Iluka Resources Limited

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Start of Transcript

Tom O'Leary: Welcome everyone to Iluka's Investor Day. Before I get into today's proceedings, I'll note that this is Iluka's first dedicated investor day since 2015, and so is the first of my time as Managing Director.

The Company takes its shareholder engagement seriously. We recognise that our primary objective is to create and deliver value for you, our shareholders, and forums like this provide an opportunity to discuss Iluka's business in more detail than is often possible in our quarterly reviews or results calls. We trust you'll find the materials presented today informative and I would encourage you to take advantage of the Q&A at the end of each session this morning.

So here we have a disclaimer, which is important to note, given we've included a range of forward-looking statements in the presentation regarding production rates over time, capital and costs. The intention today is to provide our current views, based on our estimates, our preliminary feasibility studies, our definitive feasibility studies in some cases, as well as our current expectations of market conditions going forward. Market conditions are always going to impact our actions, and the outlook provided, therefore, is only indicative. All production targets made in the presentation are in compliance with our JORC standards.

You'll see the first session is devoted to industry and markets. We plan to go through each of the presentations and then we'll have a panel Q&A. Robert Gibney, General Manager of Titanium Sales, and Christian Barbier, General Manager of Zircon Sales, will join for that panel Q&A. The second half is more operationally focused, and again we'll have a panel Q&A at the end. Dan McGrath, our Chief Metallurgist, will join for that panel.

You can see that we have half our Executive presenting here today, and most of the others are here in the audience. Relative newcomers to the Executive, besides me, are Rob Hattingh, who's been with Iluka for 10 years in several roles, and has joined the Executive since completion of the Sierra Rutile acquisition in December. Julian Andrews has joined the Company and the Executive only recently, and was previously at Wesfarmers in various business development roles.

Sarah Hodgson has been with Iluka for four years in a range of people-related roles, and joined the Executive earlier this year. Adele Stratton has been with Iluka six years, and joined the Executive earlier this year, when she added Investor Relations to her responsibilities as General Manager Finance. Sue Wilson joined us in December last year. She was previously Head of Company Secretariat at South32, and General Counsel and Company Secretary at Bankwest and HBOS. She also was a partner in a leading national law firm.

So I'm delighted with the Executive that we've assembled at Iluka. They're all experienced and

expert in their fields. We have a good mix, I think, of those new to Iluka with those who have been in a range of roles, within Iluka, over many years. The presenters today are also joined by Hamish Little, who you may not have met before. Hamish is the Operations Manager for Jacinth-Ambrosia, and he's here today in the absence of Steve Wickham, our Chief Operating Officer, who's currently in Sierra Leone.

As an overview, market conditions are stronger than they were a year ago, and the signs are there for further strengthening. We've paid down a lot of debt over the last 10 months, leaving our balance sheet in much better shape. We've also lengthened the tenure of our debt and commitments profile, so we're much better placed ahead of the capital expenditures we're contemplating over the period 2018 to 2020.

Turning to Mining Area C, and based on announcements from BHP, the iron ore tonnage is set to grow strongly following the announcement of the South Flank development. Just a reminder that for Iluka the MAC royalty is simply an income stream, and we don't contribute to any capital or operating cost.

In summary, the market and financial outlook for Iluka point to good potential.

To deliver on this potential, we need to execute flawlessly over the next few years, with new project expansions likely to be occurring simultaneously in Cataby in Western Australia, Jacinth-Ambrosia in South Australia and several being developed in Sierra Leone. At the same time, we're looking to progress our longer-term growth pipeline for Iluka generally, through a staged approach to the development of Balranald, a continuation of the development of our fine minerals project, and, in time, the development of our sulphate ilmenite project in Puttalam, Sri Lanka, which together see growth for Iluka over the longer, term. They're also very important in the context of meeting the shortfall we're seeing in the longer term in global zircon production.

Another important area for us in the coming years will be our rehabilitation activity, which is a key focus of some of our best people, and it's an area I'll be focusing more of my attention on in the coming year.

You've seen a version of this slide before. It just shows where we're operating, what our products are and what they are used for.

We've been active on a number of fronts in the sustainability space, and we've noted some outcomes here. As you can see, we've reported an improvement in our total recordable injury frequency rate last year. Year to date this remains in line with that result, but there's still more to do and safety is a key focus across all, of our organisation. In particular there's a significant effort going into embedding our safety practices and culture in Sierra Rutile.

The Premiers Community Excellence Award was received for social inclusion in South Australia, as a result of the approach Iluka has taken in Jacinth-Ambrosia, where around 22% of the workforce, are indigenous and 17% are from the local region, known as the Far West Coast Region. In fact, during the 2016 idle period, that percentage grew to 36% as more indigenous employees were retained during that period. We've made good progress on gender diversity. As you'll have seen, we have three women on a 10 strong Executive, and 27% of the Executive and General Manager Group are women.

Iluka has recently been recognised as a leader in sustainability performance, by incorporation in the Dow Jones Sustainability Index. It's a pleasing development, but I'd have to say it's more a consequence of an improvement in the reporting that Iluka has been doing of late rather than a change in the way Iluka has been carrying on its underlying businesses. Finally, we've

published our sustainability targets in order to be more accountable for their achievement and improvement over time.

Turning to our approach, our core objective is unchanged to create and deliver value for you our shareholders. You're familiar with Iluka flexing assets in line with market, most relevantly with Jacinth-Ambrosia, to regulate zircon production in line with global demand. Growth opportunities are always important, and we'll talk more about those projects this morning. We've acquired Sierra Rutile, and time will be the judge of whether that was countercyclical in line with Iluka's strategy. But from where we stand today, the price outlook is strong and it's in line with Iluka's investment case.

All resources companies talk of disciplined capital allocation. It's something we've had to reflect on pretty hard, given the nature of our assets and the markets we operate in, and I'll come back to that in a moment. I think capital discipline is at the very core of achieving shareholder returns through the cycle.

Here we look at Iluka's historical returns. Iluka's returns on capital have been both volatile and in absolute terms low. At the same time, Iluka's total shareholder returns, over the last decade, are not inconsistent with the resources sector generally. It's been a leader, looking at the 10-year TSR, in the line over five years, and a laggard over the last two years, but has performed strongly over the last year.

I said that discipline around capital allocation is at the very core of generating sustainable shareholder returns. At Iluka we are living that in our approach to the development of the Cataby deposit. We've been talking about Cataby for a while now, as you know. There are a lot of really attractive features of Cataby, it's a very high-quality ilmenite, and so will produce a really attractive synthetic rutile for our customers. It can also come on at a time when the South West Western Australian deposits we've been mining will be exhausted, and so will enable Iluka to maintain continuity of production from our synthetic rutile kiln in Capel.

However, it will also produce a higher cost ilmenite for conversion to synthetic rutile than we've enjoyed in the past. It's not alone in being higher cost among mineral sands deposits available for exploitation around the world. But because of that higher cost characteristic, and because of the potential, albeit probably a potential that's becoming more remote with the passing of time, but a potential nonetheless for excess supply globally, we are not proceeding with it until we have satisfactory underpinning contracts to support offtake. To ensure we'll at least generate capital payback, and set ourselves up for generating satisfactory returns from the investment over the longer term.

I think that's a good example of genuine capital discipline. Because, notwithstanding pressure from customers to get on with Cataby, irrespective of contractual underpinning, as well as warnings from some in the investment community that we'll miss out on the opportunity to develop Cataby if we don't move quickly and others warning that our synthetic rutile business is at risk without proceeding with the development, we are firm in our resolve that we need sufficient contractual underpinning before we allocate the capital. I reiterate what I said at the half, that is, that I'm confident we'll have contracts in place to facilitate Board approval by the end of the year.

There are other initiatives that embed capital discipline, and learning around capital allocation. One other I'd mention is having a robust post-investment review of capital expenditure that's every bit as rigorous as the pre-execute analysis, in order that we learn from our experience and are accountable for our performance.

We've also referenced here being a good actor in the industry. An example of what I mean by that is focusing on value over volume, specifically backing off zircon production to match global demand. Although I have to say, it very much looks as though that's not going to be necessary going forward. You'll hear more from Doug and Matt on zircon supply and demand outlook in a moment.

Another example of being a good actor in the industry is the way we're approaching zircon price increases. The most recent $130 per tonne increase, effective 1 October, which I can confirm, has been accepted into the market, has been stated as effective through Q4 2017 and Q1 2018. I think our customers have appreciated that approach in terms of providing some clarity on price trajectory. Matt will touch on that more later.

Finally, we need to be ever vigilant on costs. You'll recall that we reviewed the sustainability of our cost base in the latter part of last year. The cost focus continues today. As a consequence of a range of initiatives, non-production costs have declined $70 million from last year.

I flagged previously, when talking about our sustainable business review, that there'd be ongoing work, particularly in the way we go about our external spend, our procurement processes. We've not made as much progress that as we'd have liked and have, in the past couple of months, engaged some external help. I expect to be able to report better progress on that front over the next 12 months.

Slide 12 here is an attempt to put a timeframe around our activities and priorities, as they relate to sustaining and growing our business. As I've said, we're in for a period where we need to execute flawlessly on critical identified project developments and expansions, both in Australia and Sierra Leone.

We also have some, potentially, very attractive organic growth options, which have a longer timeframe, about which, again, we need to exercise discipline in terms of cost and process, while recognising we're in the business of taking risk. It's through the innovation of our people that opportunities like Balranald, our fine minerals project and Puttalam, will ultimately be realised such that these deposits and resources can be exploited as reserves in the medium-term.

Finally, on mergers and acquisitions, we thought we should include a note on our appetite and thoughts around M&A as Doug and I are often asked about it. We've been pretty clear, I think, on this. That is that we need to demonstrate that we've delivered on the acquisition of Sierra Rutile before we seek shareholder support for further acquisitions. That's what driven the indicative timeframe described here. That's not to say that we turn away from an opportunity that was truly compelling in the nearer term. The timing is intended to be indicative of our approach and priorities generally. We've also noted that we are not interested in M&A driven growth for its own sake. As you'd expect, we need to be convinced of the value available, and the value that we specifically can bring to the opportunity.

On slide 13 we've pointed to the key issues facing the mineral sands industry. These have been evident, in some cases, as looming issues for many years. It seems to me that we've come to the point now when many are now having a visible and tangible impact on markets, as well as in the actions of some players. Many of the presentations today are going to touch on these, I'll just mention a few.

This is a slide you've seen from Iluka in the past. In broad terms the quality of the deposits currently being investigated for development are lower grade, and lesser quality than those currently being exploited. There's less zircon, less rutile, less valuable chloride ilmenite and there's more trash. There have been no discoveries of significant higher-grade deposits in the

last decade. So projects like our fine minerals project and other higher cost projects are require. This will, over time, drive pricing up.

Again, this is one we've shown a few times. In fact, when Iluka last showed this slide we estimated that the same amount of capital needed to be spent in the same period, 2017 and 2018, to maintain production by the larger industry participants. That volume of capital has not been spent. So the consequence of the lack of investment will, over time, increase pressure on limited supply and again drive pricing up.

Finally, China's impact on the market is crucial. This chart shows TZMIs estimate of China pigment production broken down between the sulphate route and chloride route across 2011, 2016 and are forecast out to 2021. The sulphate route has virtually all market demand growth over the last decade, and China has installed virtually all of that capacity. The Western chloride pigment players have played almost no part in the capacity expansion until Chemours; Altamira plant ramped up this year.

TZMIs view though is that, sulphate capacity has largely capped out, and that chloride pigment will be the technology that meets growth in global pigment demand over the coming period. I expect those projections are based on China's obvious appetite to build chloride expertise and its recent attack on the poor environmental performance of its sulphate pigment industry, both in sulphate ilmenite extraction and processing as well as in sulphate pigment production.

