

# 2017 Annual report

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To be more environmentally friendly, Rio Tinto is reducing the print run of all publications. We encourage you to visit the website to learn more about the Group's performance in 2017 and to view all available PDFs of this Annual report and the Strategic report.

[riotinto.com/ar2017](http://riotinto.com/ar2017)

#### Key

► Page reference for more information within this report

**KPI** Denotes key performance indicators

This Annual report, which includes the Group's 2017 Strategic report, complies with Australian and UK reporting requirements.

Copies of Rio Tinto's shareholder documents – the 2017 Annual report and 2017 Strategic report, along with the 2018 Notices of annual general meeting – are available to view on the Group's website at: [riotinto.com/ar2017](http://riotinto.com/ar2017) and [riotinto.com/agm2018](http://riotinto.com/agm2018)

#### Cautionary statement about forward-looking statements

This document contains certain forward-looking statements with respect to the financial condition, results of operations and business of the Rio Tinto Group. These statements are forward-looking statements within the meaning of Section 27A of the US Securities Act of 1933, and Section 21E of the US Securities Exchange Act of 1934. The words "intend", "aim", "project", "anticipate", "estimate", "plan", "believes", "expects", "may", "should", "will", "target", "set to", or similar expressions, commonly identify such forward-looking statements.

Examples of forward-looking statements in this Annual report include those regarding estimated ore reserves, anticipated production or construction dates, costs, outputs and productive lives of assets or similar factors. Forward-looking statements involve known and unknown risks, uncertainties, assumptions and other factors set forth in this document that are beyond the Groups control. For example, future ore reserves will be based in part on market prices that may vary significantly from current levels. These may materially affect the timing and feasibility of particular developments. Other factors include the ability to produce and transport products profitably, demand for our products; changes to the assumptions regarding the recoverable value of our tangible and intangible assets, the effect of foreign currency exchange rates on market prices and operating costs, and activities by governmental authorities, such as changes in taxation or regulation, and political uncertainty.

In light of these risks, uncertainties and assumptions, actual results could be materially different from projected future results expressed or implied by these forward-looking statements which speak only as to the date of this Annual report. Except as required by applicable regulations or by law, the Group does not undertake any obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events. The Group cannot guarantee that its forward-looking statements will not differ materially from actual results. For a description of certain factors that may affect Rio Tinto's business financial performance or results of operations, we urge you to look at the Risk management and principal risks and uncertainties on pages 18 to 25 inclusive of this report.

# Performance highlights

## Operating cash generation of US\$13.9 billion, record full year dividend of US\$5.2 billion and an additional US\$1 billion share buy-back

Rio Tinto reported a strong set of results with operating cash flow of US\$13.9 billion, a record full year dividend of US\$5.2 billion and an additional US\$1 billion share buy-back. This brings total cash returns to shareholders to US\$9.7 billion declared for 2017.

The strength of the Group's cash flow is a result of resilient prices during the year coupled with a robust operational performance and a focus on mine-to-market productivity.

The Group's strong balance sheet, world-class assets and disciplined allocation of capital put Rio Tinto in the unique position of being able to invest in high-value growth through the cycle, and consistently deliver superior cash returns to shareholders.

### 2017 highlights

- Record full year ordinary dividend of US\$5.2 billion, equivalent to 290 US cents per share, includes final dividend of US\$3.2 billion, equivalent to 180 US cents per share.
- Additional share buy-back of US\$1.0 billion in Rio Tinto plc shares, to be completed by the end of 2018.
- Generated operating cash flow of US\$13.9 billion, underlying EBITDA<sup>(1)</sup> of US\$18.6 billion and a ten-year record EBITDA margin<sup>(2)</sup> of 44 per cent.
- Delivered underlying earnings of US\$8.6 billion and net earnings of US\$8.8 billion.
- Achieved US\$0.4 billion of additional free cash flow from mine-to-market productivity programme<sup>(3)</sup>, against a backdrop of rising raw material costs across the industry.
- Investing in growth with Silvergrass in production, Amrun and Oyu Tolgoi projects on track.
- Reshaping the portfolio with US\$2.7 billion of divestments in 2017.
- Reduced net debt to US\$3.8 billion.

### Results at a glance

	Year to 31 December	2017	2016	Change
<b>KPI ► 114</b>	Net cash generated from operating activities (US\$ millions)	<b>13,884</b>	8,465	+64%
	Underlying EBITDA <sup>(1)</sup> (US\$ millions)	<b>18,580</b>	13,510	+38%
<b>KPI ► 132</b>	Underlying earnings <sup>(1)</sup> (US\$ millions)	<b>8,627</b>	5,100	+69%
	Net earnings (US\$ millions)	<b>8,762</b>	4,617	+90%
<b>KPI ► 131</b>	Capital expenditure <sup>(4)</sup> (US\$ millions)	<b>(4,482)</b>	(3,012)	+49%
	Underlying earnings <sup>(1)</sup> per share (US cents)	<b>482.8</b>	283.8	+70%
	Basic earnings per share (US cents)	<b>490.4</b>	256.9	+91%
	Ordinary dividend per share (US cents)	<b>290.0</b>	170.0	+71%
	<b>At 31 December</b>	<b>2017</b>	<b>2016</b>	<b>Change</b>
<b>KPI ► 149</b>	Net debt <sup>(5, 7)</sup> (US\$ millions)	<b>3,845</b>	9,587	-60%
	Net debt to underlying EBITDA <sup>(6, 8)</sup>	<b>0.2</b>	0.7	
	Net gearing ratio <sup>(7, 8)</sup>	<b>7%</b>	17%	

The financial results are prepared in accordance with IFRS, as defined on page 118.

(1) Underlying EBITDA and earnings are key financial performance indicators which management use internally to assess performance. They are presented here to provide greater understanding of the underlying business performance of the Group's operations. Net and underlying earnings relate to profit attributable to the owners of Rio Tinto. Underlying EBITDA and earnings are defined on page 132. Underlying earnings is reconciled to net earnings on page 133.

(2) EBITDA margin is defined as Group underlying EBITDA divided by product group total revenues as per the Financial information by business unit on page 206 where it is reconciled to profit on ordinary activities before finance items and taxation and consolidated sales revenue. This financial metric is used by management internally to assess performance, and therefore is considered relevant to users of the accounts.

(3) Mine-to-market productivity improvements refer to the additional free cash flow generated from post-tax operating cash cost improvements and post-tax volume gains from productivity programmes. This financial performance indicator is used by management internally to assess performance, and therefore is considered relevant to users of the accounts.

(4) Capital expenditure comprises the cash outflow on purchases of property, plant and equipment and intangible assets and is presented gross, before taking into account any cash inflows from disposals of property, plant and equipment.

(5) Net debt is defined and reconciled to the balance sheet on page 149

(6) Net debt to underlying EBITDA is defined as the period end net debt divided by the previous 12 months' underlying EBITDA.

(7) Net gearing ratio is defined as net debt divided by the sum of net debt and total equity at each period end.

(8) These financial performance indicators are those which management use internally to assess performance, and therefore are considered relevant to users of the accounts.

# Group overview

## Introduction to Rio Tinto

For 145 years, Rio Tinto has been pioneering the production of materials essential to human progress.

Our minerals and metals help make modern life work. They are found in buildings and infrastructure, in vehicles and transport networks, and throughout the home.

Through the products we deliver, and the partnerships we create and nurture, Rio Tinto works to make a difference in our local communities and in the world at large.

The portfolio we have created, and that we are continually optimising, provides us with a competitive advantage. By investing throughout the cycle, we have developed a suite of high-quality, expandable assets that are positioned for decades of premium production.

Our organisation is centred on these assets, which themselves are managed through four product groups: Iron Ore, Aluminium, Copper & Diamonds and Energy & Minerals. In turn, these four product groups are supported by our global and headquarters functions, and by our Growth & Innovation and Commercial groups.

Our strategy is founded on our asset portfolio, on building a high-performance culture across the business, and on maintaining discipline when allocating capital. This allows us to focus on maximising cash through a value-over-volume approach, and on delivering superior returns to our shareholders.

As they deliver our strategy, our 47,000 people worldwide work with a common code of conduct and the same set of values: safety, teamwork, respect, integrity and excellence. Safety is our number one priority, and always comes first at Rio Tinto.

We continue to pioneer progress for a better future. Every day, we look for ways to make our business stronger – driving productivity and performance from mine through to market.

## Iron Ore

Rio Tinto operates a world-class iron ore business, supplying the global seaborne iron ore trade. We are well positioned to benefit from the continuing demand across China, other Asian economies, and the developing world. Located in the Pilbara region of Western Australia, our Iron Ore product group's operations are able to achieve industry-leading margins.

### Products

#### Iron ore

Iron ore is the key ingredient in the production of steel, one of the most fundamental and durable products for modern-day living, with uses from railways to refrigerators, and pipes to paperclips.

### Strategic advantages

- Strong presence in key markets.
- Proximity to key Asian markets.
- World-class assets, comprising an exclusive, integrated supply chain with extensive long-term optionality.
- A premium product suite, which drives strong customer relationships, supported by technical expertise.
- A high-margin (68 per cent FOB EBITDA margin) and low-cost position with a Pilbara cash unit cost of US\$13.4 per tonne in 2017.
- Strong mineral resources providing multiple high-quality, low-cost options to sustain and grow our Pilbara operations.
- Industry leader in supply chain management, responsible mining, and technology and innovation.

Key production locations	Key sales destinations
– Australia	– Mainland China
	– Japan
	– South Korea
	– Taiwan

Full operating review ► 38

## Aluminium

Building on more than a century of experience and expertise, Rio Tinto is a global leader in the aluminium industry. Our business includes high-quality bauxite mines, large-scale alumina refineries, and some of the world's lowest-cost, most technologically-advanced aluminium smelters.

### Products

#### Bauxite

Bauxite is the ore used to make aluminium. It is first refined into alumina, which is subsequently smelted into primary aluminium. Our wholly- and partly-owned bauxite mines are located in Australia, Brazil and Guinea.

#### Alumina

Alumina (aluminium oxide) is extracted from bauxite via a refining process. Approximately four tonnes of bauxite are required to produce two tonnes of alumina, which in turn yield one tonne of aluminium. Our wholly- and partly-owned alumina refineries are located in Australia, Brazil and Canada.

#### Aluminium

Aluminium is a versatile modern metal. Light, strong, flexible, corrosion-resistant and infinitely recyclable, it is one of the most widely-used materials in today's world. The largest markets for aluminium are transportation, machinery and construction. Rio Tinto's smelters are in Canada, France, Australia, New Zealand, Iceland and Oman.

### Strategic advantages

- Access to large and high quality bauxite ore reserves, strategically located to meet growing demand in China.
- Among the lowest-cost bauxite producers.
- Exceptional hydropower position, which delivers significant cost and other advantages in an energy-intensive industry and an increasingly carbon-constrained world.
- The world's first certified low carbon dioxide aluminium, RenewAl™, with a carbon footprint one third of the industry average.

Key production locations	Key sales destinations
– Canada	– Asia
– Australia	– Americas
– Europe	– Europe

Full operating review ► 40

## Copper & Diamonds

Rio Tinto's Copper & Diamonds product group manages operations in Australia, Canada, Mongolia and the US. We also have interests in non-managed operations in Chile and Indonesia. We are the world's ninth largest producer of copper and one of the world's largest diamonds producers. As by-products of its copper production, the group also produces gold, silver, molybdenum and other materials such as sulphuric acid, rhenium, lead carbonate and selenium.

### Products

#### Copper

Copper is a vital component for the world's electricity infrastructure, digital communications and green technologies. Voice, data and information systems rely on copper, and it helps power wind energy and solar collection, as well as energy-efficient buildings and electric vehicles. Copper is also used in medical applications and drinking water infrastructure, where it is valued for its antimicrobial properties.

#### Diamonds

Rio Tinto produces diamonds in a full range of sizes, qualities and colours for all established and emerging consumer markets.

#### Gold

Gold is used as a financial instrument and a store of value, but it has medical, electronic and computing applications, as well as in jewellery.

#### Silver

Silver is used in electronic devices, in aerospace and medical applications, and to make jewellery. As a precious metal, it is also used as an investment.

#### Molybdenum

When combined with other metals, molybdenum creates more durable materials that are better able to resist high-temperatures and corrosion. It is often used to produce metal alloys such as stainless steel.

### Strategic advantages

- A portfolio of large, high-quality copper assets.
- Attractive copper growth opportunities.
- Global copper and diamond exploration, mining and processing operations.
- Strength in delivering mine-to-market productivity.
- Leading technology and processes for underground mining.

Key production locations	Key sales destinations
– Australia	– Australia
– Chile	– China
– Mongolia	– India
– North America	– Japan
– Indonesia	– North America
	– Europe

Full operating review ► 42

## Energy & Minerals

Rio Tinto's Energy & Minerals product group comprises mining, refining and marketing operations in 14 countries, across six sectors: borates, coal, iron ore concentrate and pellets, salt, titanium dioxide and uranium. The Energy & Minerals group also includes the Jadar lithium-borate project in Serbia and the Simandou iron ore project in Guinea.

### Products

#### Borates

Refined borates are used in hundreds of products and processes. They are a vital ingredient of many building materials and are essential micronutrients for crops. They are also commonly used in glass and ceramic applications, including fibreglass, television screens, floor and wall tiles, and heat-resistant glass.

#### Coal

Coking coal, or metallurgical coal, is mixed in furnaces with iron ore to produce steel. Following the disposal of Coal & Allied during 2017, Rio Tinto now has only limited interests in thermal coal, which remains an important part of the energy mix in some parts of the world.

#### Salt

Salt is one of the basic raw materials for the chemicals industry, and is indispensable to a wide array of automotive, construction and electronic products, as well as in water treatment, food and healthcare.

#### Titanium dioxide

The minerals ilmenite and rutile, together with titanium dioxide slag, can be transformed into a white titanium dioxide pigment or titanium metal. The white pigment is a key component in paints, plastics, paper, inks, textiles, food, sunscreen and cosmetics. Titanium metal is lightweight, chemically inert and strong, making it ideal for use in medical applications and in the aerospace industry.

#### Uranium

Uranium is one of the most powerful energy sources, and is used in the production of clean, stable, base-load electricity. After uranium is mined, it is processed into uranium oxide. This product is then sold for processing into fuel rods for use in nuclear power stations.

Other products from the Energy & Minerals product group include high-purity ductile iron, steel billets, metal powders and zircon. High-purity ductile iron is supplied to the foundry industry for ductile castings. Steel billets are transformed into seamless pipe for the oil and gas industry or wire rod, which has many applications from fasteners to automotive springs. Metal powders are used in a variety of industries, such as automotive, and in sintered components, food enrichment, friction, water treatment and welding. Zircon's high refractive index and solid opacity makes it ideal for the ceramics industry, mainly for tiles and sanitaryware. It is also used to manufacture catalysts, refractories, and medical prosthetics, as well as being applied in nuclear reactors, chemical processing plants and foundries.

### Strategic advantages

- Demand-led, integrated operations that are responsive to the changing external environment.
- Minerals business poised to benefit from mid-to-late development-cycle demand growth as consumption increases in emerging markets.
- A lean, scalable operating model running cash-focused businesses.

