Vale
Vale Day 2018 – Investor Relations
6 December 2018

Welcome and Opening Remarks

Fabio Schvartsman

CEO

I. Preamble

Good morning, everybody. Thank you so much for being here this morning. This is another Vale Day and we will start by remembering a remark that we made at last year's Vale Day. Vale was, in our opinion, prepared to generate more value than any other company in the sector. This was said one year ago. Fortunately, you can see from the figures that it is still true. I can tell you that we think that we are poised to do it all over again in 2019, so let us see if that will also be true.

II. China, Steel and Iron Ore

Instead of going into the presentation itself, I decided to go straight to the concerns that I suppose a number of you have regarding the situation in China, the situation in terms of steel prices and the situation in terms of iron ore. Let us discuss these before starting the presentation itself.

Three weeks ago, I was in New York and gave a presentation there, when I said that we were expecting prices to soften by the end of the year, because this happens at the end of every year, due to the winter in China and because of lower demand. What happened this year, besides lower demand and besides the normal situation, are two other factors that weighed on price: first, the 'trade war' between China and the US, with a very negative sentiment on everything, iron ore included; and second, the winter cuts in China were lower than expected, and people who had made inventories expecting this to happen found the market fully supplied and are now facing more availability of steel than demand. Consequently, prices went down, which brought iron-ore prices down too.

However, what is really important, at least in our opinion, is that we made the remark that prices would remain at $60-80 per tonne, and this is precisely what has happened during the last 12 months. This is comfortably the situation even now. While prices came down recently, they came down from a very comfortable level, and the prices are still in a proper way. It is Vale's opinion – and my opinion too – that, at the beginning of the year, when the building of inventories starts all over again, prices will start to move up once more. There is a lot of noise regarding this trade war, causing all kinds of movements in the market, but if put that aside for a moment, very little is happening right now in the real, physical market.

III. Key Messages

Having said this introduction, we can start our presentation. In the presentation, we are going to cover several points, but I want to emphasise the main three important messages that we want to leave with you. First, we are going to continue to do what we are doing very successfully. We are very proud of the evolution that we are showing in iron ore, so we see no reason to change that; on the contrary, we are going to emphasise even more the flight to quality and the availability of high-quality products coming from Vale.

Second and most importantly, in terms of base metals, it is my goal and the goal of all our management team to turn this business around this year, because we think that there is an electronic vehicle (EV) revolution coming. This year, we have to fix things, but we have only this year. It is not just my job or Eduardo Bartolomeo's job, but also Peter's job, Luciano's job and Alexandre's job – everybody's job – to make it happen. I hope to be here by this time next year showing you that the evolution that we had on this, but you are going to see, during the presentation, a number of measures that are taking place in the company. We changed management, as you know, starting with Eduardo Bartolomeo, and Eduardo Bartolomeo changed everybody else too. Consequently, we have a completely new team taking care of this operation. I am very confident that we are going to deliver what is expected.

Finally, the last fact that I want to leave with you is capital-allocation discipline. This is here to stay. Vale is not going to change that. You are going to see during the presentation that we are going to have a very large free cash flow in the coming years. Our purpose is to give it back to shareholders either through dividends or share buybacks, depending on the moment.

In this presentation, we are going to start with sustainability and unsustainability. I want to emphasise one special thing: Osorio will give a full presentation on sustainability but we are committed to recovering 100,000 hectares of degraded land – land that is not Vale's but is outside of Vale's premise – with the aim of not only recovering it but creating a source of sustainable income in the region in which we operate. Among all the initiatives that we are going to see, this is the most important one.

With that, I will give the floor to Osorio, who will continue to give the presentation on sustainability. Thank you.

Sustainability

Luis Eduardo Osorio

Executive Director, Sustainability and Institutional Relations

I. Preamble

Thank you, Fabio, for giving me the floor. Good morning, everyone. I would like to start my presentation recalling our bold promise made in this very room last year, which was to become a reference in sustainability. Today, I would like to share our journey in terms of how we are doing up to now.

II. Vale: Becoming a Reference in Sustainability

1. Efficient and Sustainable Mining

Let me start by saying that sustainability is totally embedded in our culture and the way we do business, across the organisation and throughout our daily operations, in the way we operate by being the most sustainable operation in the world. In terms of efficiency, we have the truckless dry-processing S11D project in everything we do towards Mining 4.0. That is going to be given in detail by my colleague, Peter Poppinga, in his presentation.

2. Quality Products

In terms of how we produce, we have high-quality products that help the environment with fewer CO_2 emissions, such as high-grade iron ore, and nickel and cobalt for batteries.

3. Engagement with Society

Last but not least, in terms of how we engage with society, we are present in territories with critical social and environmental issues that are yet to be resolved, outside of our premises. We would like to leave a very positive legacy in these territories, so we will continue to invest in social and environmental programmes that we strategically selected this year in order to do so.

4. Recognition for Ongoing Commitment

Our efforts are paying off. We are being recognised by international bodies with some awards that I would like to share with you. We were ranked in the top three of 40 companies by the World Corporate Human Rights Benchmark in 2018. For seven years in a row, we have been listed by the UN Global Compact LEAD as the only mining company in this rank. Just recently, last week, we were also listed by the Brazilian Stock Exchange Sustainability Index 2019 in Brazil. In other words, we are on the right track to deliver our promise made here.

5. Investment in Environmental and Social Programmes

In terms of Mariana, the Renova Foundation has already invested $1.3 billion in environmental and social programmes, specifically in environmental recovery, resettlement and compensation. Today, we would like to show you a video of what Novo Bento is going to look like in 2020.

[Video shown]

III. Vision and Goals

Finally, ladies and gentlemen, I would like to share our vision and our goals that we set for 2030. We want to 100% self-generation of clean energy in Brazil, as well as the recovery of 100,000 hectares of degraded land outside our premises. In terms of water, we want to reduce the collection of new water by 10%. In terms of climate change, we have set a new goal of reducing

CO_2 by 16% by 2030. We will also continue to invest in healthcare, education and income generation in our social programmes.

We are shifting gears here, and the message that I would like to leave with you is that we are on the right track to become a reference in sustainability. I will now give the floor back to Fabio.

Iron Ore

Fabio Schvartsman

Peter Poppinga

Executive Director, Ferrous and Coal

I. Leading the Future

1. Flight to Quality

Fabio Schvartsman

Thank you, Osorio. Let us remember what the situation in is our Iron Ore division and why we are doing what we are doing. It is basically an issue of supply and demand: demand because of the flight to quality and supply-side reforms in China. It is here to stay. They have to cope with pollution and to improve productivity in their steel mills; consequently, the need for Vale's 'green ore' is really very strong. This is the reason why the performance of our operation is as good as it is today.

2. Main Supplier of Green Ore

Why green ore? Because we are less polluting than the others. We have fewer emissions, fewer particulates, less CO_2, less NOx and less SOx. This means that it makes sense to use high-quality ore in order to achieve the results that they badly need, so we are confident that this is not going to change.

3. Quality Imbalance Supports Flight to Quality

At the same time, looking at the supply side, we are watching the depletion of our competitors' mines in China and Australia. At the same time that we have S11D ramping up and greater availability of this high-quality ore, the rest of the suppliers are facing the opposite situation. This is the reality of Vale.

I will now pass to Peter, who will describe what we have been doing recently with that.

Peter Poppinga

4. Strong Steel Demand and Capacity Cuts Require High Productivity

Thank you, Fabio. Good morning, ladies and gentlemen. It is a pleasure to be here with you again. As Fabio said, as a consequence of supply-side reforms and sustained steel demand, we have a need for productivity. If you have to produce the same amount of steel with less capacity, of course your capacity utilisation goes up. Worldwide, capacity utilisation has gone up from 70% to 76%. In terms of China only, it has gone up to 85%.

5. Higher Worldwide Steel Prices

The same rationale applies to steel prices, which have gone up constantly worldwide. Of course, there are some seasonality effects and, as we all know, steel prices recently came off their recent peaks. We do not think that it is a structural-demand issue but a short-term weakness which has to do with the fact that China has produced much more steel ahead of the winter cuts, which turned out to be less strict than was anticipated. In any case, we do not think that steel prices will return to historical levels.

6. Growth in Pellet Demand Creating Value-Accretive Opportunities

Productivity is essentially about Fe units, and you can get more Fe units into the system either by having richer materials in the plant, such as our Carajás fines, or by feeding the blast furnace with more pellets, which also has a good effect in terms of emissions.

We see an increasing trend in pellet demand worldwide. We see an increase of more than 30% in the coming years. There is, however, a twist, in that we also see a huge depletion in domestic concentrate worldwide. While it is easy to build a pellet plant, it is very difficult to get the right feed for it, and that is what is happening right now. This year, we have a worldwide pellet-feed supply shortage of over 25 million tonnes, and I would not be surprised if this supply gap reaches 50 million tonnes within a few years.