Doug and Matt will touch more on the crackdown in China, and its impact on global production and pricing. But one thing is clear, if the environmental standards to which Chinese producers are to be held, fall more into line with those required elsewhere in the world, the cost base in China will inevitably rise. Again, that will over time, drive pricing up.

Julian gave me a quote from Xi Jinping the other day. I'm sure you've read bits of the speech, but I thought this was interesting, “[w]e will enforce stricter pollutants discharge standards, and see to it that polluters are held accountable. We will improve our systems for credibility assessment, based on environmental protection performance for mandatory release of environmental information, and for imposing severe punishment for environmental violations. We will establish an environmental governance system in which government takes the lead enterprises assume main responsibility and social organisations and the public also participate.” When you're selling high grade feedstocks that's, a very, very helpful backdrop.

With that overlay, I'll hand over to Doug to run through the industry and dynamics and our view on the impact these have on Iluka. Thanks.

Doug Warden: Thanks Tom, and good morning everyone. In this section I'll start by providing some basic information on the mineral sands industry. I appreciate that many of you will be familiar with this, but nevertheless hopefully a useful reminder for your all. I'll then touch on China's position in the TiO2 industry. Finally, I'll provide our view on the outlook for the zircon and high grade TiO2 feedstock markets.

Just to recap on the breakdown on the mineral sands industry by volume and value, and I'll explain on the next slide why I think this is important. So these charts are showing for TiO2 anyway, in TiO2 unit terms, with all tonnes converted to 100% TiO2 unit bases. But if you consider in absolute tonnage as a product, interestingly sulphate feedstocks account for about 60% of total volume, chloride feedstocks about 30% and zircon 10%.

But if we look at that same picture in value terms, sulphate accounts for just a little under 30%, about 28% of value versus 60% of volume, chloride, almost half, so 47% of value versus 30% in volume terms, and zircon 25%. So in summary in pure tonnage terms, zircon is very much a by-

product at 10%. But if we think about in terms of percentage of revenue for the whole industry it's about 25%.

Turning to slide 19, which summarises the industry structure for zircon and high-grade feedstocks, in zircon we consider it a good industry structure with the top three producers accounting for a bit over 60%, and the top six producers accounting for just over 75%. Fairly fragmented customer base with the top three customers globally accounting for about 20%, and the top six accounting for just around 33%.

However, as I've just mentioned, it is important to remember that zircon remains a by-product for most producers. So how should we think about that? As I just mentioned volumetrically, it's dwarfed by TiO2 90/10, 90% TiO2, 10% zircon. But as a percentage of revenue for the major producers, for the top six producers, it's between about 15% and 35% of revenue. That's for five out of the six with ourselves being just under 50%. So zircon makes a significant contribution to revenue for all the major producers.

I'd just note that I did mention on a previous slide for the industry as a whole it's about 25%. Obviously for the major producers its more, and that's after taking into account China, which obviously is predominantly sulphate ilmenite and a bit of sulphate slag and very little zircon, only from imported concentrates do they produce any meaningful tonnes.

Notwithstanding the importance of zircon in the revenue base of the major producers, I think it's fair to say that TiO2 still drives decision-making in mineral sands for investment decisions. Consider a new sulphate ilmenite mine that might need to find offtake for, say, 400,000 tonnes of sulphate ilmenite and just 30,000 to 50,000 tonnes of zircon. The point being, that one can't just develop a mine purely because there is a positive outlook for zircon without also having to regard to both the volume and price offtake for TiO2 products. This is particularly the case when the bulk of the TiO2 is sulphate ilmenite, the price of which has been extremely volatile. The current FOB price of sulphate ilmenite is around $170 to $200 per tonne. But it's only 18 to 24 months ago that this same product was selling for as low as $60 to $70 per tonne.

Turning to high-grade chloride feedstocks, I'd emphasise that this chart only shows the producers of that high-grade chloride and excludes sulphate feedstocks and chloride ilmenite. The current global production of high-grade chloride feedstocks in TiO2 unit terms is about 2.5 million tonnes, and the top three players account for just under 70%. I note that China at 9% might surprise a few. They produce about 200,000 tonnes of chloride slag, and roughly 40,000 tonnes of rutile from imported concentrates. The customer base is more consolidated than it is for zircon, with the top five producers accounting for about 90% of the chloride pigment market, which as you know is about 90% of the overall TiO2 feedstock demand.

Turning now to slide 20, which provides a snapshot of the Chinese TiO2 industry. China continues to be a key factor in this industry, and we see that continuing to the future. Recent environmental crackdowns have cast significant supply uncertainty over both the feedstock and pigment components of this industry. Matt will cover this more shortly.

Just some basic facts on the China TiO2 industry you might find useful. It accounts for about 30% of global pigment production, but roughly 40% of pigment capacity. China has been about two-thirds self-sufficient in their sulphate, largely sulphate pigment business as a whole. But importantly, China's indigenous ilmenite is considered too high by the industry in deleterious elements, to produce chloride slag other than perhaps just as a low volume blend. This limits their ability to achieve self-sufficiency in their emerging chloride pigment sector, which is typically their aim, as you know.

That said we know they've already built upgrading capacity, I've already mentioned the chloride slag production out of China, a couple of hundred thousand tonnes, and we expect they'll continue to do so. However, the lack of known merchant chloride ilmenite reserves going forward will make large-scale SR production in China challenging. So we believe that, as well as importing sulphate ilmenite to feed chloride slag, the Chinese chloride pigment producers will also need to import rutile and SR and perhaps UGS to sweeten their pigment blends.

Turning now to our outlook on zircon, certainly from a supply perspective you'll note that we've used TZMIs demand line there, and we'll talk about high-grade chloride in a minute. The widely held industry view is that substitution reduced global demand by between 200,000 and 250,000 tonnes of zircon largely in ceramics post-2011. As a result of that, demand has been fairly muted over the last few years. The large producers, as you're aware, have attempted to match supply with demand by turning down mines, as we have with Jacinth-Ambrosia. The structural deficit we've been talking about for two years is now upon us, and even with flat demand there will likely be a significant deficit from 2019 onwards.

So where is the new zircon supply going to come from? Our view is, in the short-term, the only meaningful source of incremental supply will come from Kalimantan and artisanal production, as it did in 2011 and 2012. Year to date to September, Kalimantan is exporting around 2,000 tonnes per month, which I might add is very similar to what it has done in the last three years, so no evidence of that this year. A reminder that, in 2011, Kalimantan reached an annual run rate of approximately 100,000 tonnes, albeit this was only for a few short months, as production reduced significantly once the zircon price fell. We expect that if prices go high enough this Kalimantan artisanal supply will come on again.

Turning to the next slide, many of the potential new sources of zircon have their issues. But as we saw in the last cycle some of these projects will inevitably get funding if prices continue to rise. Slide 23 provides a selection of potential new projects, compiled from both TZMI and Iluka information. I'd emphasise it's by no means exhaustive. It's not our intention, nor would it be appropriate to either endorse or pour cold water on others projects, and we acknowledge, as I've said, that if prices continue to rise some of these will inevitably get funded.

However, I'd point out that the history of Greenfield projects in the mineral sands industry shows that they general cost more, experience more difficulties, and take longer to ramp up than expected. I'd also reiterate that artisanal supply from Kalimantan is the most likely source of incremental zircon in the short-term. We've had someone on the ground up there recently, and people in that region are certainly well aware of the zircon price trajectory.

Turning to high grade TiO2 feedstocks, in our view this market is broadly in balance. However, I'd point out that in respect of very high-grade chloride feedstocks, and that is rutile and synthetic rutile plus UGS, conditions are considerably tighter. Absent new investment in ilmenite mines to feed latent upgrading capacity a deficit is expected to open up from 2018. I'd point out that TZMIs forecast demand on this chart in 2020 assumes a tipping point in the uptake of chloride pigment in China.

The chart on slide 25 is the same as the previous slide say for the inclusion of the idle upgrading capacity that has existed for the last five years. Whilst we believe there has been sufficient ilmenite available to fill this capacity, it has remained idle. There is some additional capacity not shown on this chart, as we believe it requires investment in the ilmenite mines to feed it.

So to recap, we've got a solid industry structure for both zircon and TiO2. China's position in TiO2 remains a key influence, in particular Beijing's continued focus on the environment and their emerging chloride pigment industry. In zircon there's a structural deficit emerging. There

are potential new projects, but they need to be funded, built and then they have to work. This likely means continued tightness in the very high-grade chloride feedstock market and new ilmenite mines will ultimately be required to feed upgrading capacity.

And with that, I'll hand over to Matt to talk about our markets in more detail.

Matthew Blackwell: Thanks Doug. Good morning all. As Doug said, I will briefly cover the zircon and titanium markets this morning, and touch on our approach to marketing in both these sectors. First, a quick reminder of the uses for zircon, and underlying most applications is zircon's resistance and its stability.

The largest market remains and will remain for the feasible future, the ceramics market. This is a market that is linked strongly to quality of life. Foundry applications and refractory are linked to economic and industrial activity, and there's probably as many views on how that will pan out over the next five years, as there are people in the room. The smaller specialty sector, is the area of zircon applications that I see having the highest potential for above GDP growth, as zircon becomes an enabler to the adoption of a number of new technologies. I'll talk a little bit more about that later.

Now on the supply and demand fundamentals. Last year we saw a restocking event occurring in the second half. However, the extent of that restocking was limited by the availability of product. The constraint on product availability has continued through into 2017. It's fair to say, many zircon consumers didn't see it coming. Their markets were stable to growing moderately, and what has occurred is not expansion in downstream but rather a supply side crunch.

Curiously, some customers think that we've fabricated all of this for our benefit. But those of you have probably known we've been banging on about this for some time, that there was this looming deficit, as Doug talked about. Possibly they just had their heads stuck in the sand, stockpiles of sand.

Now as a result, through 2017 what we've seen is positive pricing momentum. Coincident with this, the gap between premium and standard has closed, and the incentives offered for sales of zircon have reduced considerably. At current pricing we don't see substitution or thrifting. Now we also believe that there is runway in front of us before there will be material substitution of zircon in key markets, or a meaningful supply side response to the current deficit. As Doug hinted or alluded to, probably the first supply side response would be Kalimantan. Doug also pointed out we don't see any new mine white knights coming into the market in the short-term.

Exploring zircon substitution a little bit further, zircon has a combination of unique properties, properties that in isolation are found in other materials. But what must be considered, and the challenge to understand is, what are the conditions, the price, the manufacturing methods et cetera that would induce a zircon consumer to substitute zircon with something else.

Now no apologies for the detail on this slide, it's a deliberate attempt to try and respond to the request from the investment community for more information about zircon substitutes. Now when you peruse this at your leisure, you'll see that we estimate about 60% of applications of zircon face high substitution adoption hurdles. By high, I mean in some cases technically impossible. In other cases, adopters would have to have very deep and specialised knowledge to be able to trial, before even implementing any change. It would likely be that any change would come with high switching costs.

Now, I'm not naïve enough to think that through the passage of time there won't be advances in other materials. But in the medium-term we see low risk across a wide range in the market. At the end of the day, zircon is a low-cost input to the manufacturer of tiles. That's not to say it's

not important to the purchasing manager who buys it, it's very much on their radar. But in the broad scheme of things, a modest increase in the price of zircon is not going to influence whether someone tiles their floors, installs a new bathroom or a washbasin.

What we have seen more recently with the adoption of, say large format tiles, for example a 1.5 metre by 3 metre tile, the cost of breakage and failure of those tiles is becoming more important to manufacturers. That's just evident in the simple maths. One 1.5 by 3 metre tile is equal to 50, 30 centimetre by 30 centimetre tiles, so you cannot afford to have one of those things break. Zircon increases the pre and post-fired strength of tiles, so it's important to these manufacturers.

Now for some time, the zircon intensity of use has been declining. I think this is no secret. This is not something that just happened, or started in 2012. What did happen in 2012 was that there was a period of rapid expansion of tile manufacturing across the globe, but mainly in China. There was an equally rapid adoption of new tile manufacturing technologies and techniques. So in China, where you maybe had full-bodied tile manufacturing, they adopted things like double charging, along with other advances as well.