Key production locations	Key sales destinations
– North America	– North America
– Australia	– China
– Africa	– Japan
	– Europe

Full operating review ► 44

## Growth & Innovation

The Growth & Innovation group supports Rio Tinto's assets to achieve superior performance throughout their lifecycle by optimising value from the development of the initial concept to the point when a mine or processing facility is eventually closed. Growth & Innovation works in partnership with Rio Tinto's product groups to find, study, develop and optimise assets to ensure they are safe, productive and profitable. Its centralised exploration, capital projects and technical capabilities enable Growth & Innovation to deliver portfolio growth and solutions to operational and business challenges through innovation, productivity and technology.

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## Commercial

The Commercial group is focused on maximising the value of our products; growing value in the marketplace through partnership with the company's customers, suppliers, product groups and Group functions. Headquartered in Singapore, and integrated with Rio Tinto's assets, hubs, and offices globally, Commercial's purpose is to provide the commercial insights to drive value along the mine-to-market value chain. Commercial incorporates and utilises the knowledge and capabilities of the global Sales & Marketing, Procurement, and Marine & Logistics organisations, supported by the Market Analysis, Commercial Treasury and other functions, to ensure our approach to business is driven by a commercially-astute and innovative mind-set. The Commercial group came under the leadership of the newly appointed chief commercial officer on 1 January 2018.

# Chairman's letter

## Dear shareholders,

In 2017, your company delivered a strong financial performance and significant cash returns to shareholders. These results were achieved through a focused strategy, disciplined capital allocation and the commitment of our employees around the world.

The cyclical nature of our industry is readily apparent. Just over two years ago, the prices for many commodities were at near decade lows. In 2017, prices for a number of our key products were higher than in 2016. This, combined with our strong cash and productivity focus, helped underpin Rio Tinto's underlying earnings and cash generation.

Underlying earnings in 2017 were US\$8.6 billion, up 69 per cent on 2016. Net earnings were US\$8.8 billion (2016: US\$4.6 billion) and operating cash flow was US\$13.9 billion (2016: US\$8.5 billion).

Rio Tinto continued to realise considerable savings from its cost reduction programme, delivering US\$0.6 billion of pre-tax improvements and reductions in 2017 and meeting its US\$2.0 billion target for 2016 and 2017 six months earlier than scheduled.

The company ended the year with a strengthened balance sheet, with net debt reduced to US\$3.8 billion.

## Record shareholder returns

Rio Tinto declared cash returns to shareholders of US\$9.7 billion for 2017, including record dividends.

We announced a final dividend of 180 US cents per share, equivalent to US\$3.2 billion, bringing the full year 2017 ordinary dividend to 290 US cents per share, equivalent to US\$5.2 billion. The final dividend is the largest in your company's 145-year history.

For 2017, we announced buy-backs of US\$2.0 billion, the first US\$1.0 billion having been announced in August 2017 and completed in December 2017, and the second US\$1.0 billion announced with our full year results in February 2018 and to be completed by the end of 2018.

A supplementary share buy-back of US\$2.5 billion from the Coal & Allied sale proceeds was announced in September 2017.

## Supporting our communities

Our shareholder returns are significant, and so is the economic and social contribution we make in the countries in which we operate.

In 2017, more than a third of Rio Tinto's direct economic contribution was through payments to suppliers – businesses large and small – for their goods and services.

Our contribution is not monetary alone; it is also shared through generations in education, skills development and community development.

In this report, and through our Sustainable development report, you will find examples of our work in action; be it delivering on our strong commitment to environmental management, building our relationship with governments and civil society, or building our community links through local procurement partnerships.

Rio Tinto seeks to act in ways that strengthen transparency, understanding and trust with all of its stakeholders and through pioneering publications, such as our Taxes paid report, we have sought to build awareness and understanding of the significant economic contribution we make.

## Board composition

In 2017, your directors visited Rio Tinto's iron ore operations in the Pilbara region of Western Australia, aluminium assets in the Saguenay-Lac-Saint-Jean region of Quebec, Canada, as well as our global commercial centre in Singapore.

Such visits allow us to meet with employees and host governments to gain a greater understanding of our people and operations' local contribution.

Board renewal was a feature of the past year. We said thank you and farewell to non-executive directors Robert Brown, Anne Lauvergeon and John Varley, and welcomed David Constable, Sam Laidlaw and Simon Henry to the board as non-executive directors.

On 15 February 2018, we also announced that, after more than ten years of service, Paul Tellier will be retiring from the board in early May 2018, as well as the appointment of Moya Greene as a new non-executive director. Moya will join the board in the second half of 2018.

On 5 March 2018, Simon Thompson will succeed me as chairman of Rio Tinto. Simon has served on the board since 2014 and has significant experience of the industry, having led various extractive businesses in multiple geographies. I am pleased to be succeeded by Simon and know that he will do an outstanding job chairing your company.

## Personal reflections

I would like to thank the board of directors and you, our shareholders, for the opportunity to serve this company for the past nine years as chairman. It has been a privilege to work with many outstanding people across the organisation and to have learnt so much about an exciting industry that continues to provide the materials that are essential for modern life.

There is no doubt it has been both challenging and rewarding to chair a business that is so cyclical in nature. The industry's move, some years ago, to sell iron ore by reference to spot prices rather than annually fixed prices, further introduced unprecedented levels of short-term volatility in an already cyclical industry.

The investment in 2011 of US\$4 billion in Mozambique in what ultimately turned out to be inferior quality coal assets was undoubtedly a low point during my tenure. It was also a difficult moment for the board when we took the decision to notify the relevant authorities about contractual payments made in 2011 to a consultant providing advisory services on the Simandou project in Guinea.

Along with the obvious challenges, there have also been many highlights. Nine years ago, Rio Tinto had net debt of almost US\$40 billion; net debt is now less than US\$4 billion.

Shareholders contributed US\$15 billion of much needed capital by way of a rights issue three months into my chairmanship. However, since the start of 2011, and including the US\$6 billion that will be paid to shareholders during 2018, we will have returned in excess of US\$40 billion in the form of dividends and share buy-backs.

In terms of share price performance and total shareholder return, over the last nine years we have outperformed the sector by a considerable margin.

Rio Tinto today has arguably the strongest balance sheet in the sector. Taken together with the quality of our assets, I therefore have every confidence that, under the leadership of our chief executive J-S Jacques, Rio Tinto has a bright future.

## Our people

Clearly, none of our achievements would have been possible without the incredible dedication and hard work of thousands of employees worldwide. My final thanks must therefore go to our people, many of whom I have met on my many visits to offices and operating sites. Without them Rio Tinto would simply not be the great company that it is. I wish them well.



**Jan du Plessis**  
Chairman  
28 February 2018



# Chief executive's statement

## Dear shareholders,

It is a great privilege to lead Rio Tinto, a company that has been pioneering progress for 145 years, with a commitment to delivering superior value for our shareholders over the short, medium and long term.

I am very pleased to report that in 2017 we delivered on this commitment, declaring total cash returns to shareholders of US\$9.7 billion for the year, including a record full year dividend of US\$5.2 billion. This was made possible by our relentless focus on our value-over-volume approach, disciplined capital allocation and the hard work of our 47,000 employees.

Across the company, we are looking to step up our performance, starting with safety.

### Safety comes first

Safety is one of Rio Tinto's core values and will always be our first priority.

Overall, it is pleasing to report that our safety performance improved in 2017. Our critical safety indicators are moving in the right direction but we have more to do.

In October 2017, a colleague died at our Rio Tinto Kennecott copper smelter in the US. I met with his workmates at the operation and committed to share the learnings from the incident across the business.

In the same month, there was a health-related death of a colleague undertaking field reconnaissance work.

In 2017, three people died at our non-managed sites.

All of these tragedies are deeply distressing and we must do better. Our safety strategy has many components and, over the past year, we completed the roll out of our critical risk management (CRM) fatality prevention programme across more than 60 sites. CRM focuses on the tasks and critical risks within an individual's direct control, and, during the year, more than 1.4 million critical control verifications were completed.

We also go beyond physical safety. For any given task, the state of mind and health and wellbeing of our people is also important. That is why we are actively involved in promoting mental health awareness programmes and fatigue management initiatives.

In 2018, we will do all we can to make our employees and operations safer in the year ahead.

### Performance: Strong results

Rio Tinto's value-over-volume approach and an increase in prices for some of our commodities combined to deliver both higher company margins and cash generation in 2017.

We delivered US\$18.6 billion of EBITDA and cash of US\$13.9 billion in 2017. We improved margins to the best in a decade with an EBITDA margin for the year of 44 per cent.

The Iron Ore group delivered free cash flow of US\$7.3 billion and FOB (free on board) EBITDA margins of 68 per cent as customers demanded our higher-quality product.

The Aluminium group delivered US\$1.4 billion in free cash flow, with an integrated operations EBITDA margin of 35 per cent: our highest in more than a decade. This was achieved despite increases in input costs as a result of inflationary cost pressure in the industry more generally.

The Copper & Diamonds group delivered free cash flow of US\$0.3 billion, including US\$1.2 billion in capital expenditure as activity ramped up at the Oyu Tolgoi underground project.

The Energy & Minerals group delivered free cash flow of US\$1.5 billion taking advantage of our latent capacity and better market conditions.

Our focus on cash generation and disciplined capital allocation saw Rio Tinto close the year with net debt of US\$3.8 billion, and a balance sheet amongst the strongest in our sector.

The strength of our balance sheet meant that the proceeds from the sale of our Coal & Allied thermal coal business were returned to shareholders by way of a US\$2.5 billion supplementary buy-back.

### Mine-to-market productivity

Across our business, from mine to market, we are looking to add value, not just cut costs, by harnessing thousands of productivity initiatives.

Lifting the performance of our US\$50 billion asset base is among the most value-accretive programmes we can deliver within our direct control.

Since 2012, we have reduced our costs by US\$8.3 billion and last year we committed to a five-year, US\$5 billion productivity agenda. In 2017, we delivered US\$0.4 billion of additional free cash flow from our mine-to-market productivity programme against a backdrop of rising raw material costs across the industry.

Our productivity agenda is multi-faceted and focused in four areas: securing and embedding gains through deploying best practice approaches; working with our partners; harnessing automation opportunities; and using the power of data in our business to lift the utilisation of our equipment and assets.

We have thousands of productivity initiatives across the company from lifting truck utilisation rates to energy management systems. Every tonne, every half per cent matters.

Rio Tinto prides itself on its pioneering approach to new technologies, to deliver faster and better processes, cleaner and greener outcomes.

There are many examples, from automated trucks and trains, to remote operated drills and drones. In exploration with indicator minerals, to construction with 3D modelling for new projects, to the many proprietary technologies in our Canadian smelters delivering efficiency, productivity and a competitive cost profile.

Our strategy, supported by the appointment of a chief commercial officer, also has a strong emphasis on better understanding the markets in which we operate and partnering with our customers to develop new products of most value to them, such as new aluminium alloys for the automotive industry.

We are also working with our equipment suppliers, making the best use of their expertise and insights to plan together and consider technology roadmaps for the smart mines of the future.

### Portfolio: Developing a world-class asset portfolio

The past year saw a strengthening of Rio Tinto's portfolio, solid progress on our high-value return projects, and the exploration of new avenues for growth.

In terms of our growth projects, we completed construction of the Silvergrass mine in the Pilbara and now have studies under way for the Koodaideri project for early next decade to replenish and maintain the quality of our Pilbara iron ore blend.

In Mongolia, at Oyu Tolgoi, construction of the underground development proceeds at pace and first copper production from this world-class asset is due in 2020.

In Cape York, Australia, the Amrun bauxite project is now more than half complete. With equity interests in four of the world's largest bauxite mines, we are in a prime position to grow.

Structural changes occurring in China's aluminium sector, combined with an emerging carbon emissions scheme, provide us with the opportunity to look at a staged expansion of our hydro-powered low-cost Canadian smelters. We will advance these studies during 2018.

With a view to the future, within our Energy & Minerals group we established a unit to look at new opportunities in metals and minerals associated with new technologies, trends and the needs of an urbanising and changing world.

An example of this is our Jadar lithium-borates project. Lithium and borates are used in products as diverse as batteries for electrical vehicles, smartphones and fertiliser.

Our commitment to exploration remains strong. In 2017, we forged a global exploration collaboration agreement with China Minmetals Corporation, and around the world we are actively partnering, combining our global expertise with local knowledge and boots on the ground.

## People: Engaged and capable employees

Our 47,000 employees in around 35 countries are focused on safety, cash generation, productivity and living our values. I had the opportunity to meet with many of our people during the year when visiting our operations, and also spent significant time with our customers and other partners.

*The way we work* – our code of conduct – is underpinned by our values: safety, teamwork, respect, integrity and excellence. These guide us every day, in the decisions we make, and in how we behave. In 2017, we spent considerable time communicating and discussing our values and code of conduct in a global programme which focused on engaging Rio Tinto leaders. This effort is now being pioneered by employee values champions right across the business.

In 2017 we introduced a new leadership development programme – Leading for Success – and revitalised our graduate and high-potentials programme as we build a pipeline of talented future leaders of our company. We are also investing in building technical and commercial capability in our workforce, which will enable us to lead the industry in both operational and commercial excellence.

## Partnership: Partnering for progress

At Rio Tinto, our partnerships help us deliver our strategy and we must continue to provide our partners with confidence that we produce the essential materials the world needs, responsibly.

We never take our licence to operate for granted. We know that, if we are to be successful, we must continue to build strong partnerships at every stage of our business – through exploration, development, operations and closure.

In this report, you will see examples of our contributions to sustainable development throughout the lifecycle of our operations. Right from the start of a project, we look for ways to provide work and business opportunities for our host communities, while protecting the environment. For example, at one of our key growth projects, Amrun in Australia, we are working in partnership with local businesses to maximise employment opportunities for local Aboriginal people.

In 2017, we strengthened our focus on engagement with our key stakeholders, including our host communities and governments, our employees, our supply chain partners, and with our industry peers through associations.

Our business invested US\$176 million across nearly 1,300 programmes covering health, education, environmental protection, housing, agricultural and business development sectors.

Education remains a key focus. Often we are the education catalyst, working in partnership with schools, training providers and universities.

In Mongolia, programmes delivered by Oyu Tolgoi have seen more than 1,900 vocational teachers receive assistance. Last year, an

18-year-old son of a nomadic herder, trained by teachers from a participating school, represented his nation as a welder in an international competition.

In the US, the Resolution copper project supports science, technology, engineering and math (STEM) programmes in Arizona for children and teacher training for local high schools.

In Australia over many decades, we have partnered with a range of universities and organisations to deliver STEM initiatives.

In Beijing, China we extended our partnership with Tsinghua University focused on sharing best practice in resources, energy and sustainable development. This builds on our many partnerships with China.

Last year, with China's Sinosteel Corporation, we celebrated 30 years of the Channar iron ore joint venture in Western Australia; a pioneering partnership that became a template for many others. In addition, we signed a Memorandum of Understanding with China's State-owned Assets Supervision and Administration Commission (SASAC) to develop executive training for Central State-owned Enterprise leaders on areas including stakeholder engagement, licence to operate, environmental and economic assessments and community engagement.

## Industry leadership

Our strong financial results for 2017 show the value of a world-class portfolio, a strong balance sheet, disciplined capital allocation and our excellent team.