The big markets for these pellets are the Middle East and Africa, based on direct reduction, and some US projects will probably grow. China is the big news: it was never a big pellet producer and there was never big pellet demand, but it is coming now. In Europe, because of the CO_2 issue, pellet consumption is also probably going to increase greatly.

7. Quality Supply Imbalance Resulting in Increased Alumina Differentials

We spoke about Fe units but, as you well know, blast furnaces and steelmaking are not only about Fe; there are also contaminants, and we have to balance those elements very well. What we see now, mainly in the Asian region, is a big imbalance in contaminants like alumina and phosphorus, with Australian mines being depleted, and what is replacing that has a much higher level of contaminants than the ore coming out.

In terms of what happens if this materialises, which is already the case, the penalties for those elements shoot up. Alumina has an exponential behaviour in terms of penalties. If we look in detail at the 62% family, the alumina increasingly affects the relative value of the ores. Brazilian Blend fines (BRBF) get a premium because of the alumina. Some other brands, such as Mining

Area C (MAC) or Jimblebar from Australia, are getting huge penalties. At the end of the day, the average of that gets you to the 62% index.

Miners are reacting to this in different ways. They are taking out some high-alumina and phosphorus stuff and selling it separately; others are avoiding participating in the fixed pricing system in order to preserve their brands. Today, Vale has more or less 60% of all the volume in the price formation of the 62% index, because of this effect. Eventually, miners will have to increase their capex, and there will be an increase in opex, because of wet processing, but not so at Vale. We are not in this reactive mode but are ahead of the game and leading the quality game.

8. Successful Implementation of Differentiation Strategy

In terms of how we got there, we essentially did two things. We invested in our two competitive advantages: Carajás and the ability to make high-quality pellet feed in the Southeastern System. Again, it is easy to build a pellet plant but the trick is to make the feed. Those two are competitive advantages and we have invested heavily in them in recent years. The second thing that we did was to consolidate and implement our differentiation strategy. In the past, this did not get a premium and, through our commercial initiatives, supported by the flight-to-quality trend, we were able to differentiate ourselves very well.

The result is seen in our main product families: in relation to productivity, these include Fe units, the Carajás fines and pellets; and in relation to impurities, including low alumina and low phosphorus, BRBF and Sinter Feed Low Alumina, of which we recently sold a tender at a premium of $12.

I would now like to pass back to Fabio, who will show us in more detail how these investments were made and what is next in the pipeline.

II. Vale Invested $20 Billion to Be Where It Is Today

1. S11D Consolidated Vale as Premium Producer

Fabio Schvartsman

We are not here by chance. In the last few years, we spent almost $20 billion in iron ore to build this differentiated position that we have. We invested more than $14 billion in S11D alone, with a nominal capacity of 90 million tonnes of high-grade ore. We invested close to $5 billion in pellet feed and Sinter feed for a total of 65 million tonnes of extra feed from both. We invested more than $1 billion in pelletisers, which means that we now have the capacity to use all of the pellet feed that we generate. The good news is that all of this is in the past and we no longer have to invest that. We do, however, have some new things to share with you. None of them are huge investments but all of them are, in our opinion, very good news.

2. Supply Chain: Complexity Turned into Flexibility

Before that, I will make one further comment on our system. It is important to emphasise how we translated the complexity of operation, with 22 mines, 13 pelletising plants, three railroads, four ports and 17 blending sites. We will never have the same competitiveness of the Australians, who are much closer to China and whose operations are simpler than ours. Through this integrated control centre, we have put everything into the same structure and are able to optimise the operation, taking advantage of the evolution of the market at any given moment.

3. Partnerships in China: Key for Flexibility

This is further emphasised by the 16 blending sites that we have in China. These are partnerships that were built in the last two years. We now have 120 million tonnes of blending capacity in China, as well as a big inventory sitting in China. Vale is no longer selling according to orders but to inventory, which means that we are taking advantage of market movements. If the market is weak, as seems to be the case at the end of this year, we will hold to the inventories and bring this product to market when the markets start to operate better at the beginning of this year. We already did this year and we are going to do it again this year. Consequently, we went from 53% of high-quality products to 81% during this period. It is a clear evolution in the right direction, given the market situation.

4. High-Return Brownfields and Bolt-On Acquisition

In terms of increased capacity in the Northern System, we are increasing capacity in S11D from 90 million to 100 million tonnes, and to 240 million tonnes in the Northern System. Today we announced the acquisition of Ferrous, which is a bolt-on acquisition that I had referred to in calls with investors. This is exactly what we are looking for in terms of bolt-on acquisitions: small acquisitions that are very synergetic, which means that we can take advantage of their infrastructure, and they of ours. Therefore, we have very competitive operating costs and, in addition, we are talking about a further four million tonnes of high-quality pellet feed at a time when this is something that is lacking everywhere in the world. The Gelado recovery has already been explained. We are increasing the production of pellet feed in our Southeastern System by 20 million tonnes over the next few years. We are expanding Malaysian blending by 10 million tonnes, and pellet production in Oman. With all of that, we will be able to continue to grow the share of high-quality in our portfolio towards sales of high-quality products of 95% in the next few years.

It is now time to give the floor back to Peter, who is going to explain each of these investments to you in more detail.

III. Building the Future through Expansion

1. S11D and Northern System

Peter Poppinga

Thanks, Fabio. Let us start with the S11D expansion, with capex approval of $770 million and 10 million tonnes. The rationale here is cost-reduction – S11D has a C1 cost that is around $8 lower than the rest – and price realisation. What we are going to do is to invest the majority in the mine and the plant. We have a fifth crusher in the mine and will have tertiary crusher and secondary screening enhancement in the plant. What is most important is that we have a third silo for loading the trains and another stockyard coming down the mine, so that the plant and the loading station does not become a bottleneck for mine production and the truckers.

One thing that I want to emphasise here is that this is probably not going to enter the C1 market. First of all, we need feed for our pellet plant in São Luis. In the Brazilian domestic market, we are also detecting a need for Carajás, and so most of it will probably go to the domestic market in some years to come.

2. Gelado Project

The second initiative is the Gelado project, which is typically only about cost-reduction. This is a recovery of the tailing dam and also an upgrade of the pellet feed there. It is also a nice sustainability project. It is about cost-reduction because it is much easier to dredge and to pump than to mine and to grind. It is much more cost-effective. The investment here is $270 million, and it is about dredging, filtering, cycloning and magnetic separation, which is the concentration. It is very simple.

3. Southeastern System

The next initiative is a big one. This is a big opportunity that we have in the Southeastern System, where we have not only big reserves but also big opportunities to produce low-alumina, high-grade pellet feed. Our plan is to increase the production of high-grade pellet feed by 20 million tonnes, mainly in three ways. The first is process optimisation. For instance, we have the Brucutu mine and the Itabira mine, where we have higher course tailings due to the jigging process. Just grind it and flotate it, and it gives you pellet feed.

We have Fe content-reduction in tailings. We have developed proprietary technology of high-frequency screening with optimised flotation, leading to less Fe in the tailings. The biggest part is recovery and concentration of tailings. This is easy to understand. The trick here is that we have our bottlenecks in the grinding, not in the flotation. We have a big tailing dam sitting in Itabira and big tailing dams from the past sitting in Brucutu. We are going to recover all that. This can bypass the grinding system, because it is already fine, and we have space in flotation, so we just flotate it. That is what is behind this big initiative. We have also developed patented technology to flotate the ultra-fines, with 50% recovery. This is a very important process that we will start in the Vargem Grande mine in one or two years.

Last but not least, I wanted to make the remark that we are also studying, developing and acquiring expertise in dry-ore processing, which will be the next frontier here.

4. Bolt-On Acquisitions

Fabio just mentioned the acquisition of Ferrous. Today, Ferrous produces three million tonnes of Sinter feed and pellet feed, although not very high-grade. The resources are 1.5 billion tonnes and the reserves around 600 million tonnes. At its Viga project, production will be upgraded to four million tonnes per year but with a high-grade content. The Viga project has almost been executed. The rationale here is both cost-reduction and price-realisation. In terms of cost-reduction, our Fábrica sits right next to this Ferrous mine, so we have lots of operational synergies there. We will also have optionality: instead of shipping and railing the ore through the MRS system, we are going to use our Vitória-Minas railway. Ferrous also has a big new tailing dam and we have lots of plans for this. In terms of price-reduction, with about $20 million we can upgrade the entire Ferrous production into direct-reduction pellet feed, which is our plan. The acquisition price was $550 million, as you know.

5. Oman

Next is an opportunity in Oman to increase pellets by two million tonnes by installing another grinding mill as well as by feeding more Carajás fines. Carajás fines are starting to be used in the Brazilian domestic market. We already use Carajás fines in the pellet plants in São Luis and Tubarão, and now also in Oman. Not all Carajás fines that we hear about go to the seaborne market, and this is important because it boosts the productivity of the grinding mills and we can produce more pellets as well, so it is a typical price-realisation rationale here.