At the same time, what we saw, but totally unrelated to the pricing momentum, was the emergence of a new technology, digital printing. Digital printing has revolutionised tile manufacturing. Fortunately for the suppliers of zircon, it has also stabilised the decline in the intensity of use of zircon in tiles. Digital printing puts a floor under the consumption of zircon in certain tile types manufacturing.

There will always be tiles that have less zircon than a digitally printed tile, and there will be tiles that have more. But for a printed porcelain tile, based on our research, the average loading is approximately 50 grams per square metre, and that is higher than the average intensity of zircon use in tiles globally today. So we see that as a good thing. Another advantage of digital printing is that it promotes the adoption of higher quality tiles and makes more interesting designs available to more people in more locations.

The shift to large format tiles opens up new applications and new markets. What we have seen is, with these large format tiles being adopted, you can now make counter tops, you can make wall coverings, you can make furniture, you can clad your buildings in them. The manufacturers of these tiles will aggressively market them as being more flexible, more sanitary, better for the environment, and actually more cost effective than the current competing products such as large slabs of stone or wood.

We are particularly encouraged by these trends, and the two trends in particular being digital printing and the shift to modern larger style tiles. Just to be clear, tiles are very much linked to the standards of living in a number of countries. At their most basic they're a hygiene factor. In their most elaborate applications they are a luxury status symbol.

With an estimated market size of $94 billion, a similar order of magnitude to paintings and the coatings industry, which is about $121 billion globally, the manufacture of tiles is big business. That does not include other sectors of ceramics such as sanitary-ware. So this industry is as much about function as it is about fashion, and zircon enables both of those qualities in ceramics.

So now I'll turn to the TiO2 markets, and I think the uses for titanium are better understood than zircon. Titanium is very much about pigment. Now to wheel out an old favourite, which I know for some of you is perhaps a little tiring, but the link between titanium consumption and GDP growth, and GDP per capita. Why do we keep showing this other than we like it? Well, it's because we believe it's true and it shows the potential for this industry.

You can do the statistical analysis yourself, but when we undertake our regression analysis and modelling on the data of the emerging economies, and I'll pick one, China, it suggests that based on GDP growth alone there will be a 40% increase in pigment demand in China within 15 years, based purely on the country moving up the GDP per capita curve. That does not include any additional demand created by population growth.

The drivers for intensity of pigment uses vary. For example, I'm told that, in China, the average spend by newlyweds on their apartment has doubled in the last five years to RMB150,000 or around US$22,500. Doesn't sound like a lot of money, but there are more than 10 million people getting married in China every year. That's US$225 billion of spend on postnuptial renos. That's a lot of money. We see there are substantial and structural supports for the continued pigment demand growth.

Now as we progress through the different titanium sectors within the titanium market, starting at the left on the chloride and, sulphate markets, we then go to the chloride market where obviously we have a stronger position. Doug talked about the high grade, and then if we break that down into the very high-grade market this is where Iluka has most of its product offerings, and this is deliberate.

Iluka's key product offerings of synthetic rutile and rutile have a higher titanium grade than most of our competitor's offerings. Higher titanium grades bring a number of key advantages to our customers. First, when you buy a higher grade TiO2 product you are shipping less waste, so that costs our customers less to ship and it lowers the carbon footprint in the logistics supply chain. Secondly, the higher the TiO2 content you feed into the front of your chlorinator the less chlorine you use. That is a cost advantage to our customers, and in some cases a logistics advantage as well. And then thirdly, they produce less waste, which is a financial and social cost that is becoming more and more important to our customers each year.

Speaking of waste and environmental controls, it's well-known to all that China has implemented and is continuing to act on tighter emissions controls for the industry. I don't know of any sector that's not getting touched by this in China except probably the Island building business.

Now there have been some direct impacts, as we have witnessed, with the shutdowns of mines, and there are indirect impacts. Recently I saw a sulphate ilmenite plant that was shutdown not because it was a polluter, it had its act in order, but the steam generation plant that sat next to it that created the steam to heat up the reactor vessels, did not have its act in order and it was shut down and it has this flow on effect to the sulphate plant. So there are in direct implications for the industry as well. My personal experience is this is very real, and the government is very committed to tighter environmental controls.

Tom, I hope Tom doesn't mind me saying this, but Tom and I were recently at a plant in China and we rocked up there, we get out of the car and there's red carpet, and we thought oh this is all very nice, pots of tea sitting on the side. We said to our host, oh that's very gracious, and mumble, mumble, people looking at the ground all feeling very embarrassed, and he said we are sorry this is not actually for you - the EPA guy is coming later in the day, so you need to be out of here by one. They place a lot of importance on the environmental inspections. So a logical consequence of this is that there will be winners and there will be losers, and believe me in China those winners will be picked very carefully.

Turning to our position in China, our analysis and the analysis I think generally accepted is that, pigment demand will grow in China, it will outpace GDP. If you do the maths it must, if you have a higher intensity use per capita well then it's going to grow faster than GDP. Yet against this increasing backdrop of increasing demand there are plant closures. Now they're predominantly

sulphate, which as you would expect, because of the age of that industry and the nascent nature of the chloride pigment industry.

We estimate there's approximately 200,000 tonnes of installed chloride capacity in China today, with a further 400,000 tonnes being constructed. Now that installed capacity is at varying stages of ramp up. Importantly though, we don't think that China has the domestic resources or the technical capacity to fully service that growth in chloride technology. So we've been very deliberate in our approach in positioning ourselves and trying to identify the likely winners.

Only time will tell whether we have got that right, but I can say I'm very pleased with the relationships we have developed in China and the progress we've made with, on a technical front, putting our products in plants. We've trialled rutile and synthetic rutile at six of the larger and emerging chloride processing plants, and we have ongoing commercial relationships now in a number of those facilities.

Coming back to the broader high-grade chloride market, we have experienced increased demand year-on-year. Our products continue to see pricing traction and that pricing traction is yet to keep up with the pigment industry. That's not unusual, given the six to 12-month lag that we normally see.

So, I've been reminded by a couple of people on the way in this morning of Kronos' reports last night and others and how they've described their margin expansion. Interesting timing they should tell us how much money they're making ahead of our negotiations next week at TZMI.

There is a growing consensus that pigment has about 18 to 24 months left in this run, as opposed to some earlier predictions that was talking about it coming off in Q1 2018.

The technology trend is certainly towards building increased chloride capacity. Given our product suite, we feel we are well positioned to support this growth. Now I might add we still have a view that there will be a shortage of sulphate ilmenite in the future. Hence our interest and continued investment in Sri Lanka, it's something that Simon will talk about. But we see that as a supply side issue rather than a growth in capacity for sulphate production.

Now last time we were here in Sydney I talked to our marketing model, and I thought it useful to just touch on - quickly touch on our approach. I believe we differentiate ourselves in four key ways. One, our hub and spoke distribution model gives us economies of scale when we ship products. It has the advantage also of providing just in time service delivery to our customers, a service which they value and they're prepared to pay for.

We engage directly with customers, which, I believe in combination with our analytical capabilities, gives us a unique view of the market. A flow on from that is, we see value creation opportunities before others do in the industry. We can act first.

We price our products on a value in use basis or relative economic value. Now there are others who are less energetic who don't try and understand all of the customer's constraints and the opportunities. By pricing purely on an FBO basis where they see the market might be, they leave money on the table. They fail to capitalise on the additional margin accretion opportunities that are available to you if you look at a product and a plant in isolation.

Now fourthly, in terms of our structured pricing approach, customers want to know that there's a logic to what you're charging them. If there's, a, logic then they're more likely to accept the price that you put on the table, even if it's higher than what others might charge. Understanding the psychology of pricing is important to us, and I believe it delivers value for our shareholders. So we don't do these things just to be different, we do them because it allows us to capture

additional market and margin and capitalise on opportunities that ultimately deliver better returns for our shareholders.

Now in terms of our footprint, I can assure you we continually assess the cost effectiveness and the efficiency of our marketing and logistics network. I certainly want to be assured that our presence is logical and makes commercial sense. I am very comfortable that today our footprint is well aligned with current market requirements, and is balanced with having an eye on the geographies where the growth will be in the future.

So, going to long-term trends, look I would say that I remain very encouraged by the opportunities that we see for our sector. It's really interesting, as I reflect on the 13 years I've been with Iluka in this industry, it's evolved and it's changed and it's changed for the better. The structure of the industry has changed, and we now have commercial applications that, when I started, were just thoughts in research papers.

The unique physical and chemical attributes of zircon and titanium give them both great opportunities to be more significant minerals in the world of tomorrow than they are of today. I remain very encouraged and very enthusiastic about the opportunities that lay ahead of our organisation in the future.

So, with that, I think it's probably a good time to open up for questions.

On the panel: Robert Gibney who works in TiO2 based in Raleigh, Christian Barbier, who heads up zircon sales based in Singapore, and both have teams in different places around the world. So please fire away.

Paul Young (Deutsche Bank, Analyst): Hi guys, Paul Young from Deutsche Bank. Pretty compelling outlook for zircon supply/demand Matt that's on slide 21 where you show potentially a 400,000 tonne deficit by 2020. Just a couple of things, just curious about the impact of tailings concentrate in the market, you guys sell part of your sales as concentrate. My understanding is that a big part of that's actually from MSP tailings from Tronox, Rio and Iluka and that's running out. So I'm just wondering if that supply reduction takes into account basically the drawing up of these MSP tailings.

The other thing to add on zircon is on TZMIs project list, not obviously that's their list, but there's actually three projects that I'm aware of that are now producing that actually aren't on that list. One's in Mauritania, one's in Sri Lanka and one's in Mozambique from Great China Wall, which collectively adding 40,000 or 50,000 tonnes of zircon and that's from industry channel checks.

So I'm just curious about - you mentioned Kalimantan, but is there a risk that these other projects are being induced by the Chinese and have been over the last two years, and more on the lines of shipping concentrate to China, rather than the finished product that might also maybe offset that decline in tailings. Obviously complex question, but it's a complex market, so I'm just curious on those two points. Thanks.

Matthew Blackwell: Yes, the answer's actually pretty simple. 33% of the concentrate goes into China is ours, 22% of the other concentrate that goes into China comes from Africa. The bulk of concentrate does not come from RBM or Tronox.

The 40,000 tonnes that, you talk about from Great Wall is actually contained in concentrate, so I think you're doubling up on those production numbers. They don't produce pure zircon that I'm aware of, in Mozambique and then mining around the edges of other people's mining leases.

Sri Lanka and Mauritania, so there's two other mines that are very small. It's like containers from what I understand. I'm not sure it's anything that we're worried about.

Paul Young (Deutsche Bank, Analyst): Okay. Then just on TiO2 and chloride feedstock, you're - I guess you're pretty bullish in the market, mostly driven by high utilisation rates, ex-China and also growth in China. Just curious about if Richards Bay decided - if Rio decided to pull the trigger on Zulti South next year, and then Tronox and Cristal decided to put their hammer down and lift their production out of their furnaces. Would that fill the gap on the deficit you're projecting?

Matthew Blackwell: Well I'll start; look certainly if Zulti South goes ahead that'll bring on the fourth furnace in South Africa in 12 to 18 months whatever the construction is after they push the button. Your guess is as good as ours. You probably have a better insight as to whether they're planning to do that or not, but there's certainly nothing that we see in their public materials to suggest that it's on the agenda.

So Tronox are running four furnaces, so it's really just - are you're talking about Jazan that might provide additional tonnes. It's our understanding that that still remains an option to the deal, still outside the deal and they're waiting to see if they can get comfortable about it operating before they decide whether it's going to be part of the deal. That is they being Tronox, of course.