Our aim is to ensure everyone goes home safe every day; to build on our productivity agenda; and to ensure our people, customers, suppliers and our communities, as our partners, continue to share in future success. We want to leave a positive and lasting legacy for those that follow in our footsteps.

We strive to be the most value-creating mining and metals company in the industry and I can assure you our ambition in 2018 remains to achieve this.



**J-S Jacques**  
**Chief executive**  
28 February 2018



# Market environment

## Global economy

The ongoing recovery is expected to have produced global growth in the region of 3 per cent in 2017, up from 2.4 per cent in 2016. There was reduced volatility, with both advanced and emerging economies gaining momentum. Manufacturing output, global trade, and business and consumer sentiment picked up, while inflationary pressures remained largely muted.

Developed economy growth improved moderately in 2017, driven by rising investment, inventories and manufacturing exports, with the US and EU enjoying a manufacturing recovery over the first three quarters. Stronger demand, and dwindling spare capacity combined with higher input costs in the US, caused some manufacturers to implement price increases late in the fourth quarter. In the US and EU, many macroeconomic indicators are now at levels not seen since before the global financial crisis.

Although the US Federal Reserve increased rates three times in 2017, other major central banks maintained highly accommodative monetary policies. With inflation under control, both the European Central Bank and Bank of Japan were able to maintain loose monetary conditions to support continued recovery. In response, ten-year Treasury bond yields drifted gradually down to a low of 2.06 per cent in September before reversing course for the remainder of the year on concerns the US Government's fiscal agenda would drive inflation higher.

China's economic performance peaked in the first half, with full year growth of 6.9 per cent supported by export recovery, strong property sales and improved corporate earnings. By the fourth quarter, however, Chinese property sales were slowing, while supply-side reforms and tightened environmental controls increased pressure on production. The government also redoubled efforts to reduce credit growth, in particular local government borrowing. This latter element is expected to exert downward pressure on infrastructure investment growth.

Other emerging markets also experienced better economic conditions due to improved global trade, higher commodity prices and supportive monetary policy conditions. While aggregate credit growth in key emerging markets remains weak, Brazil still recovered from recession, Russia adjusted to lower oil prices over the year, and India moved past an extended period of weak corporate performance.

## Drivers of commodity prices

Long-term structural economic trends are important drivers of commodity prices through their effects on demand. The economic development and urbanisation of emerging countries goes through an initial investment-led growth phase, benefiting commodities such as steel and copper used in construction and infrastructure. As economies evolve, other commodities such as light metals, energy products and industrial minerals tend to take over as the main enablers of consumption-led growth.

The long-term nature of mining tends to result in cyclical investment patterns, translating into commodity price cyclicality. Over the past two years, the industry has recovered from a cyclical low. Investments made during the previous cycle have mostly been delivered and peak supply is evident in some commodities in a context of resilient Chinese demand and stronger global growth. With markets for most metals and minerals moving into balance, the industry remains focused on cash accumulation, conservative investment strategies and a rebalancing of asset portfolios. A focus on maintaining strong balance sheets while delivering cash returns to shareholders remains. Productivity and cost reduction initiatives continue as global deflation increases cost headwinds.

## Commodity markets

Commodity markets continued to strengthen in 2017, supported by stronger economic growth, particularly in China. Restructuring and capacity closures across the Chinese heavy industry complex led to improved profitability and supported significant increases in commodity prices. Copper prices rose over 20 per cent from the start of the year to average around US\$3/lb in the fourth quarter – reaching a three-year high in the process. Strong supply growth in 2016 eased during 2017, a

function of fewer new mines and more frequent disruptions, helping to support prices.

Aluminium prices started 2017 at around US\$1,700/tonne and increased by more than 20 per cent during the year to average around US\$2,100/tonne in the fourth quarter. Chinese smelter capacity closures and tightened environmental regulations contributed to improving profitability and sentiment. However, margins were partially eroded by higher energy, carbon and alumina costs. Alumina prices rallied strongly, up over 75 per cent from lows of around US\$275/tonne FOB (free on board) in the second quarter to over US\$480/tonne in quarter four, as declining bauxite availability within China constrained alumina output. Bauxite did not match these increases, and average Chinese import prices fell moderately to just under US\$50/tonne, as new supply from Guinea, Australia and Brazil replaced volumes lost to Malaysia's export ban.

After a strong start to the year, iron ore prices corrected sharply in the second quarter, falling from over US\$90/dry tonne CFR (cost and freight) to around US\$55. This volatility was partially attributed to market concerns on improving seasonal iron ore availability, growing inventories and a less optimistic outlook on Chinese growth. Iron ore prices have since recovered, in line with the broad price strength observed in the commodity space.

## Outlook

Global economic growth is expected to improve further to around 3.2 per cent in 2018. Stronger-than-expected macro economic performance in 2017, benign central bank monetary policies, and improved global trade are increasing optimism that the global recovery will continue. Risks related to a rapid deceleration in China also appear to be somewhat reduced. There are, however, a number of unresolved issues around Brexit and concerns over both overinflated asset prices and potential US trade measures. Geopolitical tensions in the Middle East, Iran and between the US and North Korea also remain in a heightened state.

The US tax reduction package is improving business sentiment and investment, creating upside risks for US GDP growth. Prospects for a government infrastructure construction plan are less clear, however, given funding constraints and implications for the federal deficit. Downside risks include further monetary normalisation, rising inflation and the high valuations of US equities. Rising bond yields and higher inflation triggered a correction in the US equity market in late January 2018, signalling an end to a period of low volatility.

Eurozone growth prospects remain positive, at least into the first half of 2018, given high capital spending and strong consumer and business sentiment. In Japan, quantitative easing and supportive fiscal policy should also help boost business investment and prevent further deflation.

Emerging market prospects are supported by solid world trade growth, higher commodity prices, stronger capital inflows and a weaker US dollar. Further gradual rises in US interest rates could inhibit capital inflows in the second half, however.

In China's case, growth is likely to slow only modestly due to slower property sales, construction and investment growth. Supply-side reform, tighter local government financing restrictions and environmental policies may reduce macro expenditure. Even so, downside pressures are likely to be offset to some extent by healthy external demand driven by stronger global growth.

Overall, the reflationary conditions that dominated global commodity markets over the last two years may be reaching their limits, though positive sentiment and further capacity cuts in China could provide support. Consensus now points to a moderate downside risk for commodity prices in the short to medium term, favouring producers at the lower end of the cost curve and those that can improve productivity.

Longer-term prospects remain positive. The industry is watching developments in new markets, such as electric vehicles, with interest. Growth opportunities in some commodities are amplified by mine depletion resulting from capital expenditure cutbacks. Rising costs are driving a renewed focus on productivity, particularly in steelmaking, improving premiums for higher-grade furnace feedstocks. For example, over the fourth quarter of 2017, the price of iron ore with a 62 per cent iron ore content was 70 per cent higher than iron ore with a 58 per cent iron ore content as steel mills minimised their environmental impact and maximised productivity.

# Group strategy

## Supportive market conditions and strong value focus

Following the volatile and depressed market conditions experienced over recent years, 2017 was a strong year for the mining sector. Many commodity markets continued to strengthen during the year, aided by economic expansion and positive consumer sentiment in advanced economies, and robust Chinese demand. Meanwhile, supply was impacted by a number of environmental, geopolitical and technical challenges, with the rate of new supply additions continuing to lag behind natural mine depletions across many commodities. These external tailwinds supported prices for a number of our commodities in 2017, helping to generate strong cash flow, which we used to further strengthen our balance sheet and deliver significant cash returns to shareholders.

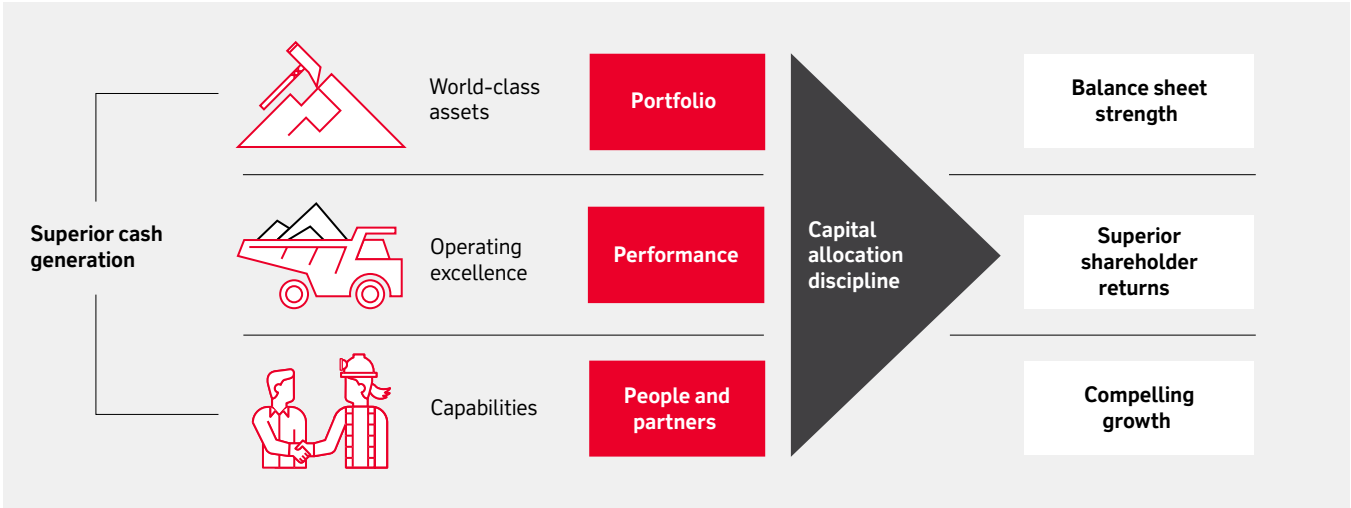
While supportive market conditions are always welcome, we continue to focus on the value levers that are within our control. During 2017, we delivered further cost reductions, increased our productivity from mine to market and continued to allocate capital in line with our value-over-volume approach. Across the industry, and in view of

potential inflationary cost headwinds, companies remain focused on maintaining strong balance sheets, reducing costs and improving productivity. Our early and consistent action in these areas continues to position us well: our balance sheet is among the strongest in the sector; our cost and productivity programmes are delivering results; and we have new volumes coming on line from our ongoing investment in organic growth.

A clear and effective strategy is critical for us to perform strongly under a range of industry conditions. Our goal is to deliver superior value for our shareholders through the cycle, and we believe the best way to do this is to focus on the “four Ps”: portfolio, performance, people and partners.

We couple this with our disciplined approach to capital allocation. This seeks to ensure that every dollar we generate is applied to the highest-returning opportunity – whether that be for maintaining our balance sheet strength, investing in compelling growth opportunities or delivering superior shareholder returns.

## A clear strategy to deliver value through the cycle



## 1. Portfolio



At the heart of our approach is a portfolio of world-class assets – from our Pilbara iron ore business, to our Queensland bauxite assets, our Canadian aluminium smelters and our global suite of copper mines. These are multi-decade assets that deliver attractive returns throughout the cycle, while providing material opportunities for growth over the long term. We use a clear strategic framework to assess our existing assets and new opportunities – taking into account the industry attractiveness and the competitive advantage of each asset, and its capacity to deliver strong and stable returns.

### In 2017, we:

- Invested US\$2.0 billion in sustaining capital expenditure and US\$2.5 billion in growth opportunities, including our Silvergrass iron ore mine in Western Australia, the Oyu Tolgoi underground copper mine development in Mongolia and our Amrun bauxite project in Queensland.
- Opened our Silvergrass iron ore mine in Western Australia, having completed the construction of the mine safely, on budget and within 12 months.
- Continued lateral development and the sinking of Shaft 2 at the Oyu Tolgoi underground copper mine development in Mongolia.
- Completed installation of wharf modules and positioned process plant beneficiation modules and transfer tower on location at the Amrun bauxite project in Queensland.
- Approved a US\$368 million commitment (Rio Tinto share: 55 per cent or US\$202 million) to further advance the Resolution Copper project in the US.
- Announced an increase to our Pilbara iron ore reserves in Western Australia.
- Completed the sale of our Coal & Allied thermal coal business for US\$2.69 billion.

### Priorities for 2018:

- Continue to progress the development of the Oyu Tolgoi underground copper mine in Mongolia and the Amrun bauxite project in Queensland.
- Continue to ramp-up production from the conveyor system at our Silvergrass iron ore mine.
- Complete the sale of Aluminium Dunkerque.
- Complete the sale of ISAL, Aluchemie and Aluminium Fluoride.

## 2. Performance



Safety is our number one priority and is core to everything we do. A well-run operation is a safe operation.

We seek to generate value at all stages of the value chain – from mine through to market. We prioritise value over volume in all of our operating and investment decisions. We have delivered substantial cost savings over recent years and this remains a key focus area. Beyond this, we continue to increase the productivity of our existing assets, as a substantial and low-risk source of incremental returns.

We have established a leading position in the development and use of technology and innovation – allowing us to deliver more tonnes more cheaply and with less risk. As the industry faces increasingly complex geological, environmental and cost pressures, our technology advantage will be an increasingly important value driver.

Our commercial activities seek to deliver the maximum value from each of our businesses. Our centralised marketing function works hand-in-hand with our operations, so that our resource management is fully aligned to the prevailing market.

Over the years we have leveraged our understanding of customer needs to create new markets for our products, including high-temperature Weipa bauxite, and champagne and pink diamonds. We deploy our capabilities in supply chain optimisation and a variety of logistics solutions across the Group – and have in-house centres of excellence for value-in-use analysis, pricing and contracting strategies. Together, these activities allow us to manage risk and capture value in all market conditions.

### In 2017, we:

- Suffered one safety fatality and one health fatality at our managed operations, and therefore did not meet our goal of zero harm.
- Completed over 1.4 million critical control verifications in our critical risk management fatality prevention programme.
- Announced a record full-year dividend of US\$5.2 billion, as part of total shareholder returns of US\$9.7 billion declared with respect to 2017.
- Paid US\$6.3 billion in cash returns to shareholders, comprising US\$4.2 billion in dividends and US\$2.1 billion in share buy-backs.
- Reduced our net debt from US\$9.6 billion to US\$3.8 billion.
- Delivered US\$0.4 billion in post-tax free cash flow from mine-to-market productivity initiatives.
- Achieved US\$2.2 billion of operating cash cost improvements in 2016 and 2017, achieving our target of US\$2.0 billion six months ahead of schedule.
- Reinforced our focus on driving mine-to-market value with the appointment of a chief commercial officer and further investment in a centralised Commercial group headquartered in Singapore.
- Made strong progress with the automation of the Pilbara iron ore train system (AutoHaul™), with more than 60 per cent of all train kilometres now completed in autonomous mode with a driver on board for supervision.

### Priorities for 2018:

- Continue to implement our new Process Safety standards at all relevant operations.
- Deliver US\$1.1 billion in cumulative post-tax free cash flow from mine-to-market productivity initiatives over 2017 and 2018, as part of our target to deliver cumulative free cash flow of US\$5.0 billion from these initiatives from 2017 to 2021.
- Complete the AutoHaul™ project (automation of the Pilbara train system) by the end of 2018.
- Establish a dedicated Rio Tinto closure team to oversee the responsible planning and oversight of future mine closures – including near-term mine closures such as the Argyle diamond mine in Western Australia and the Gove alumina refinery in Northern Territory.