6. Malaysia

Last but not least is the Vale Malaysia expansion of 10 million tonnes. Our distribution and blending centre there has a capacity of 30 million tonnes and we are going to 40 million tonnes. It is purely a cost rationale, because it is much easier and more cost-effective to reach the small ports in the region, such as in China and southeast Asia, by blending it in Asia than by doing cabotage in the countries. It much more effective and there is better use of the Valemax fleet.

The other rationale is to get to new markets in southeast Asia and in India more easily. The big question mark is always whether India is coming and what they are going to do. For sure, they will import much more coking coal, and we are increasingly seeing iron ore coming into India.

7. Consolidating Leadership and Value-over-Volume Approach

That is how we are going to reach 95% of our improved product mix. I want to just remind you that we are committed to our value-over-volume approach according to the assumptions of margin optimisation that we have today. That means that our production guidance for 2019 is 400 million tonnes. It also means that this incremental tonnage that we are talking about in several projects is not going to increase going forward from our 2019 production guidance, but rather is probably going to be very flat.

IV. Competitive beyond Quality

1. C1 Costs to Reduce Further

Let us talk about pure costs and leave the quality story behind. Starting with C1 costs, we have initiatives around lowering C1 costs by $1-2. It is mainly about the S11D ramp-up, which already delivers a lower C1 cost, but also about productivity, technological initiatives and cost-management. We have a short video to show you the initiatives that we are developing together with our colleague Alexandre Pereira about the technology.

[Video shown]

2. Long-Term Contracts Support Freight Competitiveness

Another pillar around competitiveness relates to freight. All first-generation Valemax are operating. The second-generation Valemax is coming on stream, with 18 of 32 already operating, and 47 Guaibamax are under construction. I just wanted to remind you that the second-generation Valemax and the Guaibamax are $3-4 more competitive than the first-generation Valemax.

3. Compliance with International Maritime Organisation (IMO) Regulation

We have IMO regulation coming. In terms of SO_2, we must be compliant by 2020 and we are well ahead of the game. The first-generation Valemax are being retrofitted with scrubbers. The second-generation Valemax and the Guaibamax already have scrubbers installed, which means that we can continue to use high-sulphur fuel oil (HSFO) in these vessels. In smaller vessels, we have decided to go for low-sulphur oil and maritime-diesel adjustments. We are assuming a spread of $200-240, depending on how the market reacts. We do not know how the refineries will react but this seems to be a safe number. Added together, even after IMO compliance, we will have more or less half a dollar less freight some years down the road than we have today.

4. Commercial Initiatives to Boost Price Realisation and Improve Product Mix

Next year, we forecast having a higher price realisation of about $2-2.5 than we had this year. The 65% index was launched in 2015, and the 62% low-alumina index was launched in 2018. Some days ago, the Singapore Exchange (SGX) launched a derivative instrument for the 65, so that, if they want, our customers are able to hedge if there is a forward curve being consolidated.

5. Competitive Initiatives to Increase Ferrous Metals EBITDA

Summarising our competitiveness initiatives, we have $1-2 C1 competitiveness from S11D and productivity, and $2.5-3 higher price realisation plus the half a dollar I mentioned in terms of the freight, which gives us $3.5-5 increased competitiveness down the road.

6. Total Annual Ferrous Metals EBITDA

Reference price, foreign exchange and bunker are the three elements affecting our competitiveness. We are steadily achieving more and more EBITDA per tonne on a normalised basis, so we are going in the right direction to achieve $44-47 in some years. This takes into account the $3.5-5 on competitiveness that we mentioned before, as well as the small, high-return projects that I just mentioned.

Unlocking Coal

Peter Poppinga

I. Moatize Ramp-Up

That was it in terms of iron ore and we will now speak about coal. I just want put this into context. As you know, we are going to produce roughly the same amount of coal this year that we did last year – 12 million tonnes – because we first wanted to stabilise the ramp-up. By ramp-up, this is essentially about the mine. We had to develop new mine faces, for instance. We are entering the Number 6 section. We also wanted to bring back the strip ratio to normal, sustainable levels, given that it was not well-planned in the past. Now we have it almost back. We also wanted to deliberately mine some regions that we would not normally mine, because we wanted to empty the pit to prepare it for the future in order to avoid building new tailing dams. Together, this was not optimal mining this year but will improve in 2019.

II. Three Pillars

1. Capacity

We are building on three main pillars. We have the capacity but we need some more infrastructure. We need to build some conveyor belts from the mines to the plants. In terms of mine equipment, we are getting two more shovels and 18 more trucks to help. New mining sections are being developed.

2. Mine Productivity

Mine productivity is mainly about knowledge transfer. We have roughly 50 highly-skilled operators coming to Mozambique from Vale's operation as we speak, to help mainly in the Maintenance department.

3. Yield

In terms of yield, we had to build and are building a buffer stockpile between the mines and the plants in order to increase availability. Also important are interconnection of the two plants and some process control. A big drilling programme is also being carried out, so that we can have greater knowledge of the deposit.

III. Ramp-Up Profile

Next year, production guidance will be 14 million tonnes, and we will reach our capacity of 20 million tonnes by 2021.

IV. Significant Cost Reduction

In terms of cost-reduction forecasts, we are around $120 today and will reach $80 in the future. Of course, this includes the net Nacala tariff because of the project finance. We can make all sorts of calculations and, today, the margin would be around $20; in the future, the margin, depending on the price of coal, might be $40-60.

That concludes my presentation. Thank you very much. I would now like to give the floor back to Fabio, who is going to introduce Base Metals.

Base Metals

Fabio Schvartsman

Eduardo Bartolomeo

Executive Director, Base Metals

I. Value and Optionality

1. Challenge

Fabio Schvartsman

As you can see, we have every reason to be confident that we on the right path regarding iron ore, and I am quite confident that, with the steady and experienced hand of Peter, coal will be a source of good deals in a short period of time. Base Metals is our main challenge. Today, we are going to give you a lot of information on the problems and how we are going to address them.

First, we need to fix and stabilise this operation if we are to take advantage of the future EV revolution. We think that the EV revolution is for real because, if you listen to the announcements made by auto makers around the world, the volume that will be produced in the next few years is so big that you need a lot more nickel than is available in the market today. Vale is, by far, the largest company in this field. Besides being the largest company, we have the largest untapped reserves of nickel in the world, and of higher quality, in Indonesia. If anyone in the world participates in this EV revolution, supplying material, it should be Vale.

2. EV Batteries a Key Nickel Demand Driver

Following auto makers' announcements, we expect production to reach close to 14 million cars in less than seven years. For that alone, we need a further 500,000 tonnes of nickel. Today, the total market is two million, so where will this new nickel will come from if not from companies like Vale, which hold the reserves?

3. Vale New Caledonia (VNC)

Consequently, we decided not to close VNC. If we believe that the EV revolution is going to be real, why would we take out 50,000 tonnes of total capacity in New Caledonia when it is going to be badly needed in the market? Surely, we will be rewarded if we set our prices correctly. We are doing this not only because of prices but also because we have changed the management there. We are taking a completely different approach towards bringing it to normal operations. Again, this is a challenge for the company. Among the challenges that we have in our Base Metals, this is the most difficult but one that we are prepared to face as we should, given the proximity of the EV revolution.

4. Agreement with Glencore

It is also important to share with you the agreement that we just made with Glencore regarding Victor. This is an important achievement for Vale because Victor is a very good ore body, as we will see in Eduardo Bartolomeo's presentation. It has an expected yearly production of 40,000 tonnes of copper per year. It was impossible to operate without cooperation between Vale and Glencore. Nevertheless, this cooperation had not been possible to achieve for more than 10 years, and we are proud to have finally got it down. This will be a win-win situation that will produce a fantastic return on investment for Vale. As it was in the case of Voisey's Bay, our approach is that we will do anything that makes sense in order to produce more value. Clearly, this was one movement in this direction.

II. Competitiveness

1. Global Footprint Offers Unique Opportunities

Eduardo Bartolomeo

Thank you. Good morning. It is a pleasure to be here with you today. It is a special day for me as it is my first Vale Day, so it is a good chance to share with you my learnings, my views and my actions. By the way, our actions, as Fabio mentioned before, are a broader problem, not only for Base Metals but for Vale. We are going to tackle the problem and you will understand why it is being done in that way.

I have been with Vale since 2004. I am a logistics person involved more in the world of iron ore. I arrived in January and discovered something that might be obvious to a lot of you but not to us: that we had by the first footprint in nickel: the polymetallic mines in Sudbury, which might even be cash-cost-negative; Onça Puma is an extremely well-run operation in Carajás; PT Vale Indonesia (PTVI), as Fabio mentioned, owns the largest and best reserves in the world, and it is where the new game is going to be played; and VNC is a hard operation but is sited in one of the best mines with the best nickel quality in the world. That is a very important point to remember, but the house, as Fabio mentioned, has to be fixed in order to take advantage of this opportunity.