I'll say one more thing then I'll hand over to Rob Gibney, but the Tronox Cristal deal and what we've got to remember is it's not bringing on any new ilmenite into the world. So to feed those furnaces, I think with Zulti South it probably would create enough ilmenite for RBM to run. But there's no more going to Tronox and ilmenite available for Jazan from Australia and other places is actually less today than what it was two years ago.

Robert Gibney: The comment I would make is that where we're competing in the very high-grade feedstock realms, so it's SR which is 91%, 91.5% and then natural rutile which is 95%. The customers that we're engaged with they're trying to sweeten their blends using that 86% slag into their chlorinator. So as they're trying to run higher throughputs through their chlorinators they're relegated to using the higher-grade feedstock blend, and therefore they need our SR and natural rutile to help sweeten that blend in their higher grade. So really even if they brought on that additional feedstock from Jazan it's going to displace other slags not necessarily the higher-grade feedstocks that' we're supplying.

Steuart McIntyre: (Blue Ocean Equities, Analyst) Hi, guys. Stu McIntyre, Blue Ocean Equities. Listen, I've had a good look through that supply/demand balance and it looks broadly similar to the TZMI forecast of around a 30% drop in supply over the next couple of years, so obviously a pretty bullish outlook. In the TZMI numbers they've actually got South Africa's zircon production staying at about the same.

So my working assumption is that they've assumed Rio will actually invest $0.5 billion or whatever is required to get Zulti South up and running. They are assuming that goes ahead, so there's sort of a 30% drop in supply even with that going ahead. Is that consistent with what you guys are thinking?

Doug Warden: I would suggest that if Zulti South goes ahead that would be incremental in the short-term to RBMs zircon production. So they talk, I think, about 80,000 to 90,000 tonnes coming out of Zulti South in terms of zircon roughly 180,000 currently. Our view is that without Zulti South that 180,000 will come under pressure, certainly through grade decline and perhaps has already started to do so, it's a little hard to get line of sight as you'd appreciate. But if Zulti South was to come on straight away in the next couple of years, I would have thought it would

have been additive to that 180,000 number. Where it sits it depends on the grade decline of the Zulti North Deposit and that's really hard to get a handle on. The extent of which it's incremental is what I mean.

Steuart McIntyre: (Blue Ocean Equities, Analyst) Sure, the other - you sort of allude to there that's it a bit of an opaque market, and so obviously days like this are pretty helpful for us to get insight into how things fit together. Obviously, we've been tracking how the South African mining environment's not getting any easier. That BEE percentage is increasing from 26% to 30%, and they've also introduced a 1% revenue royalty on top of other things, which, I think the South African Chamber of Mines said that, if that had been in place last year it would have consumed 95% of the South African mining industry's dividends.

So with that, all of that in mind, I think the probability that Rio is all that excited about investing another $0.5 billion into South Africa from a return on capital perspective is pretty low. It's not a question for you guys really I guess it's more of a context thing, but we've also heard anecdotally that Richards Bay is actually for sale, and we haven't been able to get anyone to confirm that. Have you guys heard anything on that front? I'm not sure whether you'd be able to confirm that but.

Tom O'Leary: No, we can't confirm that and wouldn't really want to comment on other people's divestment plans.

Steuart McIntyre: (Blue Ocean Equities, Analyst) Sure, thanks.

Stephen Gliddon (Northcape Capital): Morning. Hi. Doug, you mentioned before you - about Kalimantan and artisanal swing supplies and you had some people there potentially talking to these guys. What are they running at? I think the capacity is around 100,000 tonnes. Where are they right now? Are the prices that we are seeing now for zircon inducing them to start to really swing that production higher?

Doug Warden: I might get our Head of Zircon Sales to comment.

Christian Barbier: Yes, good morning. We understand the installed capacity in Kalimantan is probably closer to 160,000 tonnes. The production, as Doug said earlier, is much lower at the moment, so we believe that the inducement price to trigger more production is higher than the current price of zircon. However, we do expect that Indonesian production will increase over the next few months, and next few years.

But, as you know, its artisanal production, so there's a lot of very small mining units, which feeds into mineral separation plants that have been built over the years. The last time the market had a peak concentrate was exported from Indonesia. Today concentrate exports are prohibited from Indonesia so the concentrate needs to be upgraded into zircon. MSPs are in place, but there's a lot of also relatively small size MSPs. So the speed at which this production will ramp up and the extent is still arguable, you have a lot of different opinions, but we do expect that this will increase.

Tom O'Leary: Stephen, can I just make one add to Christian's comment. It creates an interesting dynamic in the environment, because you've got these artisanal miners that have got no cost of debt, certainly not concerned about cost of equity. So they go and ramp up when the price ramps up and when the price drops they stop. So in a sense they're actually not a bad competitor to have in the market, because they're certainly not going to build a project and then run it at a loss to pay their banks back.

So if I was investing in a project today, I would be looking really carefully at what they're going to do, because they will ramp, fill the gap, and then if prices do then moderate or cool again walk away, go back to the palm oil plantations. So it's quite an interesting dynamic that could potentially play out.

Stephen Gliddon: Okay, thanks. Perhaps then more broadly, given the level of influence Iluka has on mineral sands market, particularly zircon given you hold a lot of these inventories, how do you think about managing the market, to not only get the best price for Iluka's product but also managing inducement of new products. So in other words how do you think about inducement pricing, long-term pricing in this market?

Christian Barbier: So the first thing is we've predicted, or we've said quite a number of times that the zircon price was too low to be sustainable. We were the first ones to implement a price increase towards the middle of last year, against the market I would say. We've seen the price trending up, which is beneficial for everybody in the industry.

We've received quite a lot of support from our customers actually, because the quantum and the rhythm of price increases that we've implemented has allowed them to recharge the price increases downstream to their own customers. So price increases that are high enough to be noticed by the downstream industry and at the same time not too high so that the whole industry didn't see the demons of 2011 coming back again.

Now the way we price our zircon is as Matt said in his presentation, based a lot on the value that we generate for our customers. So we work on the value in use of our products and we also focus on long-term pricing. The last of our price increase, you may know, we have implemented over a period of six months in order again to provide stability to the market and give them time to digest the increase.

Tom O'Leary: It's probably worth adding Stephen that we don't have limitless inventories, so while we are trying to put in place dynamics for a steady price trajectory we are not arrogant enough to think that we can control price.

Mathew Hocking: (JPMorgan, Analyst) Hi guys, Mat Hocking from JPMorgan. I want to ask a question on demand and also around the work you've done around substitution in particular. So if you think about the numbers you've given us today, in the previous cycle roughly 200,000 to 250,000 tonnes of demand was substituted out. Now I think that desire from the customers to replace zircon in their products would have kicked in well below peak pricing. Can you give us an indication of where that substitution kicks in? I think obviously that ties in with your discussions with VIU with your customers, it's a two-way conversation really.

Matthew Blackwell: Good question, a couple of things that I'd say is that - substitution is not a binary thing, it's gradual and more analogue and it will occur gradually over time. The substitution that occurred in 2012, a lot of the substitution that occurred and I think we said in the slide, is that technical limits were reached. So that was when you would expect the bulk of the substitution to occur.

We know a lot more about it now. You get stung, you go and learn where the bees nest is right. So we understand better now about the other inputs to our customers manufacturing, such as the amount that you can substitute say a calcined alumina in, which is one of the biggest substitutes, depends very much on the jurisdiction where the clay comes from. So clays in China are less able to substitute zircon because of the type of clay relative to European clays. So it varies across different markets, and that would be one example of substitution.

Now, the substitution triggers are also based on what those products cost. The price of alumina is up calcined alumina is up 10% this year. So as zircon has moved so has the price of alumina. You need at least 1.6 times the amount of alumina to zircon to get the same opacifying qualities so that essentially means that if zircon went up 16% and alumina went up 10% you're still at the same spot if my maths is right. You guys are probably better at it than me, but that's roughly how it works.

So, as I've said we've got runway in front of us before there's material substitution in zircon. We would not expect to see the same level of substitution we saw last time, because of the technical limitations that have already occurred.

The changes in tile manufacturing, and as I pointed out, although there's been scepticism around the digital printing comments that we've made, but it is good for zircon. A ceramic porcelain tile with 50 grams of zircon per square metre, which is above the average consumption for tiles across the globe, suggest that as zircon becomes more important the ability to substitute zircon out is less. Does that answer your question Matt?

Mathew Hocking: (JPMorgan, Analyst) Yes, somewhat. Can I ask maybe a follow up then? With that 200,000 to 250,000 tonnes the split of the three key markets that you've given us, could you break down that 200,000 to 250,000 across the three key demand markets?

Matthew Blackwell: Yes, sure. Well, Christian should probably answer it, but not in ZOC obviously or the chemicals market because if you don't have zircon it's not zirconium oxychloride. In refractories and foundry we did see substitution in that market with things like kyanite and synthetic mullite. I'll let Christian elaborate. But the bulk of it was in ceramics and in tiles.

Christian Barbier: Yes, in the refractory, foundry and ceramics that's easily where most of the most substitution occurred back in 2011/2012. But again as Matt said, most of the easy substitution has occurred already and we now have a fairly sustainable usage of zircon. What we see also, and I'm sure you see that across all industries, is that people are focusing more on quality products rather than quantity production. That means often using higher grade products in order to use less quantity of it, and zircon is one of these higher-grade products, if you can use less and in digital printing you have that example.

Digital printing allows you to use a thinner layer of glaze on your ceramic tile, but at the same time requires high quality products. This is why we say that the consumption has been stabilised. So we see high quality products being used and in order to do this people need to use high quality ingredients. This is fairly positive for the zircon consumption. So it doesn’t mean that more substitution will not occur, but with the current pricing we see further room for increase before our customers contemplate major plans to substitute zircon.

Matthew Hodge: (Morningstar, Analyst) Thank you. Matthew Hodge from Morningstar. Just on that point about digital printing, given that it's a relatively new technology you've been analysing tiles for a while now. Are you seeing a trend in the loading, in the digitally printed tiles or is it too soon to tell?

Christian Barbier: Well what we see is that digital printing has allowed a lot of new product developments in the tile industry. Matt spoke about these large sized tiles 1.5 by 3.5 metres. Actually in the industry they call them slabs now because they're so big. In order to do this you need high quality ingredients because, again, as Matt indicated the cost of breakage is very expensive.

This, and digital printing, has allowed new designs, so you have tiles now that look like marble, that look like wood, that look like cement and again they become fashion accessories, which opens up new segments in the markets. The Italian and Spanish ceramic tile industry over the last couple of years, over the last probably five years has invested a lot in R&D, and we can see the results today. The financial results of, the ceramic industry in those two countries has improved tremendously this year.

So in order to produce these high-end products people use more zircon. So in theory you could use less in digital printing, as I mentioned, because you have a single layer of glaze, but in practice they use this to develop these higher end products, and the higher end products justify using more zircon because the margins are so much higher. I don't know if this answers your question.

Matthew Hodge: (Morningstar, Analyst) I was trying to get at if there is a trend given that it's new technology, are you seeing a trend from initially when they started the digital printing.

Matthew Blackwell: Matt, what we're seeing is adoption of digital printing first of all. So in Spain and Italy the European ceramics markets is probably 90% digital printed now, something in that order. China less than 30% and then in India less and in Brazil big tile manufacturing base but minimal, and also very low intensive use in Brazil.

We didn't do a tile test this past year. They're pretty expensive because we sample - we have to go and buy thousands of tiles literally from around the world and grind them all and do a chemical analysis on them. Anecdotally, what I have seen at the recent tile and ceramics festival in Italy three weeks ago is not only absolute-penetration in digital printing, but a trend back towards what they call full-bodied tiles, where the colour's actually all the way through. To do that, you need a opacifier in there, and the best opacifier for that is zircon. The anecdotal evidence we have or the reports from the Colorobbias of the world, the people that make the frits and glazes, they've seen a trend towards these more vibrant, full-bodied tiles than was evident two, three years ago.

Matthew Hodge: Thanks.