### 3. People



As our industry evolves, new capabilities will be required and we must attract, develop and retain the right people to meet this challenge. We continue to strengthen our technical and commercial capabilities in particular, through our centres of excellence around these areas. Beyond this, we are committed to building a diverse and inclusive workforce at all levels of the organisation.

#### In 2017, we:

- Launched the new Rio Tinto purpose and enhanced our company values and global code of business conduct, *The way we work*, to set a strong sense of direction, increase employee engagement and attract future talent.
- Enabled 1,500 leaders to improve their leadership skills through a six-month development programme called Leading for Success.
- Exceeded our target of 20 per cent women in senior management roles (with female representation of 22.4 per cent at year end 2017).
- Introduced a new global minimum standard for paid parental leave.
- Successfully negotiated enterprise agreements at Rio Tinto Kennecott, Kitimat, Havre-Saint-Pierre and Gove Aluminium, and with the European Works Council.
- Refreshed our graduate programme and held our first graduate summit – bringing together young leaders from around the world to build relationships and share ideas.

#### Priorities for 2018:

- Continue to improve employee engagement through strong leadership and creating a high-performing and inclusive workforce.
- Deploy the Leading for Success development programme to all 6,500 leaders by the end of 2018.
- Continue to improve the diversity of our workforce by creating an inclusive workplace and building a diverse pipeline of talent.
- Reposition the Group employee value proposition (EVP) to ensure we attract, retain, galvanise and inspire our workforce.
- Strengthen the approach to our people performance culture.
- Implement technical career paths and continue to build deep technical capabilities.

### 4. Partners



As a global company, the environment in which we operate is becoming more complex. To secure access to new resources, while managing the varying risk profiles of our businesses across the globe, we must partner with a range of external stakeholders. These include our customers, suppliers, investors, governments and local communities (see “Delivering value for all of our stakeholders” on page 13).

Partnerships are relevant at all stages of the value chain and mining life cycle – from exploration, through to operations, marketing and mine closure. Successful partnerships enable us to secure and maintain our licence to operate and are a key long-term success factor for our industry.

#### In 2017, we:

- Strengthened our sustainable development partnership with Tsinghua University by extending the tenure of the Tsinghua-Rio Tinto Joint Research Centre for Resources, Energy and Sustainable Development.
- Extended our Channar Mining joint venture in Australia’s Pilbara region and agreed to supply an additional 10 million tonnes of iron ore to the joint venture.
- Signed a Technical Collaboration Agreement with China Minmetals Corporation, formalising a collaborative partnership in mineral exploration both inside and outside China.
- Signed a Memorandum of Understanding (MoU) with the Government of Serbia to progress the Jadar lithium-borate project through the study and permitting phases.
- Signed a MoU with China’s State-owned Assets Supervision and Administration Commission (SASAC) to develop executive training for Central State-owned Enterprise leaders on areas including stakeholder engagement, licence to operate, environmental and economic assessments and community engagement.

#### Priorities for 2018:

- Continue to progress the Oyu Tolgoi copper development, under our recently established country office and joint working group with the Government of Mongolia.
- Continue to build strong long-term partnerships with key stakeholders at every stage of our business – from exploration, to development, operations and through to mine closures.
- Continue to look at new opportunities in metals and minerals associated with new technologies, trends and the needs of an urbanising and changing world – under the leadership of our Rio Tinto Ventures unit.
- Build our partnership capabilities across the business to deal with external complexities and social performance opportunities.
- Deliver our communities investment strategy.

## Capital allocation discipline

We adopt a consistent and disciplined approach to capital allocation. Our first allocation is to sustaining capital. Secondly, we fund dividends for our shareholders. Finally, we assess the best use of the remaining capital between compelling growth, debt management and further cash returns to shareholders. At each stage, we apply stringent governance and assessment criteria to ensure that every dollar is spent in the right way.

## Balance sheet strength

In a cyclical and capital-intensive industry such as mining, a strong balance sheet is essential to preserve optionality and generate shareholder value at all points in the cycle. At 31 December 2017, our balance sheet was in a very strong position, with net debt of US\$3.8 billion and a net gearing ratio of 7 per cent. We see this as a major competitive advantage – providing us with resilience against market and macroeconomic volatility, the ability to fund shareholder returns through the cycle and a readiness to take advantage of investment opportunities as they arise.

## Quality growth

We have a high-quality pipeline of near-term and longer-dated projects across the portfolio. By reinforcing capital discipline and reshaping our projects, we have retained significant, high-quality growth despite further reducing our capital expenditure.

## Superior shareholder returns

We are committed to delivering superior returns to shareholders over the long term, and the cash returns we pay out to shareholders are a vital component of this. In a cyclical industry such as mining, we believe the most prudent way to deliver strong returns is to allow the overall level of returns to vary with the cycle. Accordingly, we aim to deliver shareholders total cash returns of 40 to 60 per cent of underlying earnings through the cycle. This policy is sustainable during cyclical lows, and allows shareholders to participate more fully in the upside during high points in the cycle.

## Our 2018 strategic priorities

We enter 2018 in a strong financial position and with good momentum. Throughout 2018, we will continue to focus on the “four Ps” (Portfolio, Performance, People, and Partners) and our value-over-volume approach, to generate superior returns for our shareholders over the short, medium and long term.

As always, safety will remain our number one priority – as measured both by the elimination of fatalities and minimising our all injury frequency rate and lost-time injuries. Our strong focus on operating and commercial excellence will continue in 2018, as we seek to extract efficiency improvements across our entire value chain and work towards delivering US\$5.0 billion of incremental free cash flow from mine-to-market productivity initiatives by 2021.

We will continue to shape our portfolio of assets, ensuring that we focus only on the highest-returning, world-class assets in our preferred industry sectors and seeking to exit assets that do not fit these criteria. We will progress our high-return growth projects, including the Amrun bauxite project in Queensland and the underground expansion at Oyu Tolgoi. We expect to invest around US\$5.5 billion in capital expenditure during 2018.

Investing in our people and our partnerships with external stakeholders remains a key focus for 2018. We are investing ever more in developing the technical and commercial capabilities that will enable us to unlock maximum value from our assets. In addition, we will continue building and maintaining strong partnerships across all stages of the value chain, founded on trusted relationships and our reputation for doing things the right way. Strong partnerships allow us to access and execute new opportunities, maximise value from our existing assets and manage licence-to-operate risks.

As we look ahead to 2018, we see reasons for both optimism and caution. Favourable macroeconomic conditions are expected to continue, and while we may see a slowdown in China's growth during 2018, growth prospects in Europe and emerging markets look strong. We are also seeing increased demand for a number of materials that will underpin future growth and the decarbonisation of the economy. However, we expect cost inflation to increase across the industry during 2018, and at a macro level we see uncertainty in a number of areas – including ongoing geopolitical tensions, a rise in protectionism and threats from technological disruption and cyber security.

It is clear that we are living in a period of rapid change. In this environment, we will continue to apply our value-led approach to capital spending and will drive performance improvements right across our value chain. Maintaining balance sheet strength remains a priority, and we will continue to position Rio Tinto as an agile, open and collaborative company ready to respond to the opportunities and challenges that emerge.



# Business model

## How we create value

Rio Tinto owns a global and diversified portfolio of world-class assets: the result of investment decisions made in line with our long-standing strategy (see page 8).

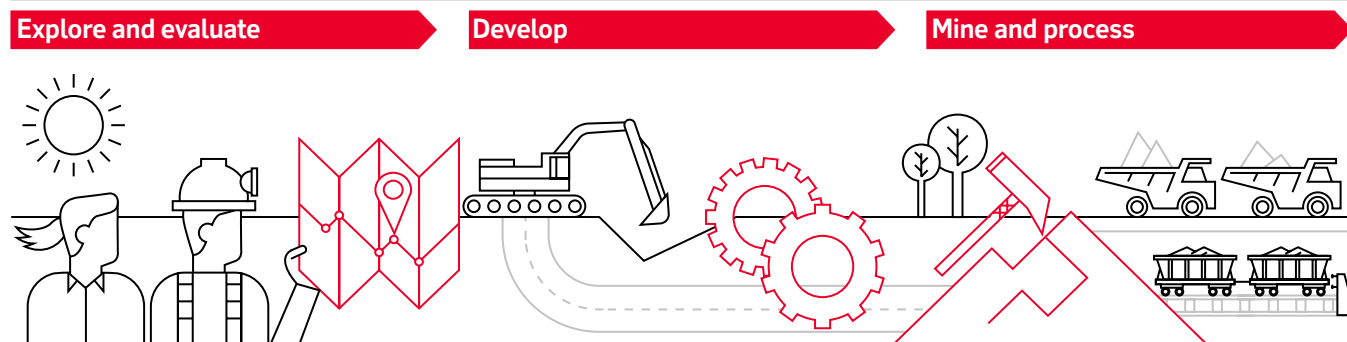
We create value through the way we find, develop and operate these assets, how we market the minerals and metals they produce, and the legacy we leave at the end of their lives.

To optimise the value of our portfolio over time, we pursue opportunities for productivity improvements, cost reductions and focused growth. We are committed to running and growing our business in ways that are increasingly safer, smarter and more sustainable.

Our competitive advantages stem from our asset portfolio, our strong balance sheet, and the operating and commercial excellence achieved by our teams.

Coupled with our framework for managing risk effectively, these provide strength across the cycle, and through the challenges that the external environment presents.

Our approach is described in our business life cycle below, along with examples showing some of the ways we create value.



Our in-house exploration team has a multi-decade track record of discovering orebodies in both greenfield and brownfield settings. To maintain our focus on targets that are important to Rio Tinto, we run most exploration programmes ourselves, but we also partner with others where this gives us access to skills or opportunities that we do not possess in-house.

Our exploration teams are often the first contact with communities we may work alongside for decades, so we explore respectfully and make sure we engage with them from an early stage.

Using our orebody knowledge, we develop our resources and position our products in the marketplace in ways that add value and support the Group's investment decision-making. Our geological expertise gives us the confidence to keep looking for the most elusive discoveries.

We have a strong tradition of developing innovative technologies to resolve specific exploration challenges. We apply these technologies, together with our tried and tested exploration techniques, to drive discovery success in the future.

Our approach is to develop orebodies so that they deliver value over the long term. We apply rigorous assessment and review processes that aim to ensure we only approve investments that offer attractive returns well above our cost of capital. We assess the spectrum of risk and how we will manage it (see page 18).

Once we have confirmed the value of a resource and received internal and external approvals to develop it, the project moves into the implementation phase. The product groups work in partnership with Rio Tinto Projects – part of the Growth & Innovation group (see page 46).

As we develop an operation, we plan the most efficient configuration for mining the orebody and getting the products to market – building in optionality to respond to changes in market conditions. We work closely with our customers to create demand that maximises the value of the deposit over its lifetime. We also work in partnership with host governments and communities, identifying ways in which we can deliver mutual benefits from the development of our operations.

We create value by operating our assets safely and efficiently, and by building on our leadership position in low-cost operations. With a global operating model, we can apply standard processes and systems across the Group in areas such as health, safety, environment and communities, procurement, operations and maintenance. This extends the life of our equipment and optimises the extraction of ore, meaning higher production, lower costs and maximised value. Our operations bring benefit to local economies by providing employment opportunities, procurement, and the transparent payment of tax and royalties.

Our commitment to technology and innovation also sets Rio Tinto apart. It enables us to take advantage of opportunities that may not be available to others, improves our productivity and helps us tailor our products to customer needs. Through our Mine of the Future™ programme, we find advanced ways to extract minerals deep within the Earth while reducing environmental impacts and further improving safety. We use our network of partnerships with academia, technology suppliers and other experts to tap into knowledge and technical prowess that augment our own capabilities.

### Business model in action

We are using modern analytical techniques such as mineral chemistry, together with our decades of geotechnical expertise, to better understand our resources and maximise the value we generate from mining and processing, while minimising the environmental impact of our activities.

### Business model in action

In constructing the export wharf for the Amrun bauxite project in Australia, we applied techniques from the oil and gas industry that have delivered safety and productivity benefits over traditional construction methods. Modules for the kilometre-long wharf were prefabricated off-site in China, allowing for more streamlined assembly at Amrun and eliminating more than 300,000 high-risk work hours on site.

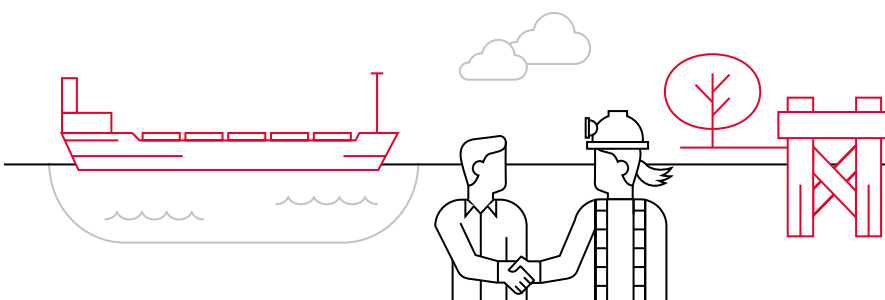
### Business model in action

At our Pilbara Iron Ore operations, we have been finding new ways to keep our people safe by eliminating working with live equipment. Teams have improved work practices using tools and technologies, such as wireless and thermal cameras, to ensure they are always kept safe. Once trialled, these innovations are being rolled out across sites to deliver safe and practical improvements.



## Market and deliver

## Close down and rehabilitate



Our business is based on the supply of high-quality products that have been developed to meet our customers' needs. The minerals and metals we supply – mostly to industrial companies that process them further – form the basis of products that are used in everyday life and are essential to advancing standards of living and human progress. Our diverse portfolio allows us to respond to demand throughout countries' economic development cycles, including in infrastructure, transport, machinery, energy and consumer goods.

Rio Tinto's marketing teams work with our operations to align our resource management with market needs and to make sure we offer products and services that maximise value for our customers. We are strengthening our commercial capabilities, including through our Commercial organisation headquartered in Singapore, a strong sales and marketing presence in each of the markets we serve, value-focused organisations including Procurement and Marine & Logistics, and commercial insights from our market and industry analysts.

What we learn from our markets and customers helps us to refine our investment decisions. We deliver a number of products ourselves, with logistics capabilities that include our own networks of rail, ports and ships.

## Business model in action

During 2017, we applied to have some of our Canadian aluminium assets certified under the Aluminium Stewardship Initiative (ASI) – a global organisation set up to promote improvements in the environmental, social and governance impacts of aluminium production, use and recycling. The ASI's new certification programme will give customers, end users and other stakeholders greater visibility of the responsible footprint of aluminium products.

Closure planning is part of every asset's life cycle. We start planning for closure from the earliest stages of investment and development to help optimise outcomes and minimise risk.

Where possible, we aim to progressively rehabilitate sites during the years of active operation. When a resource reaches the end of its life, we seek to minimise its financial, social and environmental impact by finding sustainable and beneficial future land uses.

We identify post-closure options that take into account stakeholders' concerns while fulfilling regulatory requirements.