2. Turnaround Based on Three Pillars

In terms of what we are trying to do, we are going through a turnaround – and there is so much turnaround to be done. It is important to define what 'turnaround' means: what do we expect in one, three or five years from now? By turnaround, we mean having a stable, predictable operation. If we say to the market that we are going to produce 244, next year the company will say it produced 245. If we say that costs are second-quartile and are going to move to first-quartile, we need to have the most cost-efficient production and to extract the most value from our products. Nickel has a very diverse product mix and the best value. Fundamentally, we want to try to make a stable, efficient and valuable operation. It is clear-cut and that is what we are going to do.

Our strategy is not very complex and has to be simple. It is around people and processes. We understand that, fundamentally, if we have the right people doing the right processes, we are going to have the right results. If we have good people and good processes, we are going to get good results. Fundamentally, this is very important because, when I arrived at Base Metals, the first thing we looked at was how we can get the best people together. By 'best people', I do not mean taking people out or putting people in, but who does what. I am glad to say that, one year later, we are fortunate to have assembled a very good team. We brought people in from the industry, from Iron Ore and people from Brazil. In this sense, we are ready to go.

On the other side of the equation in terms of these three pillars, we are not going to invent anything. Vale has world-class operations in railways and in Iron Ore, so why not bring processes or accelerate the implementation of processes that Vale has had for decades?

The first one is very dear to Peter: supply-chain integration and the integrated business plan (IBP). It is all about moving our processes from a push model to a pull model. We very wisely did a pull model when Fabio arrived, when we decided to cut production, slashing 80,000 tonnes. If the market does not need it, why should we produce, at $9, something that costs $11 and can go up to $15? That mindset is around the IBP but, as I said before, it is more granular. We need to streamline and to look at this from market to mine, and to do exactly what we have to do in our operations. Moreover, this process is going to bring something really important, which is to streamline our operations in our global footprint and to extract the most from risk transfer and from checks and balances. It is a very fundamental part of our system.

The second one is a framework that we have had since 2008. It designs and implements processes around cooperation and maintenance, and it creates stability. However, good processes, without good people, do not work, so there is another arm in this framework that deals with leadership, how we manage key performance indicators (KPIs) and how we engage people. In a turnaround, there is only one important word, which is how to engage everybody – not only our executive team but everybody. We are talking about 25,000 people in Base Metals who have to be aligned with what we are going to do. This framework is simple but extremely hard to execute because it depends on a lot of discipline, but it is behind what we call operational excellence. When we achieve that, I can be sure that we are going to save 244.

The last one is a way of accelerating both supply-chain integration and the execution of processes inside our mines. There is a lot of technology on the shelf that we can bring to our system to accelerate these three things and make them work together much more efficiently.

3. Canadian Operations

a. Main focus in Sudbury

With that said, today 50% of our costs and 100% of our future is in Canada. Canada is an operation that has been through a turnaround since 2005. We closed the Manitoba refinery and created a single furnace, and it is time to collect the cost reduction. Fundamentally, we have a new operation, with a very modern plant in Long Harbour, we have an extremely well-run mine in the Arctic, we have a mine-mill operation in Manitoba, and we have a problem in Sudbury. This year, we are going to conclude the flowsheet and reduce costs, but the point that has to be really understood when we look at the nickel business in Sudbury is that we need to look at the underground. This year, we said we would talk about commitment and that we would save $75 million in 2018. We delivered that but people who follow us that Coleman had problems until April and hiccups until now. It burnt more than $100 million, so all my savings are literally being burnt on the underground. Our focus there is to bring in people from the process world within Sudbury to the underground, so our focus on Canada is to really get this leap change in the underground mines, where the feed comes from. We also need to conclude the Long Harbour ramp-up when the revolution comes, and we will be ready to do that.

b. Enhancing yield opportunities

As is said, you need to put your money where your mouth is. We are capturing $140 million in our budget through contract revisions. It is a huge opportunity. It is not only about going through the contracts and saying, 'I will pay less'; there is a lot of revision around that in terms of matrix cost management and maintenance, and a lot of benefits from centralisation and the closure of Manitoba. This brings us around $140 million but, again, if we are not able to operate the underground mines well, we will burn it, so that is the focus of the turnaround.

4. PTVI

Although PTVI is well-run and its cost base is okay, we believe that it is a jewel that needs to be polished. It is a 50-year-old jewel, so it is an aged plant with an aged fleet. Fundamentally, we are going to modernise our fleet, because we need better feed into the system. We are going to debottleneck our furnaces there with some small improvements. There is a huge opportunity in converting and kilns and driers to coal from oil. We can extract around $1,000 per tonne in the medium term from a $7,000 per tonne operation. It is relevant for the nickel business to be able to operate in the range of $6,000 cash costs.

5. VNC

We have had a taskforce in VNC since June. We are really focused on turning it around. We think it is powerful to have the right people in the right processes, exactly as we are doing in Sudbury. Moreover, we are bringing new equipment and revising the mine plants to guarantee that we do not hear what we heard this year: 'We do not have feed.' This is an isolated action. We were very humble because Goro is a very complex plant. We hired an engineering company to assess whether there are any fatal flaws in the project – and there were none, by the way. We were stocking 40,000 tonnes and we have run that rate in the fourth quarter last year and first quarter this year. Very minor investments are needed to debottleneck on the [partial neutralisation?] plant – I will not bother you with the technicalities but we know that the plant is able to do 50. Again, it is a matter of having the right processes and the right people. We are pretty confident that we can bring VNC to 50 tonnes in three years, which will more or less be when the line will be crossed in terms of demand.

III. Future Growth

1. Keeping Pace with Demand

There is an alignment of circumstances. I am extremely motivated because this is the opportunity of a lifetime in an industry that is shaky and shifting, and in a company that needs that to happen. In terms of the numbers, we are talking about, over the short term, 100,000 tonnes a year. We achieved that 73 [inaudible] production but we are talking about a Sudbury, a Voisey's Bay and a PTVI being brought to the market every year, so there is a huge challenge here.

2. Short- and Medium-Term Forecasts

Fundamentally, we are bringing it from 244,000 to 313,000. 313,000 is the number that we achieved. There were no investments in growth to bring it from 244,000 to 313,000. VNC is 10,000 tonnes, Onça Puma is a second furnace, PTVI is the improvements in the furnace, and North

Atlantic is the improvement in the mines. This is marginal, so we can bring this when it is needed. There is no number for 2021, but we do not care – we are going to bring it when it is needed. When the market comes, we can tap Indonesia through Pomalaa and Bahodopi and bring that 400,000 tonnes, keeping up production as leaders in the industry. We are very well prepared for nickel. We need to fix our house. We need to have the foundations laid and to bring production to where it should be, at the time that it should be. We are pretty confident that we will achieve that.

3. Potential to Increase Copper Production

It is, however, not all about nickel. We have copper, which is another story. It is our 'good kid.' We are increasing to 417,000 to 500,000 tonnes. There is a long-term potential for 800,000 tonnes, and I will explain how we get there a little later.

IV. Opportunities in Projects for the Medium and Long Term

1. Carajás

The idea in copper is very simple: to accelerate projects as cost-effectively and as quickly as we can, using the best knowledge that Vale has. We have huge knowledge from years of exploration in Carajás, so that is where we are going to drink the water in order to try to improve. We had a great idea that came from friends outside my group: why not use the mini-mine concept that we use in iron ore to explore satellite deposits that are not visible to us. They are too small for the big guys, so we are talking to the small guys to try to help us develop them. We are talking about 50,000 tonnes of copper, which is a lot, and we have a huge infrastructure built in our plants and railways to do that. This is a concept that does not have a target date but it is really short-term. We are already talking to some partners to do that.

2. Salobo III

We have some year-long projects to deliver. The first is Salobo III, which is a replenished growth project. We call it a smart project. We use the gold stream for silver [inaudible] Wheaton Precious. It has a net capex of $450 million and is starting up in 2022. We already started construction and got the environmental licences, and this is project is underway.

3. Cristalino

Cristalino is a replacement project of 80,000 tonnes, with very low capex. It is to replace Sossego's mine and keep the plant operating, due to start in 2023.

4. Alemão

Alemão is a growth project with a huge benefit from the gold, starting up in 2024. Those projects were left out, so we will try to bring them into the stream.

5. Victor

We are really proud of Victor. It is a newcomer but it is a huge opportunity to develop together with Glencore. This change in mindset that we have when approaching Voisey's Bay is, 'Why not do it together?' and Glencore have very wise, business-focused people, so we were able to reach a very decent agreement. We are talking of by far one of the best bodies in the basin, with 7.7% grade copper. There are also two nickel bodies that we would never have reached had we not used this infrastructure. It is a 30,000 copper project that brings 11,000 tonnes of nickel too, and is starting in 2024 and ramping up in 2025.