Tim Hillier (Allan Gray): Sorry, just one question on your chart on slide 33. What happened in 2009 and 2010 and 2011, a little dip and then the increase in intensity after that.

Matthew Blackwell: GFC. So you had - well, you're talking about the tile consumption or the tile production or intensity?

Tim Hillier (Allan Gray): Zircon intensity.

Matthew Blackwell: Yes. So you had GFC and then you had the bulk stimulus in China.

Tim Hillier (Allan Gray): Sorry, how did that impact on intensity itself?

Matthew Blackwell: Well, in 2008 and 2009 you had the meltdown and the tile manufacturing industry slowed down. Export of good-quality tiles slowed and so you may have still had tile manufacturing in places like Brazil and India, but very low intensity, and in China.

Remembering, Tim, that we - first half of 2009, we sold 20,000 tonnes of zircon and 200,000 in the second half. So obviously demand dropped significantly and intensity within that dropped as well.

Tom O'Leary: Okay. I think we'll break now. Thanks very much.

Adele Stratton: Okay, thank you. The second session is focused on operations and the projects, so let me welcome Hamish Little, who's the Operations Manager for Jacinth-Ambrosia. Hamish.

Hamish Little: Thank you, Adele. Good morning. I'm Hamish Little and I'm the Operations Manager for Jacinth-Ambrosia. I've been with Iluka for about eight years in a variety of roles, but have been based in South Australia for the past 12 months. Jacinth was discovered by Iluka in 2004 and is a globally unique mineral sands deposit with a zircon assemblage of around 50%. On average, annually, we've mined approximately 200,000 tonnes of zircon and 30,000 tonnes of HyTi 90, being a lower quality rutile product since mining commenced in 2009. We have also produced around 110,000 tonnes of ilmenite per annum.

The Jacinth deposit has provided excellent production flexibility for Iluka. When the market tightened in 2011, we focused on maximising production through mining the higher-grade zones. Then as the market conditions softened in 2012, we moved to the lower-grade zones before mining and concentrating activities suspended in early 2016. We are now in restart mode with mining, and concentrating expected to recommence next month. The mine is a fly-in-fly-out operation and has accommodation for about 160 people on site. The heavy mineral concentrate is transported 270 kilometres by road to Port Thevenard, where it is then shipped to Geraldton for further processing at the Narngulu mineral separation plant.

So the restart. Restart activities are going really well. We've employed around 100 people, both contractors and employees, and I'm pleased to say that we've been able to recruit well to add to the talented staff that we kept on board during the suspension period. We've started moving overburden to get to the first ore block, as well as building tailings walls and completing the scheduled maintenance of our major fixed plant. We're currently on schedule and on budget.

This slide gives an overview of the cost structure at JA. We show 2015 costs, as this was the last year of full mining and concentrating activities. As you would expect, transport makes up a large part of the cost base for JA. Approximately 60% of our cost base is fixed.

The following slide sets out the historical performance for JA. On the left chart, at the top, you can see the declining grade over the past six years. It's normal mine-planning practice to target the highest-grade sections first. As you would expect, JA is no exception. We mined HM grade as high as 10% in 2011, when the market was tight. As I mentioned earlier, we then moved to the lower-grade areas in 2012 when the market slowed. The top two charts show a good demonstration of the interrelationship between ore mined, HM grade and HMC produced. As we move to the lower-grade zones in 2012, you can see we mined the same volume of ore, but there is a significant drop in HMC produced.

Further decline in grade is something that faces Jacinth-Ambrosia and is best demonstrated on the next slide. This map highlights some of the operational decisions we have ahead of us. The yellow and orange sections highlight zones where the HM grade exceeds 5%. As you can see, the majority of the remaining mine is sub-5% HM grade. This should not be a surprise given the ore reserve shows an average HM grade of 4.2% remaining at Jacinth and 3.4% average HM grade at Ambrosia. One way to manage grade decline is to increase throughputs, and we are currently assessing an upgrade to the concentrator and the introduction of a new mining unit. I'll talk a little bit more about this later.

A key point to note is that we still have production options ahead of us. Our current mine plan involves mining sequentially from Jacinth south to Jacinth north and then across to Ambrosia. This will result in zircon production in the range of 160,000 tonnes to 275,000 tonnes across the next three years. We are also considering mine-sequencing options. Now, people often interpret that as high grading, which can infer sterilisation of lower-grade zones in the deposit. This is not what we're talking about. We have options available to us, including having a mining

unit in Jacinth and a second unit in Ambrosia or, alternatively, we may focus on the higher zones of grade first and then go back to the lower zones later. We've not yet finalised this work and this is a decision that we'll likely make over the next year.

The upgrade, as mentioned, we will likely seek Board approval in the first half of next year to approve the expansion of JA plant throughput by 30%. This will involve the upgrade of the concentrator to increase rougher head feed by 300 tonnes per hour and also the addition of a second mining unit to handle the additional ore. We expect to project cost of around $40 million, and that estimate has an accuracy range of plus or minus 15%. We would expect the project to be completed towards the end of the first half of 2019. Now, the economics of this upgrade are favourable, even if we assume flat pricing, so we're very confident that we'll be able to proceed with this project.

This slide outlines the likely impact of grade decline on unit costs over the next three years. As Tom noted earlier, there are many factors that underpin this outlook and it's only indicative. Another impact of reducing HM grade is increasing unit costs. You'll note that cash unit costs were around $550 per tonne in 2015 and we expect this to increase to an average of $625 per tonne across the three years. We have provided a range of unit costs to demonstrate how the unit costs move with a change of production. You'll note unit costs of $740 per tonne, based on the lower end of production guidance of 160 kilotonnes of zircon. It's also important to note that we expect the grade will decline to between 2% to 3% from 2021 onwards, based on the current mine sequence. As you can see, the HM grade we mine has a direct correlation to the unit costs of production. If we decide to proceed with the mine-sequencing options I've mentioned, then this will bring forward volume into the next three years, but will further increase unit costs post 2021.

I'll also draw your attention to our capital estimate of $15 million per annum, on average, over the next three years. This incorporates the concentrator and upgrade of the auxiliary mining unit, we expect that spend to be lumpy across this time horizon.

So for me, the key points I would like you to take away today are (1) restart activities are progressing well. They're on track, they're on budget. They're safe. (2) JA's previously provided Iluka with production flexibility and there are still options available to us in the near term in this regard. (3) The reduction in HM grade will result in increasing unit costs. I think it fair to say that we're not alone in this challenge across the industry.

With that, I'd like to hand over to Rob Hattingh.

Rob Hattingh: Good morning. I'm Rob Hattingh, the CEO of Sierra Rutile. So as you know, we took over the asset in December 2016. Operations there consist of a bucket ladder dredge and two dry mining operations. This mine has been operational since 1967. It's basically self-sufficient in terms of utilities, power and water and most of the main support functions you would expect from this type of enterprise. This ranges from medical facilities and accommodation, all the way through to workshops. We are planning some significant expansions, and I'll walk you through some of the detail around those projects today. With the expansions, we have a life of at least another 20 years.

From a people perspective, this mine is one of the most important employers in the country. It certainly is the biggest employer in the region and I would go as far as to say that SRL, or Rutile, as it's commonly known, is a source of national pride. We have a workforce of more than 1800 employees and a further 600 to 800 contractors, most of whom who are from the communities in and around the mine. This, plus the fact that there are a number of villages on the mining lease, means that our relationship with the local community has to be very good. I've

personally spent a considerable amount of time interacting with the Paramount Chiefs and other traditional structures around us.

Over the past few years, international donors, such as the World Bank, IMF, IFC, have assisted the government of Sierra Leone in setting up three really important structures, the National Minerals Agency, the Environment Protection Agency and the National Revenue Agency. These three bodies are run professionally and are reasonably independent of their respective ministries and are the most important regulators from our perspective. So over the past year, I have found them to be very supportive of the Company and the investment that Iluka has made. They also administer the Sierra Rutile Agreement Act, of which the National Agency is the most important regulator.

So from a corporate social responsibility perspective, our thinking on sustainable investment is starting to crystalize around education, specifically the vocational trades. The universal professional people from a mining background in Sierra Leone is very, very small. I live on site with my family and I'm really happy with the progress we've made in this first really important year.

On slide 59, I'm going to lead with the operational improvements. I appreciate there's often scepticism about exporting knowledge, but mineral sands is a very secretive business, which means that Sierra Rutile has been reasonably starved of some of the modern thinking around processing and mining in mineral sands. It has also been a single operation, and dry mining has only been a very recent addition to that operation. So we've had to learn, in Iluka, over the last few years, to be very nimble and resourceful due to the number of smaller deposits we've had to mine. Some of those have been fairly difficult ore bodies, so bringing that experience has inevitably resulted in a significant number of operational improvements over the last 12 months.

Our initial approach was very simple. We maintain production. We do so in a safe manner and start entrenching Iluka processes from a technical and operational perspective as an overlay on top of that. So considerable effort has been expended in aligning safety practice with our requirements over the past year. We've had injuries, but I believe we've made significant headway on this particular front. I also believe government has been very appreciative of our efforts in this regard, specifically because we are applying international standards and our standards are consistent across all our operations.

Perhaps the biggest change we've made this year, however, is the introduction of Iluka planning processes. This cuts across all areas, from maintenance to mine planning, to tailing schedules, to rehabilitation. So despite having a fairly small team of eight to 12 Iluka people on site, early benefits are being realised and include prolonging the dredge life, as we'll see later, as well as improved dam-wall construction and improved rehabilitation practice. We have also identified a number of orphan stockpiles that can and have been processed to generate cash and improve our margins further.

Over the past 12 months, our exploration and mine-planning focus has been on brownfield extensions to the current life of mine, which has, for example, already resulted in a six-month extension to the Lanti Dry orebody. In the background, however, we have commenced work on alternative methods to generate new samples or new targets in-country. For example, we're busy with a development of a three-dimensional geomorphological study at present. That'll help us, as I said, identify those targets.

The next chart shows, basically, our performance in one particular aspect over the year. This, as I've said, is the true benefit of importing our Iluka experience into Sierra Rutile. You will note, for example, we quote our throughput in terms of ore. So one of the first things we've addressed was to start running these plants to their true constraints, which often would be rougher head

feed or spiral feed rather than ore feed. Our metallurgists are focused on debottlenecking the plants further, which has increased spiral feed in the concentrators, which, in turn, allow higher production of heavy mineral concentrate. So you'll note we're starting to quote throughput numbers that are up to 20% higher than previously mentioned, from 500 to 600 tonnes per hour, which, in turn, is starting to provide flexibility around our capital expansion programs.

The second key area was addressing heavy mineral concentrate per HMC grade, which is produced by these wet concentrators. A common misconception amongst non-metallurgists is that increasing concentrate grade results in decreasing recovery. This is not true if you run the plants to their true efficiency. So we've increased the HMC grade from around 60% - that's means 60% heavy mineral in sand, in the concentrate - to more than 85%, depending on the different plants. So that not only results in less material to be transported to the mineral separation plant, but it also serves to start debottlenecking the mineral separation plant itself. That, in turn, has allowed us to start feeding these old stockpiles through the plants, so all in all, benefits from making one simple adjustment. What is particularly pleasing is that our recovery of these concentrators has increased from percentages in the 80s to percentages in the 90s. So we've not only achieved the HMC-grade benefit, we've also increased our recovery. I'm really looking forward to the commissioning of the Lanti Dry in-pit mining unit. It will be about four weeks from now. That'll further benefit Lanti in terms of recovery and cost.

So in terms of production cash cost, this just gives an overview. Labour does form a large part of it, combined with consumables and fuel. I'll note the latter is used not just for the earth-moving fleet, but also for power generation.

The next slide shows our deposit locations and key infrastructure. Our current operations are the blue deposits southeast of the river. You see it running through the centre of the map. Sembehun, our proposed development in a few years' time, is about 20 to 30 kilometres northwest of the mineral separation plant, and in particular, the blue deposits in Sembehun. Now we are about a six-hour drive from the capital, Freetown. It's only 250 kilometres, but the road infrastructure is not very well developed.