## Business model in action

The main remediation works at the Holden copper mine in Washington State, US, were completed in 2017. Mining of the Holden mine ended in the 1950s. Rio Tinto never operated the mine, but inherited the site through acquisition, and has managed its remediation. The American Exploration & Mining Association recently awarded Rio Tinto an Environmental Excellence Award for its clean up of the legacy site.

## Delivering value for all of our stakeholders

To be successful, we must continue to build strong partnerships at all stages of our business model. Through our global footprint and diverse portfolio, we are able to create value for our stakeholders in a variety of ways.

## Communities

Our operations create jobs for local communities and can open up new markets for local suppliers. Communities often benefit from the infrastructure we put in place and once our operations are closed, we restore the sites – for instance for community use, new industry, or back to native vegetation.

## Customers

We supply our customers with the right materials at the right time, so they can add value by turning them into the end products that society needs to sustain and enhance modern life. Through recycling, many of our products last well beyond the lifetime of our operations.

## Governments

We are often a major economic and social contributor to the local, state and national jurisdictions in which we operate. Our tax payments and sovereign equity participation enable governments to develop and maintain public works, services and institutions. We help create growth that endures far beyond the active life of our operations.

## Our people

We invest in our people throughout their careers, offering diverse employment prospects, opportunities for development, and competitive rewards and benefits that have a clear link to performance.

## Shareholders

Our primary objective is to deliver superior shareholder returns through the cycle. We do this by balancing disciplined investment with prudent management of our balance sheet and shareholder returns.

## Suppliers

By seeking the right balance of global, national and local supply capability, and supporting local supplier development wherever possible, we drive value for our shareholders and deliver economic benefits for the communities in which we operate.

# Key performance indicators

Our key performance indicators (KPIs) enable us to measure our financial and sustainable development performance. Their relevance to our strategy and our performance against these measures in 2017 are explained on these pages. Some KPIs are used as a measure in the long-term incentive arrangements for the remuneration of executives. These are identified with this symbol:



See the Remuneration Report

► 70

## KPI trend data

The Group's performance against each KPI, and explanations of the actions taken by management to maintain and improve performance against them, are covered in more detail in later sections of this Annual report. Explanations of the actions taken by management to maintain and improve performance against each KPI support the data.

### Notes:

- The data presented in this table accounts for the dual corporate structure of Rio Tinto. The approach used to weight the two Rio Tinto listings, and produce a Group TSR figure is consistent with the methodology used for the Performance Share Plan (PSP).
- The accounting information in these charts is extracted from the financial statements.
- Underlying earnings is a key financial performance indicator which management uses internally to assess performance. It is presented here as a measure of earnings to provide greater understanding of the underlying business performance of the Group's operations and to enhance comparability of reporting periods. Items excluded from net earnings to arrive at underlying earnings are explained in note 2 to the 2017 financial statements. Both net earnings and underlying earnings deal with amounts net of tax attributable to the owners of Rio Tinto. However, IFRS requires that the profit for the year reported in the income statement should also include earnings attributable to non-controlling interests in subsidiaries.

## All injury frequency rate (AIFR)



Per 200,000 hours worked

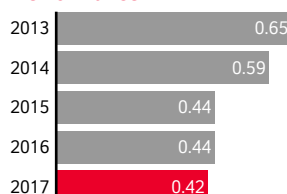


### Relevance to strategy

Safety is our number one priority, one of our core values and an essential component to everything we do. Our goal is zero harm, including, above all, the elimination of fatalities.

We are committed to reinforcing our strong safety culture and key to this is improving safety leadership and simplifying the tools and systems used in operational tasks.

### Performance



Our AIFR has improved 37 per cent over the last five years. At 0.42, our AIFR decreased in 2017 versus 2016. However, we did not meet our goal of zero fatalities. In 2017, one colleague died as a result of a safety incident while working at our Rio Tinto Kennecott smelter and there was a health-related death of a colleague undertaking exploration activities. Both fatalities were at Rio Tinto managed operations.

### Definition

AIFR is calculated based on the number of injuries per 200,000 hours worked. This includes medical treatment cases, restricted work-day and lost-day injuries for employees and contractors at Rio Tinto-managed operations.

### Associated risks

- HSE risks, as our operations are inherently hazardous.
- Operations, projects and people risks, including management of major hazard and safety control frameworks.

### Link to executive remuneration

AIFR and other safety metrics are included in the short-term incentive plan for executives. Refer to the Remuneration Report on page 81.

### Forward plan

The Group will:

- Maintain critical risk management implementation.
- Strengthen collaboration with contractors and joint venture partners to improve safety performance.
- Continue to implement our major hazard standards with strong assurance processes.
- Simplify critical safety tools.

### More information

► 30 – 31

## Total shareholder return (five years) (TSR)<sup>(a)</sup>



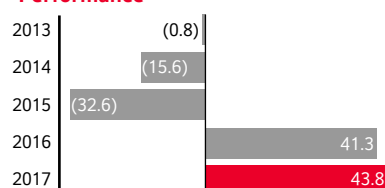
%



### Relevance to strategy

The aim of our strategy is to maximise shareholder returns through the cycle. This KPI measures performance in terms of shareholder value over a period of time. We also measure relative TSR performance against the Euromoney Global Mining Index of peers and the MSCI World Index of large global companies.

### Performance



Rio Tinto's TSR performance from 2013 to 2017 was principally impacted by movements in commodity prices and changes in the global macro environment. There was a significant recovery in the share prices of Rio Tinto plc and Rio Tinto Limited in 2017, driven by stronger pricing across most commodities and a steady improvement in the global economic outlook. The Group outperformed the Euromoney Global Mining index of peers over the five-year period by 34 percentage points but significantly underperformed the MSCI World Index over the same time frame.

### Definition

TSR combines share price appreciation, dividends paid and reinvested, to show the total return to the shareholder.

### Associated risks

- Market risks, such as variability in commodity prices and exchange rates.
- Stakeholder risks, including the actions of joint venture partners, third parties and governments.

### Link to executive remuneration

Relative TSR over a five-year period, measured equally against the Euromoney Global Mining Index and the MSCI World Index, are the performance measures included in long-term incentive plans for executives.

### Forward plan

Management will continue to focus on generating free cash flow from operations with the intention of maximising shareholder value, through an appropriate balance of cash returns to shareholders and investment in the business.

### More information

► 94

## Net cash generated from operating activities<sup>(b)</sup>



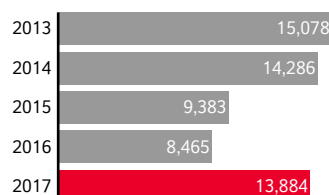
US\$ millions



### Relevance to strategy

Net cash generated from operating activities is a measure demonstrating conversion of underlying earnings to cash. It measures our ability to generate cash from our businesses to fund investment, reduce our debt and return cash to shareholders.

### Performance



Net cash from operating activities of US\$13.9 billion was 64 per cent higher year-on-year, primarily due to higher prices partly offset by an increase in taxes paid driven by higher profits.

### Definition

Net cash generated from operating activities represents the cash generated by the Group's consolidated operations, after receipt of dividends from equity-accounted units and payment of interest, taxes, and dividends to non-controlling interests in subsidiaries.

### Associated risks

- Market risks, such as variability in commodity prices and exchange rates.
- Operations, projects and people risks, including delivery of productivity improvements.
- Stakeholder risks, including the actions of joint venture partners, third parties and governments.

### Link to executive remuneration

Net cash generated from operating activities is a component of the free cash flow financial performance measure included in the short-term incentive plan for executives. In the longer term, the measure influences TSR which is included in long-term incentive plans for executives. Refer to the Remuneration Report on page 80.

### Forward plan

The Group is targeting US\$5 billion in additional free cash flow from its five-year productivity programme from 2017 to 2021.

### More information

► 114

## Underlying earnings<sup>(b) (c)</sup>



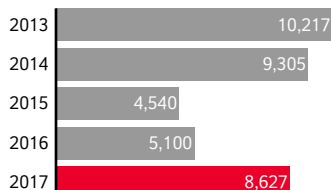
US\$ millions



### Relevance to strategy

Underlying earnings gives insight to cost management, production growth and performance efficiency on a like-for-like basis. We are focused on reducing operating costs, increasing productivity and generating maximum revenue from each of our assets.

### Performance



Underlying earnings of US\$8.6 billion were US\$3.5 billion higher than 2016, driven by the US\$4.1 billion (post-tax) impact of higher prices.

### Definition

Underlying earnings represents net earnings attributable to the owners of Rio Tinto, adjusted to provide greater understanding of the underlying performance of the Group's operations. Items excluded from net earnings to arrive at underlying earnings are explained in note 2 "Operating segments" to the 2017 financial statements.

### Associated risks

- Market risks, such as variability in commodity prices and exchange rates.
- Operations, projects and people risks, including delivery of productivity improvements.
- Stakeholder risks, including the actions of joint venture partners, third parties and governments.

### Link to executive remuneration

Underlying earnings is a key measure of financial performance included in the short-term incentive plan for executives. In the longer term, the measure influences TSR and improvements in EBIT margin, which are both included in long-term incentive plans for executives. Refer to the Remuneration Report on page 80.

### Forward plan

The Group will continue to focus on delivery of returns through the cycle, driven by productivity improvements and value-accretive growth.

### More information

► 132

## Net debt<sup>(b)</sup>

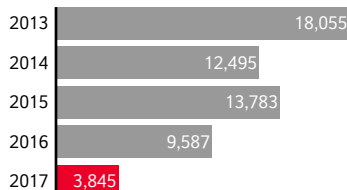
US\$ millions



### Relevance to strategy

Net debt is a measure of how we are managing our balance sheet and capital structure. A strong balance sheet is essential to remaining robust through the cycle and creating the ability to deliver appropriate shareholder returns.

### Performance



Net debt decreased from US\$9.6 billion to US\$3.8 billion, principally as net cash generated from operating activities and disposal of businesses exceeded capital expenditure and cash returns to shareholders.

### Definition

Net debt is calculated as: the net borrowings after adjusting for cash and cash equivalents, other liquid investments and derivatives related to net debt. This is further explained in note 24 "Consolidated net debt" to the 2017 financial statements.

### Associated risks

- Market risks, such as variability in commodity prices and exchange rates.
- Operations, projects and people risks, including delivery of productivity improvements.
- Stakeholder risks, including the actions of joint venture partners, third parties and governments.
- Financial risks, including the impact of external events and internal discipline on group liquidity.
- Strategic risks, such as the Group's ability to successfully execute divestments and acquisitions and its ability to develop new projects successfully.

### Link to executive remuneration

Net debt is, in part, an outcome of the Group's free cash flow performance. The free cash flow financial performance measure is included in the short-term incentive plan for executives. In the longer term, the measure influences TSR which is included in long-term incentive plans for executives. Refer to the Remuneration Report on page 80.

### Forward plan

The Group believes that having a strong balance sheet is a major competitive advantage and is essential in a cyclical business, and will therefore continue to manage net debt carefully.

### More information

► 149

## Capital expenditure<sup>(b)</sup>

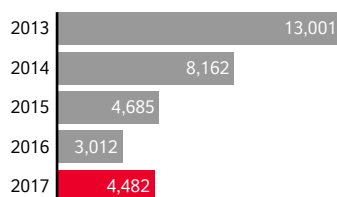
US\$ millions



### Relevance to strategy

Capital expenditure is necessary to sustain the productive capacity of our installed asset base and for growth. We are committed to a disciplined and rigorous investment process – investing capital only in projects that, after prudent assessment, offer attractive returns that are well above our cost of capital.

### Performance



Total capital expenditure of US\$4.5 billion in 2017 included US\$2.0 billion of sustaining capital expenditure. Major capital projects in 2017 included the development of the Oyu Tolgoi underground copper mine, construction of key infrastructure at the Amrun bauxite project and completion of the Silvergrass iron ore mine.

### Definition

Capital expenditure comprises the cash outflow on purchases of property, plant and equipment, and intangible assets.

### Associated risks

- Financial risks, including the impact of external events and internal discipline on Group liquidity, which is required to fund capital expenditure.
- Strategic risks, including the Group's ability to develop new projects successfully.
- Operational risks, particularly in respect of sustaining capital expenditure.

### Link to executive remuneration

Sustaining capital expenditure is a component of the free cash flow financial performance measure included in the short-term incentive plan for executives. In the longer-term, the measure influences TSR which is included in long-term incentive plans for executives. Refer to the Remuneration Report on page 80.

### Forward plan

The Group will continue to adopt a consistent and disciplined approach to capital allocation. Refer to the Group strategy report on pages 8 to 11 for further detail.

### More information

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## Greenhouse gas (GHG) emissions intensity

Indexed relative to 2008 (2008 being equivalent to 100)



### Relevance to strategy

We are committed to reducing the energy intensity of our operations and the carbon intensity of our energy, including through the development and implementation of innovative technologies. Our GHG performance is an important indicator of this commitment and our ability to manage exposure to future climate policy and legislative costs.

### Performance



(a) Number restated from that originally published to ensure comparability over time.

There was a 2 per cent reduction in GHG emissions intensity in 2017 versus 2016. This is largely a result of improvements in emissions intensities at several of our aluminium and alumina operations. We are on track to meet our target of 24 per cent reduction in total GHG emissions intensity between 2008 and 2020.

### Definition

Our GHG emissions intensity measure is the change in total GHG emissions per unit of commodity production relative to a base year. Total GHG emissions are direct emissions, plus emissions from imports of electricity and steam, minus electricity and steam exports and net carbon credits purchased from or sold to recognised sources. The measure is indexed relative to 2008 (2008 being equivalent to 100).

### Associated risks

- Strategic risks, including those related to acquisitions, divestments and capital project delivery.
- Operational risks, including failure to manage portfolio energy requirements.

### Link to executive remuneration

There is no direct connection between executive remuneration and GHG emissions intensity performance.

### Forward plan

The Group will:

- Continue to report on progress against our GHG emissions intensity target.
- Continue to improve our understanding, management and disclosure of the resilience of our portfolio and of our physical assets to climate risks in a two degree Celsius temperature increase scenario.

### More information

► 32

# Risk management

## The risk management environment

2017 was a year where external uncertainty continued and internal risks required constant vigilance.

The geopolitical context for global trade remained unsettled. However, markets in general continued to grow. This combination drove a focus on external factors and the continuation of productivity initiatives in the Group to deliver our value-over-volume strategy. Enhancements to controls for managing operational risks (particularly cyber security and major hazards) sought to maintain and build resilience.

As stronger prices flowed through and supply was delivered in line with expectations, Rio Tinto retained its strong capital allocation discipline, returning cash to shareholders, further strengthening the balance sheet and investing in high-quality long-term green and brownfield projects.

Principal joint operations, managed and non-managed, and particularly those in jurisdictions with higher sovereign risk, continue to require close monitoring and active management.

Changes to the risk profile of the Group during 2017 are illustrated in the summary table below. Further detail on movements and monitoring of these exposures is provided in the relevant section of the Strategic report, including Market environment, Group strategy, product group overviews, the Directors' report and the Notes to the 2017 financial statements.

## Emerging risks

Looking ahead, the external risk landscape continues to evolve. In the relatively near term, increased protectionism and geopolitical uncertainty present risk and uncertainty to the operating environment. In the medium term, technological disruption – from increased automation in mining and processing to greater use of cognitive learning and artificial intelligence – provides both threats and opportunities as companies seek to secure competitive advantage. In the longer term, the societal imperative to manage areas of environmental risk is expected to increase at the macro level, as concern about the ineffective management of “global commons” – the oceans, atmosphere and climate system – drives a search for sustainable solutions.