6. Hu'u

Hu'u is a long-term project with potential. We just finalised the first phase of front-end loading (FEL1). We have not proved the dynamics, so it is very long-term. It takes years to go to FEL2 because of the exploration etc, but it is a huge deposit of 250,000-300,000 tonnes, with a lot of gold. We have the potential to bring it on stream in 2026.

V. Conclusion

With that, I will conclude my presentation. I hope it was clear. Fundamentally, what I am trying to get across to you is that we know the challenge in Base Metals. We are humble and not here to tell you that it is a piece of cake. We have been trying to fix the business for years. The approach that we are trying to bring is, 'Let us keep it simple. Let us do it with the right people. Let us do it what Vale knows. We are at Vale, so let us use what Vale knows. It has been done with a lot of success, so let use it.' We have built a tremendous Iron Ore operation in Brazil and we should be able to do the same in Base Metals, and I am very confident that we will do that.

I would like to invite Luciano to put his money where his mouth is with a few words about our strategy. Thank you.

Rewards of the Strategy

Luciano Siani

CFO

Fabio Schvartsman

I. Preamble

Luciano Siani

Congratulations on your very first Vale Day. It is very exciting for me because he is bringing us luck. I have been here a few times and I do not recall a Vale Day in which we have brought to life so many concrete initiatives to uplift Vale.

II. Further Enhancing Portfolio Differentiation in Ferrous Metals

We have 240 million tonnes in Carajás. We have the Oman and Malaysia expansions. We have the acquisition of Ferrous. Eduardo has just shown you a roadmap for increasing copper production. We have an agreement with Victor. There are lots of small initiatives, and 'small' in the sense that they cost very little, with very marginal capex for the company. They do not change the cash-flow-generation profile at all. You already know that Vale is a cash machine, and we started to deliver this year. I am now going to show you that, when you add all those initiatives together – and they add up big – there is tremendous upside potential. This is one of the key messages for today: not only is Vale a cash machine but perhaps we have the best upside potential in the industry.

I will show you the numbers, starting with iron ore. Before I start, the assumptions that you are going to see are that there are no additional tonnes of iron ore offered in the seaborne market. That may not be true to our advantage. For example, Peter noticed that there is additional demand for Carajás ore in the domestic market. Eventually, they may be incremental, but the numbers assume only increased price realisation, lower costs, or both.

Starting with Carajás 240 million tonnes, we have higher price realisation and lower costs. In terms of Gelado, the additional EBITDA comes from lower costs and from the higher-quality pellets that will be produced at São Luis for an additional premium of $5 per tonne. The additional $20 million tonne pellet feed from the Southeastern System also adds price realisation. Oman adds price realisation through the sale of additional pellets. Malaysia has lower distribution costs. In terms of the Ferrous acquisition, these tonnes are already being sold in the seaborne market, so these will be additional tonnes from a Vale perspective. The EBITDA that we expect once the Viga project is up and running and we upgrade the pellet feed to direct-reduction pellets is $180 million. You can see how the incrementally add up.

When it comes to competitiveness, we have another $2 billion just based on things that are already here, such as S11D that we are ramping up, the freight-cost reductions, the matrix cost-management programme, the digital initiatives and the like. In Iron Ore alone, we have close to $3 billion of incremental EBITDA in the next five years.

III. Catalysts for Growth in Base Metals

Moving now to Base Metals and starting with the nickel turnaround, when we bring the 80,000 tonnes back to 313,000 tonnes of production at the existing margins, we generate $500 million of EBITDA. The cost reductions that Eduardo touched on have the potential to lower the cost base of the entire nickel production by over $2,500. Just adding the turnaround potential to the existing assets, we get to over $1.3 billion of additional EBITDA for nickel.

In terms of the EV revolution opportunity, which we cannot take for granted, 2019 is the year in which EVs are going mass-market and the likes of Ford and Volkswagen introduce their offerings to the middle classes. We believe that a $7,000 price uplift is required to incentivise the supply that is needed for that revolution to happen, and we believe that you should believe.

Finally, the roadmap for copper growth production is that, until 2023, there are an additional 80,000 tonnes of copper coming in and, at current margins, another $300 million. That does not include those projects that start up after 2023, such as Alemão in 2024, Victor in 2025, and eventually Hu'u. There is an opportunity of up to another $4 billion in Base Metals.

IV. Other EBITDA and Cash Flow Opportunities

There are number of different small and accretive opportunities, starting with coal. The key word for coal is 'operating leverage.' The cost reductions with the volume increases and cost dilutions are huge. As it ramps up, we will see an acceleration in results from coal, due mainly to the cost reductions, as well as due to additional volume at current margins.

A year ago, I was complaining about the pre-operating expenses of so many operations that had been stopped or were ramping up at Vale. This year, we spent $180 million on pre-operating expenses; in 2019, pre-operating expenses at Vale will be zero.

In terms of opportunities around financial-expense reductions, you might say, 'You already reached $10 billion of net indebtedness, so how are you going to reduce your expenses going forward?' First, we will still carry too much cash on our balance sheet and too much gross debt. There is a carrying cost. Once we get to optimal levels, we save 2.6% or over $2 billion of gross debt.

In terms of liability management, we believe we have way too high legacy indebtedness in our balance sheet with regard to interest rates. As we refinance those liabilities towards 2023, the overall cost of liabilities will decrease.

Some of you may remember the MBR preferred shares in an iron-ore company within the core of our operations, which we had to sell in 2015 to finance ourselves. We paid $170 million in dividends in 2018. We will buy back those preferred shares and this will no longer be a cash outflow.

Finally, in terms of outflows, do not forget Samarco. We have been supporting the company and paying the wages of its employees to this day, and this is not going to be the case in 2023. Samarco will be producing and will pay its own bills. Eventually, it will even be returning some money to shareholders. The $360 million spent in 2018 will no longer be there.

When you add all of this together, there are almost $2 billion of EBITDA and cash flow opportunities going forward over the next five years.

V. Total EBITDA Opportunity

Putting all of this together, from analyst average consensus EBITDA in 2018 until 2023, there is almost a 50% uplift in Vale cash-flow generation. That is the opportunity that we will hungrily go after. Not only are we a cash machine but we have huge upside.

VI. Moderate Investments Required

You might be wondering, 'How about investments? How are they going to eat up the cash flows?' It is going to be no different to what we presented to you last year. Our budget for 2019 is $4.4 billion of investments and it will stay at this level for the years going forward. There is a lot of capital-allocation optimisation ongoing and we will easily absorb those small incremental initiatives in our capex profile.

VII. Disciplined Capital Allocation

As a result of all of that, I showed you last year the cash-flow-generation estimates from management for the next three years. Pick any iron-ore price or any nickel price and you can see how many billion dollars will be available for distribution, for dividends, for buybacks and for financial flexibility over the next three years: perhaps $8 billion in bad years and perhaps $12 billion in good years; on average, close to $10 billion every year.

I will now invite Fabio to return to the stage to talk about how we intend to use these cash flows and for his closing remarks.

VIII. Priorities for Value Creation

Fabio Schvartsman

I am very proud of this presentation because this is the Vale I work for. This is the company that I dreamed it was possible to build: a company that, as a mining company, left no rock unturned. Everything that exists in the company is being taken care of at the same time. Consequently, this will be the level of our cash-generation every year on a very conservative basis. Clearly, this will be returned to our investors, as we do not plan to do anything at all with it, other than giving it back to shareholders.

As a final reminder of our three key messages, we are going to continue what has proven successful in Iron Ore. We are increasing our stake in high-quality ore and taking advantage of the flight to quality that is happening in the world right now. Our biggest challenge is to transform Base Metals. I do not think that Vale can be considered a successful company if we are not able to operate Base Metals at the same level that we operate Iron Ore. It is my personal goal and our team goal. Finally, capital discipline is here to stay and we are not going to change it. It is different for our competitors but we do not need it. As you saw in the presentation, we have plenty of things to do at home that will enable the company to continue to grow and to improve EBITDA and cash generation over the next few years. We are in a position where we can take care of the situation without putting our money to work, and that will be our goal.

That was our presentation and now we will answer your questions. Thank you.

Questions and Answers

Paul Gait, Bernstein

I have two questions, the first of which is on the nickel business. You are a presenting a very bullish scenario here but, over the course of the last year, we have seen a number of announcements, in terms of things like Tsingshan, Direct Nickel and Clean TeQ, from a number of guys that are coming forward with potentially quite different cost structures in terms of the processing routes that they are making claims for at least. Do you have any thoughts about the viability of some of those routes and on what that might mean for the deficits, essentially, that would support the acceleration in the price that you are looking at?

Second, of the tonnage that you are shipping from Brazil, how much is covered by your own shipping? Do you have any external requirement beyond our own Valemax fleet?