I would like to point out that the indicated mining rate of 500 tonne to 600 tonne per hour for Lanti Dry, that's what I spoke about earlier from production improvements perspective. I would also add that we are conservative in our early assumptions on rainfall, so that impacted our decision to peg the rate at 500 tonne an hour. We've now experienced our first wet season and 3.2 metres of rain since the beginning of the year, which is a reasonably unusual experience for most Australians. We did de-rate that forecast. We're now happy to bank a fairly solid, consistent average forecast through the year and not compensate for the rainy season. This also explains, in part, why our production this year is higher than originally expected.

Talking about the mine schedule, on slide 63, so this is indicated by concentrator and processing plant. So right on top there we've got the dredge. As we said earlier, the dredge will run through to the end of 2018, so we've had to increase our maintenance spend on the dredge in order to ensure we can achieve the required throughput, but at least this gives us an extension on the life of the dredge we didn't have before. Both Lanti and Gangama Dry Mines are expected to double capacity from mid-2019 onwards, which will more than offset the cessation of the dredge at the end of 2018. Sembehun is currently expected to commence midway through 2020, as you can see from the blue rows. Now, what that means, DM1, the Lanti concentrator, will relocate to Sembehun, as indicated, in 2023. Gangama will relocate to Sembehun, as indicated, end of 2021. DM3 is a new construct, which will be done at Sembehun midway through 2020. That's the whole concept.

Now, given the operational improvements we've achieved to date, we are now starting to be in the fortunate position where we're starting to get production optionality. This includes

considering our product mix between standard and industrial-grade rutile. Also, whether it's dry or, potentially, even a future extension of dredging, but also, possibly deferring capital and extending the Sembehun timing. These options are all at the PFS stage, but we do find ourselves in a better position than originally anticipated where options around production flexibility were extremely limited.

So Lanti input, more near term of the installation of a new in-pit mobile mining unit with an ex-pit scrubber. It will replace the existing truck-and-shovel operation. The mining unit is a mineral sizer fed by excavator and dozer push operation. Imagine, if you like, a giant paper shredder. You put the ore through and it reduces the rock to a coarse gravel. That gets pumped to a scrubber that's very close to the pit, where the oversize is removed and then the slurry is pumped to the concentrator. These components are currently being delivered on site through our own port, Nitti port, and it is due to be commissioned in December, as I said.

The benefit is that it reduces costs by eliminating haulage, stockpiling and reclaiming or doubling handling because the mining unit moves with the face of the mine and it's pumped to the concentrator. While it is also now of lesser importance given our experience of the last rainy season, it also provides additional assurance that we'll be able to operate even under the most adverse weather conditions. As the scrubber unit is being upgraded it'll also help and improve the coverage and utilisation as it is fit-for-purpose. This technology is very well known to Iluka and it has been utilised previously in a number of operations, including currently at Jacinth-Ambrosia.

On the next slide, we talk about the Lanti expansion. That's slide 65. We are also doubling the size of the Lanti Dry facility to 1000 to 1200 tonne per hour. The reason for that range is due to our operational improvements. We expect to be on the upward part of that range for most of the time. The definitive feasibility study is currently underway and our planned commissioning is in 2019. We had an update with the Board yesterday and are expecting to seek Board approval in December this year. We intend duplicating the recently constructed Gangama concentrator with the addition of an in-pit mining unit and an ex-pit scrubber. So effectively, we'll be doubling the current way in which we're mining the Lanti deposit.

On Gangama, this plant was commissioned in May 2016. This project, to expand is a doubling of the current capacity. The infrastructure around the concentrator was designed and put in with increased capacity in mind. So the second concentrator is a reasonably simple construction. It differs from Lanti in that this will also remain a truck-and-shovel operation, as Gangama currently is. This is due to the fact the Sierra Rutile acquired a new EMV fleet in December last year, just before the takeover. The EMV equipment currently in use at Lanti will, however, be transferred to Gangama for use in that facility. Again, we are seeking Board approval for this next month.

Slide 67 deals with Sembehun, which is our future. So as per our resource and reserve statement released in February, Sembehun is integral to our operations and it represents more than 70% of the remaining ore reserves. It's covered under the Sierra Rutile Agreement Act, our legal instrument under which we operate. It has a mining license. Operations will gradually transfer across, and eventually, by about 2023, as I showed earlier, this will most likely be the only active mining area of Sierra Rutile. Interaction with the community started in the 1990s, not long after the deposits were discovered. The Paramount chief in that area is regularly consulted and is one of the five chiefdoms we interact with on an ongoing basis. The environment and physical conditions are very similar to the current mining area, so while the environmental, social and health impact assessment is currently underway, I do not anticipate any significant mitigation required beyond that already in place at present.

We are currently undertaking the pre-feasibility study and, subject to completion, may seek Board approval for early works, including the road construction, later this year or early next year. The intention is to dry mine the deposit using the equipment that would be in place at that time, but the PFS is considering all options, as it should. Subject to the outcomes of the PFS, the intent is to, once again, use the Gangama concentrator as a blueprint for design of the basic processing plant. We will also most likely end up with in-pit mining units due to the economies and efficiencies this technology produces. At present, the dredge disposes of sand and slimes separately and Lanti and Gangama dry mines use a concept called co-disposal for slimes and sands. Both methods lead to some degree of rework during rehabilitation.

At Sembehun, the use of thickeners are looking increasingly promising and this will result in less rework, but also improve the economics due to the cost of pumping, which means, effectively, less water is getting pumped around the place. As I said earlier, we do need to produce around 3000 tonnes from Sembehun to achieve the desired run rate in terms of standard-grade and industrial-grade rutile. My understanding is that Sembehun was found in the 1990s or late '80s, and drilling methods at that stage were quite limited. I personally believe there's some upside to a geological perspective and work is planned to explore this further in the near future, the next two to three years.

On the mineral separation plant, in order to accommodate these various expansions it's really important that we expand the MSP from the current around 175,000 tonne per annum to up to 300,000 tonne per annum rutile production. As it is now, it resembles a typical mineral sands operation from the 1990s. The intent is to produce a safe, efficient and modern plant that will last for at least the next 20 years rather than follow a piecemeal patchwork approach that would never quite get us to the required standard. We intend doing this in a two-step process, with the feed preparation unit being upgraded first. The plant will be simpler and more efficient. The second stage would be to replace the drymill to a small footprint, with a simple yet effective circuit.

All our product is exported from a dedicated port, Nitti port, which is located around 25 kilometres from the mineral separation plant. Finished goods are hauled via road to the port, and that road is a reasonably dedicated road to us. Rutile and ilmenite is then, from there, barged down to the Sherbro Estuary by one of our two barges. The draft is fairly limited, so ships can't get into Nitti port itself. It takes about two hours to the first buoy, buoy eight, where ships can be loaded to a certain capacity, and then another four hours to buoy four, where ships can be loaded to its full capacity. The typical loading rates are about 2800 tonnes per day. We are looking at debottlenecking and improvements on that particular road. We have just purchased the second push boat. This has been a particular risk to us, to only have one push boat. It's due to be delivered in the next month or two. We're also expanding product storage at the port, in line with the mine-expansion project.

In terms of the outlook, slide 70, we have updated the outlook that was provided at the time of acquisition last year. It's important to note that this outlook is indicative and is subject to change for a number of different reasons, including the fact we're only at a PFS stage for the major expansion at Sembehun. As I've already noted, the operational improvements achieved to date are producing increasing product production flexibility and options going forward. A key thing to note is that we have upgraded our 2017 production and we now expect to produce 160,000 to 165,000 tonnes this year, up from the 155,000 we guided at the half year and the 150,000 tonne we noted in January. The further increase is driven from operational improvements we have continued to make, as I said earlier, but also combined with the better-than-expected performance in the wet season. This, in turn, has the impact, obviously, of returning unit costs.

For the longer-term outlook to 2020, the optionality to increase production up to 275,000 tonne per annum from a previously guided number of greater than 240,000 tonne per annum. You can

deduce from the proposed schedule, on slide 63, that we would expect production in 2019 following the completion of both Gangama and Lanti Dry expansions, which will double capacity. A further step-up is expected in 2020 as Sembehun comes online. The capital outlook remains unchanged, at a total of approximately US$300 million across the four years to 2020, bearing in mind the note about the stages that the various studies are at.

The purpose of the next slide is reconciliation from previous guidance we have provided at a time with the acquisition in December 2016. So we've separated the information between pre and post the Sembehun expansion in 2020. It's quite busy and it'll take some time to digest, but I think the key takeaways are that the production ranges have increased, reflecting the operational improvements achieved to date we are comfortable to bank. Total cash costs have increased, driven by a combination of higher variable costs due to higher production, extension of the dredge operations throughout all of 2018, with its higher maintenance spend, higher labour cost and tailing time management and higher marketing costs. The net result is to marginally reduce the unit cash cost of production.

Resource and reserves, slide 72. Just to recap, this is a summary of the information presented in our update of mineral resource and ore reserve statement announced in 21 February this year. As you can see and as I said earlier, Sembehun is really important to the future of Sierra Rutile.

Thank you, and with that I'll hand over to Simon.

Simon Hay: Thanks, Rob. Hi everyone. My name's Simon Hay, Head of Resource Development. Resource development includes our exploration, technology development and major projects teams. Today I'll give you an update on a number of projects from across those three areas. Firstly, to our most advanced project, Cataby, where we'll cover the status of the project, as well as give you an overview of what the operational phase is going to look like. The Cataby deposits, the southern extension of Tronox's Cooljarloo mine. The project has an initial 8.5 year mine life, with the mining of 17 separate pits in the development plan area. These are the pits shown in pink on the map. You can see them up and down the length of the deposit. We have two mining units in operation.

We will have, and we'll mine simultaneously from the southern end and the northern end to begin with, with the concentrated to be located at the northern end. We have the potential to increase the life of mine by up to four years by gaining access to other parts of the Cataby ore reserve. These additional pits are shown in red crosshatch and they contain an additional 40 million tonnes of ore from the total ore reserve for the Cataby project of 120 million tonnes. We intend to commence work on land access and approvals to mine these additional zones during the operational phase.

Cataby's a fairly conventional mineral sands project. We'll employ our usual mining methods. It's a combination of dozer push augmented by truck and shovel in some pits, where required. We'll have continuous backfill of mining by-products into the mining voids after mining. This will occur as well as rehabilitation will be undertaken throughout the mining operation.

The schedule gives you a picture of where we are at with the project right now. We've got an integrated operators team, including key contractor, in place already. In the last quarter, this team completed the detailed engineering for the project. Recently, we've launched some early execute activities, and some work packages that are on the critical path for the schedule have been initiated already with the award of contracts. For the plant, we're reusing lots of equipment from other Iluka assets, particularly the concentrator and mining units from Eneabba. This saves the project tens of millions of dollars compared to a new-build cost. The schedule shows construction complete by the end of next year, with commissioning in Q1 2019 and first

production of SR in Q2 after the SR2 kiln in Capel is relined. The capex breakdown is shown in the table, and a cautionary note here on costs. We are hearing of cost escalation in some areas in WA and we now expect the final bill to be at the upper end of the guided range.

Processing is, again, conventional, with wet concentrating and WHIMS separation at site. This map shows product flows, with non-mags heading north to the Narngulu MSP for final separation into rutile and zircon, whilst ilmenite heads south to the North Capel separation mill at Capel, obviously. There are minor capital upgrades at both those separation plants. With Cataby being located about 200 kilometres north of Perth, it means we can operate on a drive-in-drive-out roster, with a workforce drawn from the local region as well as Perth.