Internally, the strengthening of the commercial capability of the Group, through the appointment of a chief commercial officer and the development of a strong governance and risk framework to support co-located commercial operations in Singapore, will ensure appropriately rigorous management of this increasingly important part of the business. In addition, the establishment of a dedicated closure team will provide stronger planning and oversight of the growing activities associated with responsible future mine closure.

Looking forward, managed and non-managed joint ventures as well as partnerships are likely to play a still larger role in the Group's portfolio. These mechanisms provide growth opportunities for the Group but will also require the further development of the Group's capability and capacity to manage and participate in these arrangements effectively.

## Assessment

The board confirms that, in conjunction with the consideration of the Group's strategy and business plan, it has carried out a robust assessment of the principal risks of the Group as detailed below and has also tested the financial plans of the Group for each of these principal risks, and for a series of severe but plausible scenarios, made up of the concurrence or close sequence of a number of principal and material risks.

The Group will continue to monitor the potential impacts of the UK's departure from the European Union as a result of the referendum that took place in June 2016, but no material impacts are expected at this time, irrespective of the path eventually followed or the outcome reached.

## Longer-term viability statement

Current business planning processes within Rio Tinto require the preparation of detailed financial plans over a three-year time horizon. The Group's strategy is developed, and capital investment decisions are made, based on an assessment of cash flows over a multi-decade horizon, with financial investment capacity regularly tested to ensure capital commitments can be funded in line with the Group's capital allocation model. This multi-year planning approach reflects our business model of investing in, and operating, long-life mining assets, whose outputs we sell into commodity markets over which we have limited influence.

The planning process requires modelling under macroeconomic scenarios and assumptions of both internal and external parameters. Key assumptions include: projections of economic growth, and thus commodity demand in major markets, primarily China; commodity prices and exchange rates, often correlated; introduction of technological and productivity advancements; cost and supply parameters for major inputs; and a series of assumptions around the schedule and cost of implementation of organic and inorganic growth programmes.

Reflecting the speed and degree of change possible in a number of these parameters, such as Chinese demand, commodity prices, and exchange rates, Rio Tinto has deemed a three-year period of assessment appropriate for the longer-term viability statement, consistent with the Group's detailed planning horizon.

Robust stress-testing has been undertaken, as part of the business planning process, to further test and confirm the longer-term viability of the Group, beyond commodity price and exchange rate movements. Production and political and stakeholder risk related assumptions were also stressed, individually and collectively, to levels considered severe but plausible and well beyond those expected in the normal course of business.

The viability of the Group under these scenarios remained sound with the use of a suite of management actions available to redress material adverse changes, including accessing lines of credit and changing capital allocation levers.

Therefore, taking into account the Group's current position and principal risks, the directors have assessed the prospects of the Group, over the next three years, and have a reasonable expectation that the Group will be able to continue to operate and meet its liabilities as they fall due over that period.

It is impossible to foresee all risks, and the combinations in which they could manifest, and there may be risks that currently or individually do not appear material that could turn out to be material, particularly if occurring in close sequence.

## Principal risks and uncertainties exposure at a glance – 2017 trend

	External	Internal	Internal and external
<b>Increasing risk or uncertainty</b> ▲	– Sovereign risk <sup>(a)</sup>		– Attracting and retaining talent
<b>No change in risk or uncertainty</b> —	– Strategic partnerships – Commodity prices – China growth pathway	– Execution of acquisitions and divestments – Capital project development – HSEC	– Exploration and resources – Operational excellence – Regulation and regulatory intervention
<b>Decreasing risk or uncertainty</b> ▼			– Liquidity

(a) Sovereign risk includes both direct risk from actions of nation states and geopolitical uncertainty more broadly, and is present across all jurisdictions to which the Group has exposure.



## Risk management framework

Rio Tinto is exposed to a variety of risks (both threats and opportunities) that can have financial, operational and compliance impacts on our business performance, reputation and licence to operate. The board recognises that creating shareholder value is the reward for taking and accepting risk. The effective management of risk is therefore critical to supporting the delivery of the Group's strategic objectives.

Rio Tinto's risk management framework reflects this. The responsibility for identifying and managing risks lies with all of Rio Tinto's employees and business leaders. They operate within the Group-wide framework to manage risks within approved limits.

The framework includes clearly defined oversight responsibilities for the board and the Executive Committee, who are supported by the Risk Management Committee and central support functions including Group Risk and Group Internal Audit, to enable effective risk identification, evaluation and management across Rio Tinto.

This approach reflects a "three lines of defence" model for the management of risks and controls:

- First line of defence: ownership of risk by employees and business leaders.
- Second line of defence: control of risk framework and systems of internal control by central support functions and the Risk Management Committee.
- Third line of defence: assurance of systems of internal control by Group Internal Audit.

The key risk management responsibilities throughout the Group are outlined below.

## Approach

The Group's approach to risk management and internal control, underpinned by the Risk policy and standards, is aimed at embedding a risk-aware culture in all decision-making, and a commitment to managing risk in a proactive and effective manner. This includes the:

- early identification and evaluation of threats and opportunities;
- management and mitigation of threats before they materialise and effective response if they do materialise; and
- active pursuit of opportunities to capture value, within agreed risk tolerances.

Accountability for risk management is clear throughout the Group and is a key performance area for line managers.

To support risk understanding and management at all levels, the Group Risk function provides the necessary infrastructure to support the management and reporting of material risks within the Group, and escalates key issues through the Executive Committee and ultimately to the board, where appropriate.

Group Risk also supports the Risk Management Committee in its review of risk.

The process for identifying, evaluating and managing material business risks is designed to manage, rather than eliminate, threats and where appropriate accept risk to generate returns. Certain threats, for example natural disasters, cannot be managed using internal controls. Such major threats are transferred to third parties in the international insurance markets, to the extent considered appropriate or possible.

The Group has material investments in a number of jointly controlled entities. Where Rio Tinto does not have managerial control, it is usually unable to ensure that management will comply with all Rio Tinto policies and standards.

Risk management framework		
Oversight	<b>Board</b>	<ul style="list-style-type: none"> <li>— Determine the nature and extent of risk that is acceptable in pursuit of strategic objectives</li> <li>— Confirm that management's risk limits reflect the level of risk the board is willing to accept in pursuit of strategic objectives</li> <li>— Provide oversight across the risk management process</li> </ul>
	<b>Board committees</b>	<ul style="list-style-type: none"> <li>— The Audit Committee monitors and reviews at least annually the maturity and effectiveness of management processes and controls designed to identify, assess, monitor and manage risk</li> <li>— The Audit and Sustainability Committees review periodic reports from management: identifying the Group's material business risks within the committees' scope; and the risk management strategies and controls applied</li> </ul>
	<b>Group Internal Audit</b>	<ul style="list-style-type: none"> <li>— Provide independent and objective assurance that the systems of internal controls are adequate and effective</li> </ul>
Second line	<b>Executive Committee</b>	<ul style="list-style-type: none"> <li>— Set risk strategy and assess risks inherent in key investments and in strategic, business or annual plans</li> </ul>
	<b>Risk Management Committee</b>	<ul style="list-style-type: none"> <li>— Oversee the risk management framework to facilitate the identification of significant risks to Group-level objectives and ensure effective risk management processes are in place</li> </ul>
	<b>Group Risk</b>	<ul style="list-style-type: none"> <li>— Provide co-ordination and support of Group-level risk management activity and reporting</li> <li>— Embed risk management into core business processes, such as planning and capital allocation</li> <li>— Build risk management capability and a risk culture throughout the Group</li> </ul>
	<b>Other central support functions and management committees</b>	<ul style="list-style-type: none"> <li>— Provide targeted expertise and support to risk owners</li> <li>— Develop and maintain specific controls, including policies, standards and procedures, to support the effective management of material Group-level risk within the agreed limits</li> <li>— Assure first line of defence compliance with controls</li> </ul>
First line	<b>Product groups and central functions, executive/audit forums</b>	<ul style="list-style-type: none"> <li>— Monitor material risks and track activities to manage risk within their business activities, and escalate where appropriate</li> <li>— Consider risk and uncertainty in strategic and business planning and capital allocation proposals</li> </ul>
	<b>Product groups and business units</b>	<ul style="list-style-type: none"> <li>— Identify, assess and manage risks in operations, functions and projects, utilising risk registers and our Group-wide risk data system (Archer)</li> </ul>
	<b>Risk managers and Risk Forum</b>	<ul style="list-style-type: none"> <li>— The Risk Forum (risk managers across the Group) supports alignment, consistency and continuous improvement of risk management</li> </ul>




# Principal risks and uncertainties

The principal risks and uncertainties outlined in this section reflect the inherent risks that could materially affect Rio Tinto or its ability to meet its strategic objectives, either directly or by triggering a succession of events that in aggregate become material to the Group.

Rio Tinto's business units and functions assess the potential economic and non-economic consequences of their respective risks using the framework defined by the Group's Risk standard. Once identified, each principal risk or uncertainty is reviewed and monitored by the relevant internal experts and by the Risk Management Committee, and as appropriate, by the relevant board committees and the board.

There may be additional risks unknown to Rio Tinto and other risks currently not believed to be material which could turn out to be material. A number of them, particularly those with longer-term potential impacts, are referred to in the sustainable development section of this Annual report on pages 28 to 37.

The principal risks and uncertainties should be considered in connection with any forward-looking statements in this Annual report and the cautionary statement on the inside front cover.

Inherent risk and uncertainty	Risk exposure 2017 trend	Potential impact on viability, HSEC and reputation	Potential upside impact (opportunities)
<b>Market risks</b>			
Rio Tinto operates in global markets and accepts the impact of exchange rate movements and market-driven prices for our commodities, seeking premiums where possible.			
Commodity prices, driven by demand and supply for the Group's products, vary outside of expectations over time.  Exchange rate variations and geopolitical issues may offset or exacerbate this risk.  Anticipating and responding to market movements is inherently uncertain and outcomes may vary.		<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Solvency</li> <li>– Liquidity</li> <li>– Group reputation</li> </ul>	<p>A rise in commodity prices, or favourable exchange rate movement, generates more cash flow from operations, enabling the Group to pursue growth options or capital expansions, pay down debt and/or increase returns to shareholders.</p> <p>Capturing above-planned returns from commercial insights would deliver additional cash flow to the Group.</p>
China's growth pathway could impact demand for the Group's products outside of expectations.		<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> </ul>	Strong growth, positive policy decisions and reforms drive demand for commodities, resulting in rising prices which may justify capital expansion and increased shareholder returns in the short to medium term.
<b>Financial risks</b>			
Rio Tinto maintains a strong balance sheet and liquidity position to preserve financial flexibility through the cycle.			
External events and internal discipline may impact Group liquidity.	  Balance sheet strengthened by stronger-than-forecast cash flows driven by higher commodity prices and cash from divestments.	<ul style="list-style-type: none"> <li>– Future performance</li> <li>– Solvency</li> <li>– Liquidity</li> <li>– Group reputation</li> </ul>	Favourable market conditions and strong internal discipline could increase Group liquidity and/or balance sheet strength and allow it to pursue investment or growth opportunities, pay down debt and enhance returns to shareholders.

**Potential downside impact (threats)****Mitigating actions include:**

Falling commodity prices, or adverse exchange rate movements, reduce cash flow, limiting profitability and shareholder returns. These may trigger impairments and/or impact rating agency metrics. Extended subdued prices may reflect a longer-term fall in demand for the Group's products, and consequently reduced revenue streams may limit investment and/or growth opportunities.

Failure to deliver planned returns from commercial insights would negatively impact cash flows for the Group.

- Pursue low cost production, allowing profitable supply throughout the commodity price cycle.
- Maintain a diverse portfolio of commodities across a number of geographies.
- Maintain global portfolio of customers and contracts.
- Maintain a strong balance sheet.
- Monitor multiple leading indicators and undertake detailed industry analysis to develop more accurate assumptions in our commodity price and exchange rate forecasting used for capital allocation and planning processes, and commercial insights.
- Comply with the Group's Treasury policy and standard, which outlines the fundamental principles that govern the Group's financial risk management practices.
- Closely coordinate market-facing sales and marketing and trading resources in the Group.
- Apply strong governance reflecting relevant regulatory frameworks and jurisdictions.

China is the largest market for our products by a long way, and Chinese demand is a strong driver, at times the dominant one, of the market price of the commodities we produce. An economic slowdown in China, and/or a material change in policy, could result in a slowdown in demand for our products and reduced revenues for the Group.

The Group's ability to raise sufficient funds for planned expenditure, such as capital growth and/or mergers and acquisitions, as well as the ability to weather a major economic downturn, could be compromised by a weak balance sheet and/or inadequate access to liquidity.

- Comply with the Group's Treasury policy and standard, which outlines the fundamental principles that govern the Group's financial risk management practices.
- Maintain a prudent gearing ratio and other financial metrics commensurate with a strong investment-grade credit rating.
- Manage the liquidity and financing structure of the Group using forecasts and sensitivity analysis tools to actively monitor, determine and enable access to the appropriate level, sources and types of financing required.
- Subject funds invested by the Group to credit limits and maturity profiles based on board-approved frameworks, to promote diversification and maintain appropriate liquidity.
- Maintain accurate financial reporting and tracking of our business performance.
- Report financial performance monthly to senior management and the board.
- Seek board approval of the financial strategy, long-term planning and cash flow forecasting.
- Apply a dividend policy which allows shareholder returns to adjust with the cycle.

Inherent risk and uncertainty	Risk exposure 2017 trend	Potential impact on viability, HSEC and reputation	Potential upside impact (opportunities)
<b>Strategic risks</b>			
Rio Tinto enforces disciplined capital allocation to the best returning opportunities (organic and inorganic growth projects or returns to shareholders).			
Rio Tinto's ability to secure planned value by successfully executing divestments and acquisitions may vary.	—	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Solvency</li> <li>– Liquidity</li> <li>– Group reputation</li> </ul>	Proceeds realised from divested assets are greater than planned, allowing more capital to be returned to shareholders or redeployed into higher returning or more productive uses. The Group is successful in acquiring businesses that provide cash flow and/or future growth optionality.
The Group's ability to deliver projects successfully may vary.	—	<ul style="list-style-type: none"> <li>– Future performance</li> <li>– HSEC</li> <li>– Group reputation</li> <li>– Solvency</li> </ul>	An ability to develop projects on time and within budget enhances the Group's licence to operate and investor confidence.
Strategic partnerships play a material role in delivering the Group's production, cash and market positioning, and these may not always develop as planned.	—	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– HSEC</li> <li>– Group reputation</li> </ul>	Joint ventures and partnerships offer opportunities to access resources, increase shareholder returns, and reduce political and operational risks.
<b>Health, safety, environment and community (HSEC) risks</b>			
Rio Tinto's operations are inherently hazardous. We lead responsibly to preserve our licence to operate and ensure our employees and contractors go home safe and healthy.			
Our operations and projects are inherently hazardous with the potential to cause illness or injury, damage to the environment, disruption to a community or a threat to personal security.	—	<ul style="list-style-type: none"> <li>– Future performance</li> <li>– HSEC</li> <li>– Group reputation</li> </ul>	<p>Delivering leading health, safety, environment and communities performance is essential to our business success. Meeting or exceeding our commitments in these areas contributes to sustainable development and underpins our continued access to resources, capital and a diverse workforce to sustain the organisation.</p> <p>Good performance in legacy management (of closed sites) and closure can enhance our reputation and enable us to maintain access to land, resources, people and capital, so we can continue to establish new projects with the support of local communities.</p>
<b>Resources risks</b>			
Rio Tinto invests materially to accurately identify new deposits and develop orebody knowledge, underpinning our operations and projects.			
The success of the Group's exploration activity may vary. In addition, estimates of ore reserves are based on uncertain assumptions that, if changed, could result in the need to restate ore reserves and mine plans.	—	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Group reputation</li> </ul>	<p>The discovery of a new viable orebody can significantly improve future growth options.</p> <p>The volume of ore is based on the available geological, commercial and technical information, which is by its nature, incomplete. As new information comes to light the economic viability of some ore reserves and mine plans can be restated upwards. As a result, projects may be more successful and of longer duration than initially anticipated.</p>

## Potential downside impact (threats)

## Mitigating actions include:

Divestment and acquisition activity incurs transaction costs that cannot be recouped, or may result in value destruction by realising less than fair value for divestments or paying more than fair value for acquisitions. This could result in unforeseen pressure on the Group's cash position or reduce the Group's ability to expand operations. The Group may also be liable for the past acts or omissions of assets it has acquired that were unforeseen or greater than anticipated at the time of acquisition. The Group may also face liabilities for divested entities if the buyer fails to honour commitments or the Group agrees to retain certain liabilities.