Fabio Schvartsman

Let us start with the nickel question. Our position on this is that there was an announcement exactly at the same time as the LME here in London. This announcement from Tsingshan made it sound possible that they will be investing only $700 million to build an HPOP[?] facility and, more than that, that it will it be up and running by the end of next year. I suggest that that is totally impossible. Putting aside the ingenuity of the Chinese, they will get there eventually. They will show important cost reductions in this investment and important capex reductions, and they will do it in a very quick way, but I am pretty sure that it will not happen in 2019 or in 2020. This announcement came at a time when the market pricing was increasing, not because of the EV revolution but because of the reduction in nickel inventories worldwide. Once this announcement was made, the price of nickel started to come down, which was a very convenient situation for companies that were short on nickel and had to buy nickel in the market.

Vale's position, then, is that this is something temporary and which will revert itself for a very simple reason: there will not be any EV revolution if there is no nickel availability. We would go even further and hope that these new technologies become a success, so that we too can use it. We are waiting to see. We will be happy if it happens. The reserves belong to Vale – Bahodopi and Pomalaa are Vale's reserves. Who else has nickel reserves in the world? For us, this is a good situation. It will reverse ourselves and that is the reason why we are very strong on our forecasts in terms of EV and taking decisions according to that.

Peter, what about freight?

Peter Poppinga

If you take our base-case number of 400 million tonnes and take out the domestic market, which is about 30 million, the balance is 360-370 million. 70% of that is Cost & Freight (C&F) and the rest is Freight on Board (FOB). One-third of C&F is not covered by Valemax or Guaibamax, but is short-term, spot or one-year contracts of affreightment (COAs).

Christian Georges, Société Générale

Going back to the nickel question from Paul, there have also been some developments with regard to the content of the batteries. BASF was recently reported as being able to reduce quite substantially the amount of nickel and cobalt and to, instead, increase manganese. Is there a downside risk on the amount you are showing us on the slides with regard to your expectations around future demand? Equally, you are, by the way, a relevant manganese producer, so are you considering increasing your manganese production accordingly?

Second, on iron ore, you mentioned India your presentation. Supply from India in 2018 came down dramatically, both on the open market and domestically, so there is an upside risk on iron-ore demand from India over the next 24 months?

Eduardo Bartolomeo

On your question around BASF trying to reduce the nickel content of batteries, we partner with BASF in several studies, but fundamentally what we are seeing is a shift towards more nickel. All the efforts by the industry, even by Tesla, is to move from 9.5 and say that they are going to strike cobalt out. That is not possible, but the increase is in our direction. What could change the amount of nickel relevantly inside the battery are solid-state batteries, which is the next stage. It is good because it improves the performance of the batteries and makes them cheaper. What Fabio was trying to say about the Chinese in Indonesia is that we are there as well and we want a stable market. We want a supplied, stable market in a good way. If we have solid-state – and I am talking 10 years from now – we will have a better cost performance. We see no threat in the short term from trying to take nickel out and putting manganese in. We have seen an increase in nickel because it achieves energy density and, together with some cobalt, greater stability. Again, we will play games to make the revolution possible. We cannot see what we saw with stainless steel in 2007. We need to be very careful, as an industry, to supply this market in a cost-effective way. It is fundamentally this.

Fabio Schvartsman

We put in a price increase of just $7,000, which means normal market behaviour. It is obvious that, instead of prices going up by $7,000 but by $15,000, something will happen. Of course, people will reduce nickel in batteries and will find other ways of dealing with the situation. It is our responsibility, as we play in iron ore, to operate according to these factors. We do not want prices to go high. It is not helpful and it is not sustainable. It is to negatively change the demand for nickel. Being the largest producer in the segment, Vale has this responsibility and we are going to work with this view, as we did recently when we reduced our sales to the market. When I was in my first meeting in Canada, I told the guys, 'We should reduce production.' Have you ever heard of a mining company reducing production? We did it because it makes no sense to sell nickel at a very low price, when the market will eventually react in the sequence. We are going to behave in a way that will support a normal market that guarantees, if possible, the presence of nickel in batteries in the long run, to the extent that we can manage it.

Regarding your question on manganese, Vale is a very tiny producer. The problem with manganese is the availability of high-quality manganese in the world, which is not there. The place where manganese is located is Gabon, which is not exactly the easiest place in the world. We can hardly think of manganese being a solution, and cobalt is also a difficult solution, given where the sources of cobalt are. We have the same problem with cobalt and manganese. Taking everything into account, it points out that nickel is the most natural solution for batteries.

Jim Lennon, Macquarie

Peter, you gave a brilliant exposition of the flight to higher value in iron ore. Could you elaborate a little more on coal in Moatize? What is the mix between the lower-value thermal coals and higher-value coking coals? Is there anything that you can do in your mining plan to maximise value going forward?

Peter Poppinga

Thank you for the question. The mix of thermal and metallurgical coal in Moatize is around 60% metallurgical and 40% thermal. What we are doing is trying to increase the yield in the processing plant because the fine is inside the plant, and I showed you the initiatives.

The other one is to sell some thermal coal domestically. We are in advanced discussions with some local stakeholders to build some thermal plants for local electricity, so you would get more space on the railway to increase your mix, exporting more metallurgical. I would not say that this will change dramatically but maybe we could go to two-thirds metallurgical and one-third thermal down the road.

Sylvain Brunet, Exane BNP Paribas

My first question is on the suite of projects you showed us. Could you give us a bit more colour on how price-sensitive these projects are or some association with the returns that you expect? You have given us the blended figure. Can you give us any indication of the contingency plans that you have built into those numbers?

My second question is on nickel. Now that you have taken over the business, what is your analysis of what went wrong previously? I understand the point about people but, beyond that, what are the other conclusions from your audit?

Peter Poppinga

If I understand your first question, it was about the several initiatives in the Iron Ore business and how price-sensitive they are. Some of them are cost initiatives, so there is no price component. Gelado and Malaysia are pure cost initiatives. All the others have to do with price realisation, so that means that it is on top of the 62% benchmark. We are increasing our price realisation. Maybe the most powerful project here, which is not yet fully captured in our numbers, is the ability for us to produce more pellet feed in the Southeastern System. As I told you, we have a huge supply gap in the world for pellet feed, because there is this demand for pellets. This is not only to be delivered by our Southeastern System but also by Carajás.

There are new segments in the world where people think, ‘Where is the Carajás going to go? How will this affect prices?’ We have 200 million tonnes today and we are going to go to 240 million. Of the additional 40 million tonnes, 10 million will go to the domestic market and maybe another 10 million to increase our BRBF, and the other 20 million will be destined exactly for those markets where pellet feed is needed, because you can easily transform Carajás fines into pellet feed. These initiatives are very powerful because of this huge demand for feed for pelletising, which can be pellet feed from the Southeastern System or Carajás fines ground at our own plants, as we are already doing. If we can do it in our own plants, why not anywhere in the whole world? These are different segments. This is not in the seaborne equation that people have in mind. It is not very price-sensitive and comes on top of the 62% reference. It is price realisation.

Eduardo Bartolomeo

I will try to be short. It is an interesting question because it is the same question I had when I arrived. I have been at Vale since 2004 and, fundamentally, I saw three things: a lack of business vision, low vertical integration and low horizontal integration. When we talked to people, they said, ‘We did not stop production’, so there was a lack of business vision. There are examples at Long Harbour or even Goro. More importantly, a fundamental problem that we have is low vertical integration. We were integrated with Brazil. We were running a standalone business. Because of the lack of business vision, we were loosely integrated horizontally. People in New Caledonia were left alone in New Caledonia, so when they said, ‘Send a taskforce’, they said ‘We are there in New Caledonia. We are present there. We need to add value to New Caledonia and not only change. It does not matter if we just send another hero to New Caledonia and forget about them.’ It is our office helping New Caledonia through the process that we have in Brazil. This is the vertical part that is bringing Vale inside; the horizontal is bringing us around Indonesia – which is a very hard business, by the way – and Canada and Brazil, and fundamentally bringing a focus on results to everybody. As I said in my presentation, we are being beaten by the underground mines, so there is a huge lack of focus and results there. We run the process very well in Sudbury. We are really good on the process side in Sudbury. This lack of result, this lack of use of knowledge in Brazil, and this lack of trying to disseminate this knowledge are what, in my expectation, are going to be the actions that we will solve. They are hard, which is why, when I finalised my speech, I said, ‘I am not coming here to say, “This is hard.”’ We will do it in a focused and disciplined manner. As Fabio mentioned at the beginning, he is counting on everybody. I do not want to be a hero; I just want to make Base Metals great.

Fabio Schvartsman

As soon as I joined Vale, at one of my first executive meetings, we talked a lot about iron ore and about Brazil, but almost not at all Base Metals. Base Metals was not even present in the discussions. When I asked my colleagues what was going on, they had very little area because there was a clear separation between what was done in Brazil and what is done today. Everything is the same. We are doing everything that is given in every single place: Brazil, Iron Ore, Base Metals and Coal – there is no difference. Everything is part of Vale. This is not a minor thing. It is a totally different mindset that will enable us to become responsible for what is going to happen there. Until then, nobody was responsible – someone who was running the business alone.