On the Cataby outlook slide, slide 77, we show the key operational parameters split across the two four-year kiln campaigns, with the first campaign from 2019 to 2022 and the second campaign in the next column. Points that I'd draw your attention to are that Cataby's an important supply of premium-grade zircon. Also, as you would expect, we mine the high-grade pits first. You can see the production of zircon, rutile and ilmenite is significantly higher in the first four-year period. Because we only have one kiln running in the southwest, SR production is constrained by kiln capacity, so there's no fluctuation in SR output across the two campaigns. This does mean that ilmenite stockpiles will be created during the first campaign and these will be consumed during the second campaign. You'd normally expect lower unit costs when mining high-grade zones. However, this is not the case when you compare the two campaigns, and that's due to higher overburden movements in some of the early pits. The life-of-mine strip ratio averages 2. However, in the southern high-grade pits, the strip ratio reaches up to 3.7, so the unit cash costs of production are lower in the second half of the mine life.

To conclude with Cataby, the takeaways I'd leave you with are that it's a conventional mineral sands project. We're using existing technologies. It has an 8.5-year mine life, with possible extension, a 17-month construction schedule. Early execute activities are underway and we're execute ready, so all over to Matt and Rob to get those contracts nailed.

As many of you'd know, we've been working on the Balranald project for a number of years. This deposit is high grade with good rutile and zircon assemblage. However, the deposit has its challenges, particularly its depth and it being under-the-water table. So from 2015, we've been working on an internally developed, innovative underground-mining method using horizontal directional drilling to access the ore body more economically than we can do through conventional means. Though still under development, we believe this underground mining technology could have numerous advantages when compared to conventional mining, including smaller footprint, meaning lower environmental impact and lower rehab costs, lower capital intensity and, importantly, scalability. We can add units as we need.

The Balranald test program to date is outlined here. Initially, we completed a small-scale trial at site, which proved the concept was technically feasible. Then we ramped up the trials and, in mid-2016, conducted a site trial, which produced HMC at the required operational rates. However, some of the mining equipment was not robust, we found in this trial. Specifically, we experienced significant wear of the adductor, the key piece of mining equipment at the mining head. Although we could mine at the operational rates needed, we were not able to maintain those production rates for long enough.

So at the conclusion of the trial, we took a pause and we stood back to assess the cause of the adductor failures and the wear. So working with the technology providers, we redesigned the adductor and we conducted lab tests on different materials of fabrication. In the middle of this year we tested the adductors made to the new design and made from more robust materials in a surface trial. We aimed to keep the costs down as we went through this staged development program, so we just tested this new equipment on the surface. However, we did simulate the

mining rate, the flows, pressures and fluid qualities that we would expect to see when mining underground. These tests were very successful, with minimal wear evident. At the conclusion of the trial, we pushed the adductors to the extreme operational zones and the adductors still performed at specification.

So these results have given us sufficient encouragement to progress further with this project. So what's the way forward look like? Well, we're planning a third and probably final site-based trial, scheduled for mid-next year. In this trial, we intend to mine and backfill three adjacent stopes consecutively at full operational rates. This trial is designed to prove the operational readiness of the technology, and the expectation is that this trial will provide enough information for us to move into execute phase. In order to, potentially, fast track the project, we'll work on life-of-mine approvals in parallel to the operational readiness trial. The final test phase is expected to take the majority of next year, and early scheduling shows that production is possible from 2021. However, we are, as I've said previously, working on options to bring that date forward.

With Doug and Matt both talking about the zircon supply deficit, it's worth mentioning Iluka's WIMS deposits, otherwise known as fine mineral deposits, in the Murray Basin. You can see on this slide, slide 81, the location of the three Iluka fine mineral deposits, WIM 50, WIM 100 and Goshan south. These deposits have potentially larges zones of mineralisation. However, there are numerous challenges with developing these deposits, including fine particle size, which renders conventional minerals processing technology ineffective; low-quality zircon, probably meaning the zircon is not suitable for ceramic end uses; and that the rare earth components require monetisation to create acceptable returns for the project.

So at this point in time, we've not chosen to publicly state mineral resources in respect to any of these WIM tenements owing to these development challenges. We won't upgrade them until we consider we have reasonable prospects of economic extraction. That JORC disclaimer being said, over the last two years we've invested $3 million on studies tackling the technical challenges. This work is showing promise, and pending successful completion of the technical development phase this year, we aim to commence the PFS on these deposits next year. It's our belief that all the WIM deposits, not just the ones held by Iluka, the ones also held by other parties, will experience these similar challenges and that technical solutions are required for successful development of the WIM materials.

Now moving onto Sri Lanka, in the region, about 150 kilometres to the north of Colombo, Iluka has tenements across the Puttalam limestone quarry and nearby Coco and Watti regions, as shown in the chart on slide 82. Studies on the PQ tenement are most advanced, and what's particularly attractive about this deposit is really apparent in the photo that you can see in your packs. You can see a thick, competent layer of heavy mineralisation sitting at surface, overlying a limestone layer that's currently being mined. The ore layer in this photograph is about 20 metres thick, but in some parts of the deposit it gets up to 60 metres thick and remains at surface. The PQ resource by itself is 32 million tonnes of heavy mineral. The ilmenite's suitable for both sulphate and chloride pigment routes.

In 2017, we focused our project development efforts on three key fronts. The first front is engaging with the Sri Lankan government to progress towards a development agreement, similar to what we'd call in Australia a state agreement. We've made good progress on this front this year and we have a key government department taking on the unofficial role of project sponsor and assisting with shepherding the project through the various approvals processes in-country. The second front is we're aiming to reach agreement with the owner of the PQ land, which is a government state-owned entity, and the operator of the limestone quarry, a separate entity, for our own mineral sands operations to co-exist with their current businesses. Again, significant progress has made this year, with both parties well aware of the potential synergies

that we would bring to their business. Technical discussions are ongoing with both parties and commercial discussions not far away. The third front we have underway is that we're undertaking a two-year PFS on the environment and operational aspects of the project. This is due to conclude February 2019 and our timeline from there has us moving into a DFS, which we would expect to take about 12 months. So conceivably, we could be ready for an execute decision in early 2020, pending successful outcomes with government, limestone miner and project economics.

I'll just conclude with a couple of greenfield exploration projects that we have underway, firstly in Kazakhstan, where we're targeting zircon. We have three GINs or investigation licenses across a very large area in Northern Kazakhstan that you can see on this map. This area was the location of ancient beaches from the Arctic Sea, which came down well over Russia and down into Kazakhstan. Exploration conducted in the Soviet era indicated heavy mineralisation in these regions, as well as there are surface expressions of heavy mineral. So we're following up on this work. We've been in-country now for a couple of years. We drilled these GINs over the northern summer just past. Field observations of the drill core are encouraging. However, detailed analysis has not yet been conducted on the samples and this work will be conducted in Australia in the next couple of months.

Our partner in Kazakhstan is KazGeology, a state-owned entity. We're in the process of establishing a JV with them and moving from a GIN into an exploration license. We'll relinquish a fair bit of the GIN land at that time. This process we aim to complete early next year, in Q1. From then on, we aim to undertake a more detailed drill program in-country in the next northern summer, pending positive analytical results, of course, from the drill program assessment.

The final project I want to talk about is in Canada, where we have an interesting early stage hard-rock rutile target, where we're farming into with Vior Inc., which is a Canadian junior. During prospecting activities in this region, Vior found evidence of rutile-rich ilmenite boulders on surface. This project's in its second year and we've completed aeromag and gravity surveys this year, as well as an extensive field-mapping campaign. Drilling is currently underway as we attempt to find the source of these hard-rock boulders.

So with that, I'll now hand over back to Doug, who's going to talk about MAC and some of the other topics.

Doug Warden: Thanks, Simon. I won't take too much of your time, just a few comments about Mining Area C. Then the other topics being the balance sheet, very exciting, but we'll get through it. Also, a little around the inventory drawdown in recent times and dividends and some thoughts on hedging. So all the big topics, starting with a very big topic, and that's Mining Area C. Nothing new here. Everyone in the room is well aware of what a fabulous asset Mining Area C royalty has been since 2004. South Flank, as Tom mentioned, is going to happen. We understand BHP have confirmed to some in this room that the royalty covers all of South Flank. So not that there was any particular doubt in our mind, but we understand it's been confirmed by them. It could triple production from Mining Area C royalty once fully ramped up, and we're expecting, well, based on what BHP have said, production to commence from South Flank in about 2020, 2021.

So, look, you can make your own assumptions about iron ore price, but the contribution in recent years of, say, $50 million to $60 million could increase by as much as three times at current prices. In addition, just a reminder that there'll also be an additional $1 million for every 1 million tonne increase in the production rate out of the MAC royalty zone. Look, over the years there's been considerable discussion about whether Iluka would or should sell or spin out the MAC royalty. I think most of you are aware that a sale is likely to result in 30% tax leakage. Similarly, our advice is the demerger of an asset that is not carrying on a business will likely be

classed as a deemed disposal and therefore attract capital gains tax in the same way as a straight sale. As you can see from today, we have a lot to deliver on in our mineral sands business and so we have no current plans to start a royalty business, although we remain open to that concept in the future. In addition, we believe it's in our shareholders' interests for the value of South Flank to be reflected in the MAC royalty. It's in this context that we intend to continue to hold the MAC royalty in its current form for the time being.

Turning to the balance sheet, the $469 million in debt we took on to acquire SRL during low-cycle conditions has been reduced significantly, as you're aware, with the net debt reducing from $506 million at 31 December 2016 to $212 million at 30 September this year. We've also reduced our debt facilities over the course of the year by almost $300 million in 2017. They were just over $1 billion, you might recall, which reduces fees on unnecessary credit lines. I'd also note that we have recently extended the tenure on some of our facilities to smooth the maturity profile, as is shown in that bottom-right chart.

A little bit of history, on the next slide. Over the last 10 years, Iluka's leverage ratio has been as low as net cash and as high as four times net debt to EBITDA. We've talked about acting counter-cyclically for some years now, and how we manage the balance sheet is very much in the forefront of our thinking in this regard. We will continue to seek to pay down debt during the mid-to-high cycle. We'll carry low gearing through the downturn, which should enable debt to be used to make counter-cyclical investments in low-cycle conditions, where appropriate. We don't pretend that we have the ability to pick the bottom of the cycle, and if we do, it'll be more good luck than good management. But there are signs that we look for and, hopefully, we'll make the right calls, somewhere near the bottom in the future. I would note that whilst it's only one metric the rating agencies consider, a leverage ratio below 1.5 times would generally correspond to investment grade for a company such as Iluka. It's in this context that we make the statement on this slide about targeting investment grade credit metrics through the cycle.

Turning to the well-worn inventory chart, it is declining, as you're all aware. That has been very good for cash flow, as you're all aware, and we'll expect that to continue over the next 12 months as we reduce the inventory levels from $578 million at the half just gone to levels of between $300 million to $400 million, which we consider around normal, over the next 12 months.

Dividends, our framework remains unchanged. We've had a track record of paying out two-thirds of free cash flow, 66% since dividends recommenced in 2010. That said, it's important to appreciate that we are likely to be entering a significant capex phase in the next few years with Cataby and the Sierra Rutile expansions.

Finally, just a few comments on hedging. Our philosophy on this is really, in my mind, financial risk management 101. If you hedge one side of a transaction, in our case price via TiO2 or, specifically, SR contracts in recent times, then you need to address the other side, being the FX exposure in the form of a relatively certain US-dollar revenue stream with an Australian-dollar cost base. That is not to say, by any stretch, that all of our SR revenues will be secured by fixed-price contracts. We expect the contracts will be a combination of market price and floor prices, with varying degrees of exposure to the upside. At this stage, we are only addressing the FX exposure associated with multiyear contracts, where there is some level of certainty as to at least a floor price that we will receive. We remain exposed to both price and FX associated with all zircon and rutile revenue.

In respect of Sierra Rutile, I would emphasise that we see the largely US-dollar-driven cost base as a sufficient natural hedge to its US-dollar revenues. We like optionality, so whilst to date we have only used forward contracts, we will consider using Australian dollar call options

and, potentially, option collar structures to provide exposure to falling Australian dollar in the future.