A delay or overrun in the project schedule could negatively impact the Group's profitability, cash flows, ability to repay project-specific indebtedness, asset carrying values, growth aspirations and relationships with key stakeholders.

Joint venture partners may hinder growth by not agreeing to support investment decisions. For non-managed operations, the decisions of the controlling partners may cause adverse impacts to the value of the Group's interest in the operation or to its reputation and may expose it to unexpected financial liability.

- Complete detailed, independent due diligence on all material divestments and acquisitions.
- Resource Business Development team appropriately, supported by external specialists as required.
- Involve business unit leaders early in process to recognise integration planning and synergies, or separation threats and opportunities.
- Undertake post-investment reviews on divestments and acquisitions, to identify key learnings to embed into future initiatives.
- Consistently approach development of large-scale capital projects, through a specialised projects division.
- Follow rigorous project approval and stage-gating process, including monitoring and status evaluation, as articulated in Project evaluation standard and guidance.
- Ensure effective stakeholder management in project development.
- Approach investments and partnerships with a view to long-term development of relationships rather than short-term transactional advantage.
- Maintain strong focus on contractor management.
- Actively participate within the governance structures of joint ventures to promote, where possible, alignment with the Group's policies and strategic priorities.
- Undertake rigorous third-party due diligence and assurance.

Failure to manage our health, safety, environment or community risks could result in a catastrophic event or other long-term damage which could in turn harm the Group's financial performance and licence to operate.

Recognised hazards and threats include, among others, underground operations, aviation, pit slope instability, tailings facilities, process safety, infrastructure, vector-borne and pandemic disease, chemicals, gases, vehicles and machinery, extreme natural environments, endangered flora or fauna, areas of cultural heritage significance, water supply stress and climate change.

- Continue focus on HSEC as a core priority at all operations, and projects, overseen by the Sustainability Committee.
- Clearly define and ensure compliance with Group HSEC strategy, policy and performance standards.
- Regularly review and audit HSEC processes, training and controls to promote and improve effectiveness, at managed and (where practicable) non-managed operations.
- Monitor HSEC performance measurement metrics at the Group level monthly.
- Report, investigate and share learnings from HSEC incidents.
- Build safety targets into personal performance metrics to incentivise safe behaviour and effective risk management (see Remuneration Implementation Report).
- Develop mutually beneficial partnerships with local communities and establish appropriate social performance targets.
- Report annually on performance on greenhouse gas emissions, water, land use and rehabilitation, among others.
- Focus on fatality elimination through implementation of a programme to verify safety risk controls.

A failure to discover new viable orebodies could undermine future growth prospects.

The risk that new information comes to light or operating conditions change means that the economic viability of some ore reserves and mine plans can be restated downwards. As a result, projects may be less successful and of shorter duration than initially anticipated, and/or the asset value may be impaired.

- Comply with the Group's resources and reserves standard.
- Recruit and retain skilled and experienced exploration and evaluation personnel.
- Provide stable funding for exploration activities.
- Continually review the prospectivity of opportunities in the exploration portfolio and prioritise spend accordingly.
- Utilise new technologies where appropriate.
- Develop, leverage and manage third-party partnerships.
- Coordinate orebody knowledge through active Group-wide leadership forum.

Inherent risk and uncertainty	Risk exposure 2017 trend	Potential impact on viability, HSEC and reputation	Potential upside impact (opportunities)
<b>Operations, projects and people risks</b>			
Rio Tinto seeks to achieve operational and commercial excellence, and to attract and retain the best people in the industry.			
Operational excellence is derived from high operational and human productivity, which requires quality people, processes and systems.	—	<ul style="list-style-type: none"> <li>– Future performance</li> <li>– Liquidity</li> <li>– HSEC</li> <li>– Group reputation</li> </ul>	<p>Improved productivity and innovation from new systems can decrease costs and increase output, delivering additional cash flow.</p> <p>Development and retention of talent enhances productivity, financial and HSEC outcomes.</p>
Attracting and retaining talent as the company and industry evolves presents a constant challenge.	▲	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Group reputation</li> </ul>	Leveraging the evolving company and market to attract a diverse and engaged workforce will deliver a competitive advantage to the Group.
<b>Stakeholder risks</b>			
Rio Tinto recognises positive engagement with a range of stakeholders, and seeks to develop collaborative and mutually beneficial partnerships through our “partner to operate” strategy.			
The Group’s operations are located across a number of jurisdictions, which exposes the Group to a wide range of economic, political, societal and regulatory environments.	▲	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Group reputation</li> </ul>	Proactive engagement with governments, communities and other stakeholders can increase access to new resources, support stable and predictable investment frameworks and operational environments, and shape mutually beneficial policies and legal/regulatory frameworks.
<b>Governance risks</b>			
Rio Tinto employees operate in compliance with <i>The way we work</i> – our global code of business conduct, the Group delegation of authorities and all Group policies, standards and procedures.			
The Group’s reputation and regulatory licences are dependent upon appropriate business conduct and are threatened by a public allegation of potential misbehaviour or by regulatory investigation.	—	<ul style="list-style-type: none"> <li>– Business model</li> <li>– Future performance</li> <li>– Group reputation</li> </ul>	Good corporate citizens are acknowledged to operate to a high ethical standard, thus attracting talent and securing access to resources and investment opportunities.



## Potential downside impact (threats)

## Mitigating actions include:

Business interruption may arise from a number of circumstances, including:

- Operational difficulties such as extended industrial dispute, delayed development, bottlenecks or interruptions to infrastructure for power, water and transportation, throughout the value chain.
- Operational failure such as a process safety incident, major pit slope, dump or tailings/water impoundment failure, underground incident.
- Cyber breach/incident of commercial and operational systems.
- Natural disasters such as earthquakes, subsidence, drought, flood, fire and storm can impact mines, smelters, refineries and infrastructure installations. Some of these risks are likely to increase through the impact of climate change.

Any of these events could result in a significant HSEC incident, an interruption to operations, or the inability to deliver products and a commercial loss.

- Preserve geographically diverse portfolio, limiting physical events/disruptions to a specific business, single infrastructure or logistical event.
- Comply with slope geotechnical, tailings management, underground mining and process safety technical and safety standards, supported by subject matter experts and audit protocols, reducing the risk (likelihood and consequence) of operational failure.
- Comply with the Acceptable use of information and electronic resources standard, supported by periodic reviews of IT infrastructure and security controls by dedicated (in-house) cyber-security team.
- Operate under strong human resources and employee relations framework.
- Undertake business resilience planning and preparedness exercises for execution of plans, across all operations.

For certain risks involving higher-value losses the Group purchases insurance. Risks not transferred to the external insurance market are retained within the business.

The inability to attract or retain key talent will constrain the Group's ability to reach its goals within planned timeframes.

- Improve HR processes in recruitment, development and leadership training.
- Continue employee engagement programme and metrics, to enhance engagement.
- Enhance focus on inclusion and diversity, at all levels of the Group.
- Refresh Group purpose and values statements.

Adverse actions by governments and others can result in operational/project delays or loss of licence to operate. Other potential actions can include expropriation, changes in taxation, and export or foreign investment restrictions, which may threaten the investment proposition, title, or carrying value of assets. Legal frameworks with respect to policies such as energy, climate change and mineral law may also change in a way that increases costs.

- Shape governance structures to ensure appropriate influence and engagement.
- Participate in strategic partnerships or financing structures to moderate political risk.
- Maintain geographically diverse portfolio to reduce concentration of exposure to changes in the particular locations.
- Monitor jurisdictional, including sovereign, risks and take appropriate action.
- Develop long-term relationships with a range of international and national stakeholders.
- Comply with Group policies and standards which provide guidance concerning risk management, human rights, cyber threat, data privacy, business integrity and external communications.

Fines may be imposed against Group companies for breaching antitrust rules, anti-corruption legislation, sanctions or human rights violations or for other inappropriate business conduct.

A serious allegation or formal investigation by increasingly connected regulatory authorities (regardless of ultimate finding) could result in a loss in share price value, and/or loss of business. Other consequences could include the criminal prosecution of individuals, imprisonment and/or personal fines, and fines, legal liabilities and reputational damage to the Group. There may also be considerable cost and disruption in responding to allegations or investigations and related litigation, and in taking remedial action.

- Identify and meet our regulatory obligations and respond to emerging requirements.
- Comply with Group policies, standards and procedures that provide guidance to our businesses and drive compliance with regulatory obligations.
- Dedicate legal and compliance teams to assist Group businesses in complying with regulatory obligations and internal standards and procedures.
- Maintain appropriate oversight and reporting, supported by training and awareness, to drive compliance with regulatory obligations.
- Continue to develop and deploy training across relevant sectors of the workforce.

# Portfolio management

## Capital projects

Rio Tinto has a programme of high-quality projects delivering industry-leading returns across a broad range of commodities. In 2017, Rio Tinto funded its capital expenditure with net cash generated from operating activities and expects to continue funding its capital programme from internal sources, except for the Oyu Tolgoi underground development for which there is a separate project financing arrangement.

Material capital projects				
Projects (Rio Tinto 100% owned unless otherwise stated)	Total approved capital cost (100% unless otherwise stated)	Approved capital remaining to be spent from 1 January 2018	Status/milestones	
Completed in 2017				
Investment in the Silvergrass iron ore mine in the Pilbara, Australia, to maintain the Pilbara Blend.	US\$0.3bn	US\$0.05bn	The US\$338 million expansion is expected to add 10 million tonnes of annual capacity. Commissioning was completed in the fourth quarter of 2017.	
Construction of a desalination facility to ensure continued water supply and sustain operations at Escondida (Rio Tinto 30%), Chile.	US\$1.0bn (Rio Tinto share)		– Approved in July 2013, the project provides a long-term sustainable supply of water for the operations. The project reached completion on budget in December 2017.	
Remediation of the east wall at Rio Tinto Kennecott, US.	US\$0.3bn		– Following the pit wall slide in 2013, mine operations focused on remediation from the slide and the east wall of Bingham Canyon, including significant de-weighting and de-watering activities.	
Ongoing and approved Copper & Diamonds				
Project funding for Grasberg, Indonesia, from March 2017 to December 2017.	US\$0.1bn (Rio Tinto share)		– Approval in 2017 to continue investment in the pre-production construction of the Grasberg Block Cave, the Deep Mill Level Zone underground mines, and the associated common infrastructure. Rio Tinto's final share of capital expenditure will be influenced in part by its share of production over the period of investment.	
Investment to extend mine life at Rio Tinto Kennecott, US, beyond 2019.	US\$0.7bn	US\$0.4bn	Funding for the continuation of open pit mining via the push back of the south wall; the project largely consists of simple mine stripping activities.	
Development of A21 pipe at the Diavik Diamond Mine in Canada (Rio Tinto 60%).	US\$0.2bn (Rio Tinto share)	US\$0.02bn (Rio Tinto share)	Approved in November 2014, the development of the A21 pipe is expected to sustain production levels. Dike construction and de-watering are complete. First carats are planned for mid-2018.	

## Material capital projects continued

Projects (Rio Tinto 100% owned unless otherwise stated)	Total approved capital cost (100% unless otherwise stated)	Approved capital remaining to be spent from 1 January 2018	Status/milestones
<b>Ongoing and approved</b>			
<b>Copper &amp; Diamonds continued</b>			
Development of the Oyu Tolgoi underground mine in Mongolia (Rio Tinto 34%), where average copper grades of 1.66 per cent are more than three times higher than the open pit.	US\$5.3bn	US\$4.3bn	The project was approved in May 2016. An annual project review was completed in the fourth quarter of 2017 and construction of the first drawbell is expected in mid-2020. Lateral development is on plan, Shaft 2 sinking is complete and Shaft 5 sinking is expected to be complete by the end of the first quarter of 2018.
<b>Aluminium</b>			
Investment in the Amrun bauxite mine on the Cape York Peninsula in north Queensland, Australia, with a planned initial output of 22.8 million tonnes a year.	US\$1.9bn	US\$1.1bn	Approved in December 2015, the project is advancing to plan. Output includes an expected 10 million tonne increase in annual exports with production commencing in the first half of 2019.
Investment in the Compagnie des Bauxites de Guinée (CBG) bauxite mine to expand capacity from 14.5 to 18.5 million tonnes a year. Rio Tinto's share of capex is US\$0.3bn.	US\$0.7bn	US\$0.3bn	Approved in 2016. Financing completed in November 2016. First incremental shipment expected in the fourth quarter of 2018.

## Material acquisitions and divestments

Asset	Consideration US\$m	Status
<b>Divested in 2017</b>		
Coal & Allied Industries Limited	2,690 <sup>(a)</sup>	Sold to Yancoal Australia Limited
<b>Divested in 2016</b>		
Bengalla Joint Venture	617 <sup>(a)</sup>	Sold to New Hope Corporation Limited
Lochaber	410 <sup>(a)</sup>	Sold to SIMEC
<b>Divested in 2015</b>		
There were no material divestments completed in 2015.		

(a) Before working capital and completion adjustments.

There were no material acquisitions in 2017, 2016 or 2015.

Further information on acquisitions and divestments is included in note 37 to the financial statements

# Sustainable development

For 145 years, Rio Tinto has been pioneering the production of materials essential to human progress. The minerals and metals we produce play a vital role in a host of everyday items and innovative technologies that help make modern life work. We recognise that the work we do has the potential to affect people, communities and the environment, both positively and negatively. We work in partnership with those affected to minimise our negative impacts and to share the wealth and benefits our business creates over the short and long term.

Rio Tinto's contribution to sustainable development underpins our commercial results, is consistent with our partner-to-operate approach and is integrated into our strategic positioning. It benefits our shareholders, joint venture partners, neighbouring communities, suppliers, customers, employees, governments and society.