Tyler Broda, RBC

I have two questions for Peter on the pellet market. Do you think that having more pellet supply will change the dynamics around the pellet premiums going forward; i.e. is there an element of the lack of pellet supply driving this higher price? Second, in terms of the structure of the pellet market and the annual contract negotiation, how do you see that evolving? There was some talk about whether or not it may become more like other markets, where there is more of a spot component. What are your thoughts?

Peter Poppinga

On the first question, it is no secret that, today, on top of the very high demand, there is a supply shortage, mainly because of Samarco. Once Samarco comes back – and we hope that it will come back very soon, at the beginning of 2020 perhaps – of course there will be an effect. Samarco will come back in a very responsible way and a ramp-up will probably take around three years, so it will not have a big impact at once. The way the structural price negotiations are happening today, what people are not doing is differentiating between first-tier and second-tier pellets. It is very different. When you see people publishing indices in the Asian markets, for instance in China, which is very useful to know, it is sometimes mixing first-tier and second-tier, mostly second-tier pellets. That is very volatile. That is coming from countries that have different policies; it is not constant. In our case we are proud we are first tier. We even sometimes give the market the option: do you want to go for spot? Do you want to go for short-term settlements? It is the market deciding: no, we want to stay with either half-year contracts or one-year contracts, so we say yes, because we think this is good for the stability of the market. We do not see any big change there.

Olivia[?], Merrill Lynch

As a point of clarification on the nickel business, have you already considered an offsetting effect from potentially lower demand for stainless going forward in your base case assumption? Secondly, what is your view on the Chinese steel price going into next year and the year after? Given your business relationship with China, we would be very interested to hear your insights. Lastly, how are we doing on Samarco?

Fabio Schvartsman

She made a connection. She is saying that the demand will go down. Did we take this into consideration?

Eduardo Bartolomeo

The first question was about nickel. We do not believe that. In our projection, we saw a very modest increase in stainless, but in the short term that is not the case, although Fengshun[?] is flooding the market with stainless. We see some softening now, but our projection is still for growth in the stainless steel demand. That is not as huge as the electric vehicle.

Olivia

My second question was on crude steel in China i.e. HRC price.

Peter Poppinga

It is what Fabio said at the beginning. We think the current weakness in the market is a short-term one, because China produced too much steel ahead of the winter with the cuts, which turned out to be not so strict as forecasted. It is seasonal, and I think the stocks of traders are small, so in the first quarter next year you will see restocking naturally happening. In general we think that steel production in China will go up next year. This year we will go up to nine hundred and something. It is going to be 920-925. The 1 billion mark will be very hard, not reachable. What is most important for our business is the pig iron. Pig iron today is around 740-750, and the pig there could be 770. It is still to come, but it will come shortly, because right after that there will be a bit more scrap used in China, so this will go down.

Fabio Schvartsman

Regarding Samarco, the worst is clearly behind us. We are getting closer to restarting. I think that we have almost everything in place to restart it by the beginning of next year. The climate in Brazil towards licensing is starting to improve, which will probably help the restart. Nevertheless it is important to emphasise that what BHP and we were doing regarding Samarco is more a social thing than something that will translate into any kind of return for the companies. As Peter mentioned, the ramp up will be very slow, so the company will not generate enough cash in the first years, and this is because of the necessity having a sustainable and safe operation. That will be the goal. People will come back to work; that is the most important part, so the region will benefit from it, but moneywise there is nothing coming out of Samarco except, as Luciano mentioned, eventually some years ahead we will end up putting more money to work there every single year.

Grant Sephora, Macquarie

I have some number related questions. Firstly, on the pellet market, in your 12-12.5 premium that you guide into for next year, how much of that is akin to the pellets component? Secondly, in your copper plan when do you forecast that Sossego, the current pit, comes to an end? On MBR, what sort of cost reduction in terms of dollar per tonne are you looking at when you buy back those bonds? Thank you.

Peter Poppinga

To the first question on the pellets, do you mean the 2-2.5 price realisation for next year? Yes, there is a good amount of pellet in there. We are not only increasing production, because first of all there is a production increase for next year, because of the ramp-up of the São Luis pellet plant. There will be an additional 5-6 million tonnes there. Of course, there is an important price increase being negotiated as we speak and not yet concluded, but it is going to be an important one. Cristalino is the project that we mentioned that will replenish the depletion of the Sossego mine – if I am not mistaken, 23. It is in the presentation. It is just the pure replacement of the capacity, which is why it is all capex; it is just exploration, and we are using the plant for Sossego. If you remember that minimiser I mentioned, it is another idea to fuel our Sossego plant as well. The whole idea is to feed the plants, so keep it operating, and Cristalino is the best ore for that.

Fabio Schvartsman

The repurchase of MBR shares will not have an impact on costs; it is below the line. It is accounted for as dividends to non-controlling shareholders. We will actually increase consolidated net income available to Vale shareholders; that is going to be the effect.

Liam Fitzpatrick, Deutsche Bank

I have two questions on iron ore. If we do see a sharper than expected slowdown next year and iron ore drops below $60, should we infer from your presentation that you will react relatively quickly from a supply point of view? Secondly, on high-grade premiums, if I remember rightly, last year you talked about a $13-14 per tonne long-term sustainable premium. Does that figure still hold or has it increased? Thank you.

Fabio Schvartsman

It is important to emphasise that we do not believe that prices will go below $60, but having said that, if it goes below $60, we are going to react accordingly.

Peter Poppinga

Just to complement Fabio's remark, we think, like last year and the year before, we will hover around the $70 price reference. On the premiums, the premiums depend on steel margins, on coke prices, and also what people sometimes forget is how much low-quality ore is there to be blended, to be corrected. This has decreased, because of the Indian exports, but it can increase again now, so that affects the premiums. I would say, if you take the average of 2018, which would be around $20-21 on Carajás, and if you go back to 2017, which was around $16, next year would be between $16 and $20 or something like that. This includes the 3-4% Fe. Do not mix it up, there is the premium including the Fe; there is the premium over the Fe correction, so if you take it like that between $16 and $20-21, I guess, would be the average premium. It makes no sense to say one month or two; it is the whole year, and that is my guess.

Fabio Schvartsman

Just to complement and emphasise Peter's point, what we are witnessing is a market that is more quality driven, so if there is an availability of low-quality products the premium will be bigger. If there is no availability of low quality or low grade, because people decide to put it elsewhere, the consequences will be a lower premium, but a higher average price of all ores. For us, it really does not matter if we collect a bigger premium or a bigger price; at the end of the day, the net result is what we are looking for.

Participant, Hermes

First, I want to commend you for setting sustainability targets in terms of clean energy, recovery of the graded land, water and carbon. I wanted to ask if you could give a bit of background on how the carbon target was set. Is it ambitious enough in the sense of is it aligned with the Paris Climate Agreement? What are the challenges that you anticipate in order to achieve this target? The second question is about social licence to operate. I wanted to have a sense of, across your global operations, your main concerns in terms of securing social licence to operate, considering community relations and also labour relation issues? What are the hotspots that need more attention from you in terms of social licence to operate?

Luiz Eduardo Osorio

In terms of the Paris Agreement, it is totally aligned. I would say that we spent the year going through international methodology to verify our carbon footprint, and we have just concluded that. Of course, throughout our operations we analyse new goals. As you know, before time we just met our 2020 goal to reduce 5%; now we are going to 16%, so we are stretching the goal, and this is because of all these technologies and the 4.0 mining that we are moving towards. I would say that it is totally aligned, the national methodology, the strategy, and that is our ambitious goals set for 2030.

Fabio Schvartsman

To emphasise as well, these goals were set according to our investment plans in all of our operations, and it is planned for. It is placed to happen, and our reading is a conservative one. We will try to have even more than the figure that is there. Regarding our social licence, one thing that became clear for me, and for us, is that Vale is a mining company and a mining company that generates a lot of money from operations in several places in the world. It is our duty, our responsibility, to give something back for the communities that are affected by Vale's presence, and we are poised to do so.

When I emphasise in the presentation the recovery of the degraded areas, and the production of income out of it for the population, that is because we are going to build thermal electricity plants there, and we will use the biomass that will be produced from this land in a sustainable way. We are going to guarantee the demand, and consequently the offer will be sustained and people will be rewarded by that.

Vale is totally committed in every region where it operates to see what the necessity is; it is different in each region. The one that I was describing is in the Parai state, which badly needs an improvement in income of the population. That is the way we are looking there. In every single place that we are, we have a specific look at what is necessary there, what it is we can do in order to be in a well-positioned relationship with the community for the social licence to operate.

