61%, taking a massive \$38/tonne out of per unit costs. And there are other standout operations in coal and other products cutting costs in this order of magnitude and with commensurate gains in productivity;
- we are consistently recording unit costs reductions in the order of 50-60% and doing so rapidly – in the space of months – at a time when **cost efficiency is highly prized in a low growth environment**;
- capex reductions without loss of prospective productive capacity are proving to be a "minefield", excuse the pun, for cost reductions and efficiency gains translating into bottom line gains and real NPV improvements – taking \$ 6 billion out of capex with a 35% increase in volumes for an integrated iron ore operation is a real success story;
- construction productivity gains are in the order of 20% to 30% gains to design NPV's, with further improvements in the order of 10-15% in the build and ramp up phases – and in one case a 27% reduction in construction time;
- getting the procurement and logistics tasks right are reaping millions of dollars to bottom lines for want of capacity and systems improvements – these are typically in the order of 10-20% for already pretty well run operations.

And finally – of the 3 areas I said I would address at the outset – what should Governments be doing to support their companies in the resources sector transform their businesses to meet the challenges of a less buoyant market.

I have no intention of pretending that I can speak to the circumstances of Columbia, so let me identify key success factors generic across the globe from my experiences and leave it up to you to judge how they might apply in the circumstances of your own country.

It all simply boils down to confidence – and once you go past the prima facie (or up front) geological and economic evaluations – sovereign risk becomes the primary determinant in a company's assessment of the confidence intervals to their net present value calculations of prospective long life producing minerals resource assets.

By sovereign risk, I take a broader definition than the traditional probability that a country may not pay its debts, to include a wider consideration of the combined effects of Governments' intervention in the market, such that a government may resort to altering any of its laws, or indeed failing to alter any of its laws where necessary, thereby causing or prospectively causing adverse losses to investors.

As we all know comparative advantage in natural endowment is no guarantee of competitive strength in minerals supply.

And nor is it alone sufficient to attract investment.

In the global village of today where capital, people, technology and information knows few boundaries; and where mining companies have long transcended the national patronage of their local origins as globally integrated and diversified entities – miners capital will be deployed where it will be most strategically utilized.

And there is no shortage of opportunities across an ever increasing pool of resource rich nations – as indicated, the emerging rapid growth economies dominate the world's minerals reserves.

As you'd expect in such a globalised environment the market is sorting it out.

Companies are voting with their feet in differentiating between nations even jurisdictions within nations – and not just a north-south divide but also within the broader categorisation of developed and emerging economies.

You only have to look to their behaviours in the global market to identify what attracts them to invest, and what deters them from investing, in prospective resource rich nations – not just here in Latin America, but as I said at the outset, globally.

First, the liberalisation of their economies:

- the embrace of pro-competitive open market economic policies principally trade, investment (finance), and labour arrangements, with capacity to access foreign capital, forex markets, export markets, and to be able to expatriate profits.

Second, political stability:

- stability in democratic and institutional governance including at the local level – an ability to lead and to get things done – and a clear separation of powers between the judiciary, politics and the Church.

Third, security and the rule of law:

- trust is the vital ingredient to confidence to invest;
- transparency and accountability in observance of property rights – security of tenure is paramount with capacity to transfer ownership – and the rule of law;
- effective security measures – physical (personnel and property); and anti-corruption and bribery policies and practice – to make corruption either impossible or obvious;
- adoption of international covenants particularly on trade and investment – particularly multi-lateral and bi-lateral investment treaties which are a critical defence (risk mitigation) against a Nation's legal right under UN Charter to nationalise, expropriate or transfer foreign ownership without appropriate/proper compensation;
- consistent non-discriminatory enforcement of the law

- there cannot be different laws for large scale and small scale mining , nor can there be tolerance of illegal and or irresponsible mining or preferential environmental and social standards of operational behaviour.

Fourth, fiscal stability:

- sound macro-economic management and fiscal stability, and particularly levels of public and private indebtedness relative to GDP;
- progressive stable taxation regimes – that enable investors to pre-determine tax liabilities;
- the creeping cancer of “resource nationalism” is a real deterrent to investment – where governments seek
 - to gain a higher rent from the exploitation of their natural mineral resources at the expense of the private company
 - to either subsume, control, transfer ownership, or redefine the taxation terms upon which the original investment was agreed
 -this might well be born of a necessity for a greater fiscal take to boost or repair fiscal positions, and/or to drive socio-economic development, but it significantly increase the risk of doing business in that country.