And with that, I'll hand back to Tom to wrap up. Thank you.

Tom O'Leary: Thanks, Doug. Look, I appreciate that the mineral sands industry is somewhat opaque and, as a result, can be difficult to understand, so hopefully we've provided you with a reasonable overview of the industry and Iluka's position within it. We're experiencing a turning point in both zircon and titanium dioxide markets from their low points over the last five years. We've seen real price momentum, in zircon in particular throughout 2017. As we illustrated earlier, we believe that there's very much an emerging supply gap. It's an appropriate time to restart JA, and that process, you've heard, is going very well. We're pleased with the progress we've made to date in Sierra Rutile and we're looking forward to further enhancing and expanding the operations, as we've described.

I spoke about the importance we place on capital discipline, and I think the Cataby approval process is a good example of those words in action. As I said at the outset, the near-term focus for Iluka is to deliver on the expansions we've described here today. I'm looking forward to updating you on our progress as we move ahead with these important projects. As Doug described, we're well placed financially for the capital expenditures to come.

This slide really tries to bring it all together. Hopefully you'll find it useful. For zircon across the group, we do expect a reduction in the volume we produce over time. The declining heavy mineral grade at JA is partially offset by the commencement of Cataby, resulting in average zircon production across 2018 to 2020 being slightly below our current run rate, at 290,000 tonnes. The addition of Sierra Rutile ensures that our rutile production is maintained and expands, following the depletion of our rutile-rich deposits in the Murray Basin. Synthetic rutile production is maintained, assuming, of course, the approval of Cataby. The trend in average unit cost is to increase. I'm sure this comes as no surprise. Finally, we have a lot of capital to deploy to achieve this outlook, but I feel we are well placed to deliver. We have a strong executive team and a vast array of experience and I'm confident about our ability to deliver. That's the focus now.

With that, I think we're going to move to questions, so I'd ask Doug, Hamish, Rob, Simon and Dan to join me for questions.

Andrew Hines: (Evans and Partners, Analyst) Tom, Andrew Hines from Evans and Partners. Can you talk a little bit more about what you're looking for in the Cataby offtake contracts and how those contracts might look?

Tom O'Leary: Sure. Look, I think I've said quite a bit about them in the past. We're looking, as I said, to ensure that we set ourselves up for capital payback and then to generate satisfactory returns for shareholders over the total period of exploitation of that mine. So as you can imagine, we're looking for some certainty around price and some certainty around offtake. So I've mentioned the sort of concepts that we're looking to embed in those contracts. As we've said, we're at a pretty critical phase of finalisation of those and I wouldn't want to jinx that process, so I'll just leave it there. But again, I reiterate that I'm confident we're going to get there pretty soon.

Duncan Simmonds: (Bank of America - Merrill Lynch, Analyst) Hi. Thanks very much. Duncan Simmonds from Merrill Lynch. So just on the capex, I just wondered if you could elaborate on the capability that you have internally to deliver what seems a vast amount of projects across the business. Do you need to hire a lot of capability to execute? Then I guess, also, just in

terms of contract or engagement, it appears we've passed the low point of rates. Are you using EPC or EPCM type of contracts to go forward?

Tom O'Leary: I'll pass over to Simon in a moment about the nature of the contracting arrangements and then also to Rob, potentially. But in terms of the capability internally, we're really conscious of the fact that we're in for a period now where we've got to deliver on a number of capital expansions, I said earlier, simultaneously, and a number of different projects. But there's an extraordinary amount of depth of technical expertise within Iluka. The capability that I've experienced over the last year, technically and operationally and in our projects group, is pretty vast. So we are very conscious of that, of delivery, and it's our key focus.

Simon Hay: Yes, we have retained a lot of our engineering workforce throughout the last few years. A lot of them are engaged on studies, and we're now moving from studies into execute for certain projects. So we do have that capability internally. We are recruiting for certain positions though, so there's a combination, internal and new hires. I talked about the integrated approach for Cataby, so we have our preferred contractor, who's working - integrated with Iluka. So it's not EPCM. It's a bit of E&C. We do a lot of procurement ourselves and the management is shared, so it's a hybrid model for that particular project. But it's a horses-for-courses approach. We'll use different models on different projects.

And just briefly on the SRL projects, we're running the engineering out of Australia, doing all the scoping here. We're using some contractors from South Africa and also we have some very experienced people on site. SRL executed a very successful capital project just before the takeover from Iluka, so there's some capability there already.

Duncan Simmonds: (Bank of America - Merrill Lynch, Analyst) Do you mind just explaining, with regards to Cataby and that extra 40 million tonnes, I think it is, potential that could be accessed? Is that - are there geological differences between what you can and can't access or is it more just a case of arranging access to the land?

Simon Hay: Yes. It's not geologically driven. It's - part of it, you can see, is on the eastern side of the highway, and there's no problem accessing - crossing - getting the ore across the highway, but we just haven't approached that as yet. It's a different land owner, so yes, it's more land access, amenity agreements, than anything else. There will be some environmental approvals for those areas that are slightly different or are not yet covered in the - in what we are calling the Development Mine Plan. But it's very routine, gaining access to those. We don't anticipate too many problems and we'll progress that, as I say, throughout the operational phase.

Unidentified Participant: Thanks. Doug, actually, a question on inventory. You say most of the inventory drawdown over the last couple of years has been more focused on work in progress and now, this year, or, sorry, 2018, you're talking more about drawing down on the finished product to bring those down. I'm just wondering how that's going to impact the cost profile of production. Then what is normal inventory levels for both finished product and work in progress?

Doug Warden: Yes, cost profile, look, we use a weighted-average inventory methodology. Because we have had so much inventory, even if - when you're adding to it at slightly higher cost, it doesn't have a material impact, if that is indeed what is happening. So I would expect that as it comes out, it would be similar to how we've experienced it over the next 12 months. Then, yes, you're correct, it was largely work in progress as we obviously wound down the stockpiles from WRP, and obviously we're doing the same with JA. Then the next phase will be around finished product. Normal levels, I don't think we've said in relation to work in progress and finished, but all I'd point you to is the $300 to $400 million that we've talked about. I think,

fair to say, JA has got a longer logistics chain than our other operations. So we'll still carry a level of HMC inventory at the mine, at the port, and then at the front of the MSP, but we won't have the stockpiles associated with the Murray Basin going forward in operations like SRL, for example. So they'll be lower than what they have been in the last five years.

Unidentified Participant: I'm not sure who can answer this, but you haven't mentioned the US operations. I know they're in rehab and on care and maintenance, but is there a processing scenario where they potentially come back into production?

Tom O'Leary: I think it's pretty unlikely that that will happen. We're now regarding it as a closed operation and so it's largely in rehabilitation.

Unidentified Participant: Sorry, just a follow-up. I notice you opened your address at the beginning, Tom, with you're going to spend a lot of your focus on rehabilitation. Is that - is there a license-to-operate issue that you've got to get over here or is it - why is that commanding such a focus for you?

Tom O'Leary: Yes. No, it's a good question. The reason is, frankly it's our largest liability on our balance sheet. It's $0.5 billion on our balance sheet. So to the extent that we can minimise that and release provision and do a better job at it, then it's a good use of time. I also know that we've got some of our best people on rehabilitation, but there are alternatives to explore. So we will be applying some resource there over coming years.

Craig Campbell: (Northcape Capital, Analyst) Craig Campbell from Northcape. With Metalysis, I notice you've got an impairment coming up there. So what's the outlook for Metalysis in terms of Iluka's further participation?

Tom O'Leary: Yes, it's a fair question, Craig. As I said on the call the other week, we are one of many shareholders in Metalysis, many stakeholders. So we're bound by confidentiality constraints around our interactions with Metalysis and the knowledge we have around what its outlook and prospects are. So I really don't feel able to comment further on that at this time.

Craig Campbell: (Northcape Capital, Analyst): With the slide you put up showing the supply/demand gap opening up in zircon markets, it looks quite positive for the outlook over the next three or four years. You're also expanding Jacinth-Ambrosia slightly to offset the grade decline. Is there potential for you to go even further than that and put more zircon into the market through expanding operations at Jacinth-Ambrosia even beyond just the mitigating grade decline?

Tom O'Leary: Yes. Well, we've talked about a couple of things on Jacinth-Ambrosia. The first was expanding the concentrator throughput capacity up to 1300 tonnes per hour and the other was a resequencing, potentially, of the mine plan. As Hamish was at pains to point out, it's not around a higher grading, but a resequencing to ensure we get more production earlier. That's something we'll consider over the time. It's unlikely I think we'll get more out of JA than those two strategies that we've talked about. I think beyond that, we're looking at the projects we've talked about. By those, I'd be meaning Balranald and fine minerals, is where we can see higher levels of zircon production in the future.

Craig Campbell: (Northcape Capital, Analyst) Sorry, this might be nitty-gritty, but what's the remaining liability for rehab in the US?

Tom O'Leary: $90 million is the current provision we have for the US, yes.

Craig Campbell: (Northcape Capital, Analyst): So you're spending $45 million a year, something like that, doing it? Is it over a two-year period, is it…

Tom O'Leary: No, the profile's more over a five-, six-year period.

Doug Warden: Yes, that spend is across the Group, that you're referring to.

Craig Campbell: (Northcape Capital, Analyst) Thanks. This is a bit of a broader question, but just looking at the business, and obviously with your strong position in mineral sands - you've had very high-quality assets for a long time - and we can see, through the capital profile and also the grade decline, that that is changing. I think Cataby is a good example, where you're needing to see some level of confidence in pricing structure and then offtake to make that investment decision. With the changes in the business, does that also have any influence on how you're thinking about other commodities? Iluka has a very strong marketing franchise. Is there opportunities for you to look at other commodities outside of mineral sands? Thanks.

Tom O'Leary: Yes. No, I think there certainly are, and the opaque nature, indeed, of the mineral sands industry and the fact that we achieve terrific results from our marketing efforts, I think, as you point out, is a set of skills that can be applied elsewhere. So yes, we certainly look at other minerals and consider where that expertise could be deployed, but I would go back to what I said earlier. That is that what we see as our core focus over coming years is delivery. Strategically, I think our cards have been dealt somewhat in terms of the acquisition of Sierra Rutile and the capital expenditures we've got ahead of us. Our key focus at the moment is on delivery of all of those capital projects. It's not really until I think we've demonstrated to our shareholders that we've been able to deliver on Sierra Rutile that, to my way of thinking, our license is reinstated to seek shareholder support for another step out like that.

Craig Campbell: (Northcape Capital, Analyst) Just further to that question, you've answered it on the terms of maybe a transactional base, but what about exploration based, discovery, that you come across something that's not in your portfolio now, but you might add it? So would you consider to step out in exploration rather than transactional based?

Tom O'Leary: Yes, certainly, Craig, absolutely. If we were to come upon a mineral that we're not currently exploiting and we saw a way where we could add value to that proposition, we'd certainly consider it. In fact I think there's probably some application in our fine minerals project. Dan, do you want to have a word about that?

Dan McGrath: Yes, briefly. So the fine mineral project, we talked about the WIM tenements that we hold across the Murray Basin. There, the monetisation of those projects is reliant on getting the rare earth co-products. So an area that's not outside the realms of our capability is the conversion of those co-products into, for example, a rare earth carbonate type product that allows us to participate in a market such as the rare earths market, which, similar to the characteristics of our market, is relatively opaque. So that's one area that's complementary and we have other stocks of potential feedstock in the business. Subject to the other critical factors in developing or overcoming the technical barriers to the WIM deposits, rare earths might be one of those areas where our skills are complementary, and it fits in with our business and the industry we're in.

Tom O'Leary: Okay, I think that wraps it up for the day. Thank you, again, all for your attendance. As I said earlier, I hope you've found it useful.

End of Transcript