Ben McEwan, Saracen and Partners

I would like to follow on from the last question regarding the emissions of Vale. I absolutely commend Vale on its emissions reduction target, but when you look at your clients' emissions they are obviously a lot more emissions intensive in the production technologies, as is the current Chinese crude steel production. How do you think about the long-term dynamics of crude steel production in China, from an emissions-intensity perspective, and what does that mean for Vale's production?

Juarez Saliba de Avelar

First of all, the answer that was already given to the other guy about the reduction of emissions is basically scope one and scope two in our internal operations. If you go to the maritime transportation, to our clients, it is another thing. Just for the record, for example, in Brazil about 60% of our emissions is basically in our pelletising plants: the rest is at the mines. Most of this reduction is based in the mines and railways. We are looking for new technologies to reduce the emissions from pelletising plants. We do not have it yet, but we will get that.

Through our pelletizing plant production of pellets we produce a reduction of emissions in our clients. Our fleet of Valemax reduces 40% of CO2 emissions compared to the previous fleet, which is not considered in the 16%. The transportation of our ore produces much more CO2 than our operations in Brazil and elsewhere. The third part is about how we can help our customers to reduce emissions and this problem in Europe is absolutely important, because from 2020 to 2030 they have new targets that have to be reached.

To be very frank with you, we are talking to them and we understand that they do not how to comply with the new targets. We have a view that production of metallics like HBI and the pig iron based on natural gas and biomass is the future in this industry. I can tell you that we are working very hard on this task. If we cannot produce metallics in a competitive way in Brazil, and supply Europe, China and our other clients in a competitive way, and we are quite sure that we can do that, this demand does not exist today. Just as an example, if you feed the best furnace with pig iron or HBI the reduction of emissions can go up to 40% of the feed; the reduction of emissions is about 30-35% [inaudible].

Now we are in touch with a lot of customers interested in this kind of development, and I am quite sure that at next year's Vale Day we will bring something in real terms. We are working very hard, and we are quite confident that we will bring a solution for this kind of thing. If we can do that, our customers will easily comply with the new targets of CO2 emissions in Europe and even in China.

Fabio Schvartsman

Again, just to complement, this is a new step for Vale. This will be the next natural step for our development by which we will generate more value for our existing production.

Amos Fletcher, Barclays

I have a couple of questions on numbers. Luciano, with respect to IFRS 16, what effect is that likely to have on your net debt going into 2019, and does that potentially limit your surplus capital for distribution next year? Secondly, I have a couple of capex questions. What is the potential capex liability you are looking at for Cristalino and for Alemão. Moatize sounds like it may lead to some additional capital. How much capital will the nickel ramp-up from 245 next year to 313 require?

Luciano Siani

In terms of IFRS we are still working on the details. There will be some impact. It will not impact the ability to distribute excess capital, and in due time when we close the books for 2018 we will make public the precise numbers. There will obviously be some impact, but it is not going to be meaningful enough to impair the ability to distribute capital.

Eduardo Bartolomeo

For the copper projects that you asked about, I will not disclose the numbers, but Crystalline is low intense capex at 500-ish, and Alemão is 1 billion, like Salobo, but that fell through, so that is exactly the process we are going through to nail down the cost. Your other question is very important. There is no growth capex for the 313; it is there already. There is sustaining capex, of course, because we need to have the feed to operate the plants, but they are sustaining; there is no growth for any of them. We have [inaudible] a second furnace, but it is still sustaining, very small, so we are able to get back to 313 with no growth capex.

Doug Upton, Capital Research

Thank you very much for the presentation today. I had a question on iron ore. If you are planning to add 10, 20, 25 million tonnes of new capacity, or higher-grade capacity, but to keep the total at the old 400 million tonne number, it means you have to close some capacity somewhere else in the Southeastern System. The experience of the industry is that it is always very difficult to close a mine even when it is losing money, so you want to close mines that may be making small amounts of money. Can you just touch on the challenges of doing that and the cost of doing that? Thank you.

Peter Poppinga

It is not always about closing. First of all, it is not exactly like that. We are going to increase the capacity of high-grade products, but some of this additional tonnage will not go into the traditional seaborne market, so that must be clear. Some of it will go into the domestic markets, some of it will go even to pelletising abroad, which is using domestic concentrate, but, yes, in the Southern System probably we are going to reduce, but not close. We have mines where we can easily switch off some plants, from three or four production plants maybe close down two, and reduce like that, but not closing mines. We are not going to close mines; we are going to reduce production in some of these regions, mainly in the Southern System, but not closing mines.

Tal Lomnitzer, First State Investments

Thank you for the excellent presentation. I just wonder if we could dig a little deeper into capital allocation priorities. I am particularly interested in considering a somewhat more negative scenario for global growth and, in fact, perhaps a global recession which hurts steel prices, and perhaps quality premiums and base metal prices, all at the same time. In such a scenario, can you tell us how much you could cut capex below the $4.4 billion number that you have outlined? If it came to it, what would take priority, investment projects or the dividend?

Fabio Schvartsman

Well, it is a tough question, but let me put it this way. We prepare the company for the bad times. What is really important is that today we have very low indebtedness that will allow us to cope in the best possible way with any scenario. That means that it will be only an issue of allocating between this and that, and it will depend where our defects are concentrated. We are committed to only invest in things that will have a decent return on investment, so if this return is not there, the investment is not going to be there also. We always have some room to cope with that. The business plan that was presented takes into consideration the normal course of business, and if it is not normal, our behaviour will not be normal.

No matter what scenario, the cash generation of this company will be huge. To deliver in China the cost is around $28 per tonne. If the price goes to $50 it will cause a number of unforeseen situations, but even in this scenario we are still generating a big amount of cash out of our operations. On the other hand, the issue of nickel is much more connected to what is going to happen with this electric car revolution. The question is not for us, but to the auto makers that are planning to invest hundreds of millions of dollars, as announced, right now. If they are going to keep their investments they will need batteries. If they need batteries they need nickel. If they need nickel the price of nickel has to be enough to reward it; otherwise there will not be nickel for them.

There are two different situations. In one we are in very good shape regarding cost; in the other we are in very good shape because of the market expectation for nickel.

Luciano Siani

In 2015 our EBITDA bottomed at $7.2 billion, and that is with the fertiliser division. If we adjust for that it would be $6.7 billion. If you take all of the relevant variables of 2015 and re-run the cash flow projections of Vale with those – and that also includes oil prices, which tend to come down and the real exchange rates, which tend to adjust as well – you get to almost twice this number today. If you get an EBITDA between $12 billion and $13 billion, and spending $4.5 billion, and the wreckage that probably will happen in the industry, this will be much more a scenario of opportunities rather than a scenario to retreat and cut investments by $500 million or whatever. It is a completely different game. You should not think of a scenario like this one for Vale as what happened in 2015; we are way more prepared now.

Doug Upton

I was just thinking about the nickel business, and, Fabio, earlier you said the jewel is in Indonesia. This one you own 60% of, and you have to reduce that ownership in the future. Can you firstly just remind us of the sell-down requirement, and how does that look? Secondly, why does this not make it more interesting to look at growing the nickel somewhere where you own 100%, perhaps in New Caledonia, perhaps in Canada somewhere? Those are two thoughts from me.

Fabio Schvartsman

I would love to give you a different alternative, but the only place on earth where you have nickel in volumes that will enable the production to grow is in Indonesia. It is not an issue of choice; either you do it in Indonesia or there will not be nickel for this industry at all. Second, we are different from other companies; we think that we have a very good relationship with Indonesia. We have been there for 50 years. We have never lost money there. We have a good and respectful relationship with them, and we are prepared to go even further in order to build something that is sustainable, because it is so obvious that the only place that you can find nickel in the world is there, other than the nickel that exists today. There, we will have a solution. I can anticipate that we are in advanced conversations them, on very positive grounds. Unfortunately we do not have a choice of doing this in a place where we hold 100% of the company.

Eduardo Bartolomeo

You are right; that is the optimistic scenario, New Caledonia, Canada, like Manitoba, but, again, we have to have optionality. Our focus has to be on Indonesia, as Fabio just explained, but if you look at New Caledonia, it is hard to say, but it is a huge opportunity there. The number for [inaudible] is £1.4 million. From an industry perspective I am really concerned about supply side to not have another imbalance, and we have this [inaudible] in New Caledonia, and even in Canada as well. It is too early to talk about that; our focus has to be Indonesia, because it is the next round; we are there; it is the one that has to come right after. You are right; I think there is optionality there as well.

Fabio Schvartsman

Ladies and gentlemen, thank you very much for joining us, I hope that you enjoyed the presentation. I do not want to bore you, but I want to repeat once more that we have three goals. In iron ore, we continue to improve our flight towards quality. The challenge of this organisation is to speak of base metals as we speak of iron ore, and we are looking to make it happen in the short term. Finally, you can count on the capital discipline; we will continue with large dividends, distributions and shareholder buybacks to the investors. Thank you.

This Verbatim Transcript was produced by Ubiqus UK ☎ +44 (0) 20 7269 0370
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