Fifth, stable and competent regulatory arrangements:

- predictable, efficient and effective regulatory arrangements
- uncertainty in the permitting process are major deterrents —in tenement registration (the status of titles) , in being able to pre-determine environmental, land access, community, and infrastructure obligations:
 - regulatory duplication and inconsistencies (including federal/provincial or federal/state and interdepartmental overlap);
 - uncertainty and excessive delays concerning the administration, interpretation and enforcement of existing regulations; including environmental regulations;
 - uncertainty concerning disputed land claims;
 - uncertainty concerning which areas will be protected as wilderness, parks or archaeological sites;
 - uncertainty in the creation of special reserves and tenement auctions , especially discriminatory to junior explorers
 - access to a geological database (including quality and scale of maps and ease of access to information)
- regulatory institutions need to be well supported and competently resourced with skilled professionals, with a program of continuous training and up skilling
- companies need to complement the activities of regulators similarly competent and well resourced
- there is a lot to be said for streamlining the permitting approvals process with a clear and defined intersection and coordination between the regulatory agencies, especially mining and environment – even to the point of a “one stop shop” for applicants

Sixth, infrastructure:

- the adequacy and quality of infrastructure – the veins to the life blood of a mining operation – energy and water utilities, transport, social amenities, communications
- private and public sector partnerships are a useful means of establishing a cooperative arrangement for investing in infrastructure that has external benefits to the interested companies, and special purpose vehicles are a good way of specifically quarantining and making transparent the activities of that arrangement

Seventh, culture of innovation:

- a culture of innovation and skills development and the requisite intellectual and technological infrastructure – and not just in operations but capacity building in regulatory institutions and educational development through the entire education system to vocational training in technical trades and professional disciplines.

Eighth, a commitment to sustainable development and intergenerational equity:

- building a capacity for future generations prosperity, not compromising it for today's benefits.

Ninth, a culture of shared responsibility appropriate to what is a joint venture partnership:

The public policy climate is naturally bi-polar – today's policies are self-evident, but tomorrow's policy climate can only really be judged by the culture of the country's governing bodies.

Attitude begets behaviour – and this is a two-way deal – a culture of shared responsibility is vital if there is to truly be a mutual benefit to what is a virtual joint venture between the State as the proprietary owner of the minerals and the company that brings the where with all to legitimately develop the natural resource.

What Companies look for in this sense is the signs of a government's continuing commitment or at least disposition to key structural economic and social reforms... and in our case, and I'm sure other sectors, we look to the government's attitude towards our sector.

Principal among these signs is a commitment to engage business on a platform of mutual respect with a clear objective to work collaboratively and cohesively to mutual objectives.

This clearly entails reciprocal obligations on mining companies to step up to the plate, so to speak.

Mining companies, indeed business generically, needs to optimise its performance across the 3 planks of social, environmental and financial dividends to their operations

– for unless business delivers on the wealth creation opportunities, including, in our case, beyond life of mine, scarce political capital will be squandered and the promise of structural reforms illusory, and the politician's and public's confidence in the policy path seriously undermined.

In this, mining companies want to be considered as real partners, as a valued part of the community – not merely tolerated or begrudgingly accepted as an essential part of the economy.

Being able to earn and maintain a social license to operate is also a critical determinant of investment, particularly if there already exists a climate of government antipathy and community activism toward mining.

If the relationship is adversarial and our miners are a convenient whipping boy when the political climate of populist opportunism presents, the chances of this developing are greatly diminished, if not lost at least in the short term.

The politics of envy and or class warfare are a very poor substitute for leadership and good policy, as the super profits tax debate in Australia demonstrated so clearly.

Governments must stop looking upon mining as if it is apartheid capital – and its business as economic apartheid divorced from the quadrella of interests to the development of natural resources – community, labour, government, and company stakeholders.

It is worth reflecting that natural endowment is only dirt whenever it stays in the ground. The Canadian based Fraser Institute's Annual Survey of Mining Companies provides a very good quantifier of these indicators annually surveying 400 odd mining Senior Executives operating across 50 plus jurisdictions – what Executives are looking for in how they rate regions respective combination of a nation's inherent mineral wealth and public policies.

This is a very good ready reckoner for Governments.

It has been a delight to be here...I hope I have done some justice to the task Santiago asked of me...

.... muchas gracias.

**MITCHELL H HOOKE
CHAIRMAN
PARTNERS IN PERFORMANCE**

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