We recognise that we can always improve and work in partnership to find smarter ways of operating. We participate in industry organisations, such as the International Council on Mining & Metals (ICMM), and global initiatives such as the Extractive Industries Transparency Initiative and the UN Global Compact. We promote change locally and set sustainability standards that reflect societal expectations and challenges. We also work with non-governmental organisations to better understand and meet our stakeholders' needs.

Rio Tinto's Sustainability Committee reviews the company's approach for consistency with our purpose and values, for the effective management of material sustainability risks, and for our overall contribution to sustainable development. Further information on this committee can be found on page 68, in the Governance report.

## Materiality

Every year we review the sustainability topics that matter most to our business and stakeholders. This helps focus our response and aligns our sustainability reporting with the Global Reporting Initiative (GRI) Standards.

In 2017, to prioritise our material topics, we combined feedback from our internal leaders and subject matter experts, and considered stakeholder expectations and an analysis of the external environment. The Sustainability Committee reviewed and approved this assessment.

Topics prioritised as being highly material are core to our sustainability performance and are described below. Topics prioritised as material that could have localised or moderate impacts on our sustainability performance are described in our Sustainable development report.

A summary of our 2017 sustainability performance follows. Greater detail, including disclosure of performance metrics and the materiality assessment, is contained in our *2017 Sustainable development report*, available at [riotinto.com/sd2017](http://riotinto.com/sd2017).

## Performance overview

In 2017, two employees lost their lives whilst working at Rio Tinto. One employee lost his life while working at our Rio Tinto Kennecott smelter in Utah, and there was a health-related death of a colleague undertaking exploration activities in the Pilbara, Australia. These tragedies are felt deeply across our company, by workmates, the local community, family and friends. They are further described on page 31. These incidents affect the way we view our sustainability performance and reinforces the importance of remaining focused on strong safety and health leadership, and the standards and procedures we live by every single shift and day. We believe that preventing all work-related fatalities is both achievable and essential for our business.

Our performance is assessed globally by external agencies. In 2017, Rio Tinto was again recognised by the Dow Jones Sustainability Index Metals & Mining Sustainability Leaders group and the FTSE4Good indices, and ranked in the top three in the 2017 Corporate Human Rights Benchmark.

We were also honoured in 2017 through the Canadian-American Business Council's Corporate Leadership Award for our C\$6.4 billion modernisation of the Kitimat aluminium smelter. The award recognises our innovation in producing some of the world's lowest carbon aluminium, environmental benefits and our long-term partnership with the Kitimat community.

Other examples of our progress in 2017 – of finding smarter ways to deliver our programmes and improve our performance – include:

- Launching the new Rio Tinto purpose and enhancing our company values and global code of business conduct, *The way we work*, to set a strong sense of direction, increase employee engagement and attract future talent.
- Fully embedding critical risk management (CRM), our fatality prevention programme across more than 60 operational sites, and incorporating critical health fatality risks into CRM.
- Achieving our lowest all injury and lost time injury rates in our company history, although we did not meet the improvement in all injuries we were targeting.
- Introducing new fatigue risk management guidance.
- Improving our major hazard standards that cover underground, slopes and geotechnical, tailings and water storage risks.
- Developing a new biodiversity protection and natural resource management standard for introduction in 2018.
- Reviewing and strengthening our approach to mine and facility closure.
- Achieving good progress against our climate target – 27 per cent reduction in our greenhouse gas emissions intensity from 2008 – a 2 per cent improvement from 2016.
- Achieving a turnaround in our employee engagement score in the second half of 2017.
- Enabling 1,500 leaders to develop their leadership skills through a six-month development programme called Leading for Success.
- Exceeding our 20 per cent target for women in senior management.
- Achieving strong gender (41 per cent female) and nationality representation (29 per cent nationals from regions where we are developing new businesses) across our 2017 graduate intake.
- Introducing a new global minimum standard for paid parental leave.
- Championing Australia's White Ribbon (domestic violence) campaign, publishing a guidance note for our Australian employees, providing awareness training and offering support to those affected by domestic violence.
- Celebrating 20 years of the Yandicoogina Agreement between Rio Tinto and the Gumala Aboriginal Corporation in the Pilbara.
- Launching our Talk to Peggy campaign to strengthen our *Speak-OUT* whistleblowing programme.

We reported no significant environmental incidents with a major or catastrophic impact. We paid US\$89,502 in fines related to environmental compliance. Further information on the Group's environmental regulation, including incidents and fines, is in the Directors' report on page 109.

More information on our performance across each of the Rio Tinto product groups and Growth & Innovation can be found in further sections of this Annual report.

## Goals and targets

We set targets to communicate across the company the areas where we want to improve in sustainability performance and to stretch our thinking as to what is possible and acceptable. Our performance against these targets is summarised below. Actions to maintain or improve performance in these areas are described in the following pages. Further information on the risk framework we apply to identify these metrics can be found on pages 18 to 25.

Targets	Outcomes in 2017
Our goal is zero harm, including, above all, the elimination of workplace fatalities.	One safety fatality and one health fatality at managed operations in 2017.
Performance against this goal is measured by the number of fatalities and a year-on-year improvement in our all injury frequency rate (AIFR) per 200,000 hours worked.	AIFR of 0.42, representing a five per cent improvement from 2016.
A year-on-year improvement in the rate of new cases of occupational illness per 10,000 employees annually.	43 per cent decrease in the rate of new cases of occupational illness compared with 2016.
By the end of 2018, all managed operations will be effectively controlling exposure to all identified critical fatality health risks by verifying that critical controls are controlling harmful exposure.	95 per cent of managed operations on track to achieve our target of verifying controls for critical fatality health risks. The remaining five per cent of operations are being provided additional assistance to implement the critical control verification process.
Our diversity goal is to employ people based on job requirements who represent the diversity of our surrounding communities.	Women represented 22.4 per cent of our senior management in 2017, up from 19.2 per cent in 2016.
We are targeting:	Women represented 27.3 per cent of our Executive Committee in 2017.
– The increased representation of women in senior management positions by two per cent year-on-year.	Women represented 41 per cent of our 2017 graduate intake.
– Women to represent 50 per cent of our 2017 graduate intake.	29 per cent of our 2017 graduate intake were nationals from regions where we are developing new businesses.
– 30 per cent of our 2017 graduate intake to be nationals from regions where we are developing new businesses.	Women represented 18 per cent <sup>(a)</sup> of our total workforce.
From 2016, all operations will locally report on an annual basis, and by 2020 will demonstrably achieve:	42 per cent of managed operations are on track to meet their 2020 targets. The remaining operations are being provided additional assistance to resolve any barriers to achieving their targets.
– Progress against a locally defined target that demonstrates the local economic benefits of employment and procurement of goods and services.	
– Effective capture and management of community complaints with year-on-year reduction in repeat and significant complaints.	
24 per cent reduction in total greenhouse gas emissions intensity between 2008 and 2020.	We are on track to meet our 2020 target. Two per cent reduction in greenhouse gas emissions intensity in 2017 versus 2016.
All managed operations with material water risk will have achieved their approved local water performance targets by 2018.	77 per cent of managed operations are on track to meet their approved local water performance targets. Operations will continue to focus on material water risk and improving performance against their water targets during 2018.

(a) Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2017. Less than one per cent of the workforce gender is undeclared.

## Performance data

A summary of our performance data is provided in the table below. The data are reported for calendar years and unless stated otherwise parameters are reported for all managed operations without adjustment for equity interests. Data relating to fatalities, all injury frequency rate and lost time injury frequency rate include all employee and contractor exposure hours and incidents. New cases of occupational illness are reported for employees only.

Data reported in previous years may be modified if verification processes detect material errors, or if changes are required to ensure comparability over time.

We have incorporated the requirements of the ten principles of the ICMM and the mandatory requirements set out in the ICMM position statements into our own policies, strategies and standards. We report in accordance with the GRI Standards and the requirements of other select reporting frameworks.

Further information on our data definitions, our reporting of GRI disclosure requirements and our alignment with the ICMM are available online at [riotinto.com/sd2017](http://riotinto.com/sd2017).

Performance data 2013-2017 <sup>(a)</sup>					
	2017	2016	2015	2014	2013
<b>Social</b>					
Fatalities at managed operations from safety incidents	1	1	4	2	3
Fatalities at managed operations from health incidents	1	—	—	—	—
All injury frequency rate (per 200,000 hours worked)	0.42	0.44	0.44	0.59	0.65
Number of lost time injuries	199	206	220	381	500
Lost time injury frequency rate (per 200,000 hours worked)	0.25	0.26	0.25	0.37	0.42
New cases of occupational illness (per 10,000 employees)	27	47*	32*	17	16
Employees (number) <sup>(b)</sup>	47,000	51,000	55,000	60,000	66,000
<b>Environment</b>					
Greenhouse gas emissions intensity (indexed relative to 2008)	73.0	74.4*	79.7	81.7	83.2
Total energy use (petajoules)	439	458*	433	450	484
Freshwater used (billion litres)	465	467	460	465	436
Land footprint – disturbed (square kilometres)	3,616	3,696	3,629	3,592	3,556
Land footprint – rehabilitated (square kilometres)	497	541	533	502	472
<b>Direct economic contribution</b>					
Value add (US\$ million) <sup>(d)(e)</sup>	27,734	20,065*	18,888	29,178	31,818
Payments to suppliers (US\$ million) <sup>(d)</sup>	14,123	15,253*	17,896	21,370	26,054
Community contributions (US\$ million)	176	168*	187*	264	332

(a) Data reported in previous years may be modified if verification processes detect material errors, or if changes are required to ensure comparability over time. Wherever possible, data for operations acquired prior to 1 October of the reporting period are included. Divested operations are included in data collection processes up until the transfer of management control.

(b) These figures include the Group's share of joint ventures and associates (rounded to the nearest thousand).

(c) The land footprint refers to the total inventory as of 31 December 2017.

(d) These figures include the Group's share of joint ventures and associates.

(e) Value add is the sum of labour, payables to governments, returns on capital invested in operations and non-government payments. This figure includes the community contribution total for the calendar year.

\* Numbers restated from those originally published to ensure comparability over time.

## 2018 priorities

Our 2018 priorities for improving our sustainable development performance are to:

- Maintain momentum of the CRM programme and achieve our first fatality-free year.
- Collaborate with our contractors and joint venture partners to improve safety, health and environmental performance at both our managed and non-managed sites.
- Simplify our critical safety tools to make it easier for our workers to stay safe and be productive.
- Continue implementation of mental health and wellbeing initiatives.
- Continue implementation of the global minimum standard for paid parental leave for all our employees.
- Extend the domestic violence support provided for employees in Australia and New Zealand to other countries.
- Continue the Leading for Success programme, such that all 6,500 leaders will participate by the end of 2018.
- Continue to implement measures that increase the representation of women in the workforce.
- Improve our understanding and management of the resilience of our portfolio and of our physical assets to climate change risks in a two degrees Celsius temperature increase scenario.
- Continue to embed our standards for process safety, underground safety, slopes and geotechnical, tailings and water storage facilities, and implement the new biodiversity protection and natural resource management standard.
- Establish organisation and performance indicators to support our operations to de-risk their future closure liabilities and to manage the closure of mines and facilities at the end of their economic life efficiently and responsibly.

- Develop, with the ICMM, new corrosivity tests for the safe bulk shipping of our products.
- Continue development of third party due diligence processes relating to suppliers and customers, and monitoring of our business integrity compliance.
- Improve the local employment and procurement content in our neighbouring communities.
- Improve human rights components of incident reporting, risk and impact assessments and complaints handling.
- Establish new water and health performance targets beyond 2018.

## Our people

### Safety and health

The safety and health of our people, contractors and suppliers is Rio Tinto's top priority, one of our core values and an essential component to our sustainable development performance. We work to create a safe and healthy environment through visible and caring leadership, strong systems and verifications of critical controls. We believe all incidents that impact safety and health are preventable, and in partnerships across teams and contractors, we can raise our performance and promote wellbeing.

Our approach to safety and health is centred on eliminating fatalities and disabling injury or occupational illness, avoidance of major hazard risk events, and reduction in occupational illness and injury. Guided by our safety and health standards, we identify emerging issues and key risks, and apply and assure controls.

We introduced CRM in 2015 and it continues to be crucial to the elimination of fatalities. In 2017, we maintained the quantity of critical control verifications, while focusing on quality and coverage. As a complement, we explored our understanding of human behaviour to



reduce human error. In 2017, over 1.4 million critical control verifications were completed. We added three critical health fatality risks to our existing 22 safety fatality risks to prevent harmful health exposures to the workforce. The three risks are thermal extremes, hazardous substances (chronic) and malaria.

Major hazard risks are characterised as low probability, high consequence events. These risks are managed through standards, detailed analysis and external reviews, which are overseen by our Major Hazard Risk Management Steering Committee. During 2017, we updated our standards and processes for underground safety, slopes and geotechnical, tailings and water storage facilities. A governance framework was also established.

Identification and verification of critical controls is a key aspect of managing process safety risk. In 2017, the Rio Tinto Investment Committee approved capital projects to mitigate process safety risks to people in occupied buildings, such as installing detection and protection technology, and replacing chlorine metal treatment units with new units that remove the use of chlorine.

In October, we experienced one fatality when an employee was exposed to sulphur dioxide while working near the flash smelting furnace at our Rio Tinto Kennecott copper smelter in Utah. At our Bell Bay smelter in Tasmania, an employee suffered severe burns from contact with molten material, causing a disabling injury. There was an explosion at our Sorel-Tracey metallurgical complex in Canada, in which no one was injured, but which resulted in a serious interruption to production.

In October, there was a health-related death of an employee conducting exploration activities. Our focus on fitness for work and wellness will continue and ongoing investigations will consider all lessons learned from this tragedy.

These tragedies continue to impact family, friends, workmates and their local communities. The business provided immediate support and counselling services and continues to do so. We complete full investigations as part of the process and share the learnings across Rio Tinto to seek to prevent incidents like these being repeated. These incidents reinforce our commitment to learn from our fatal and nearly fatal incidents. The ongoing focus on our learning critical lessons programme is designed to eliminate repeat incidents.

During 2017, we started to simplify the tools and systems used in operational tasks to ensure safe outcomes. We are doing this to enable our workforce to complete their work more efficiently and safely. We are strengthening controls by continual evaluation of information provided to leaders, which is an improvement on our site assurance process.

Mental health is a societal issue that impacts some of our employees and their families. In 2017, we established a Group-wide cross-functional wellbeing steering committee to update our wellbeing strategy and improve mental health management. We produced a series of videos and online learning modules to support awareness training for supervisors and employees, and continued to provide employee assistance programmes across our operations.

Fatigue is a critical risk in operations, projects and business travellers and during 2017 we introduced fatigue risk management guidance, produced a series of fatigue awareness videos and established a fatigue technology group. In conjunction with the Central Queensland University in Australia and the University of Witwatersrand in South Africa, we studied beliefs and attitudes about fatigue across sites in Africa and Australia. The study to date has confirmed effective practices and identified improvement opportunities such as risk identification and mitigation, and training.

The rate of new cases of occupational illness decreased by 43 per cent from 2016. This is due to an increased focus on health and partially attributed to a reduction of previously unreported historic noise-induced hearing loss (NIHL) cases. The main types of occupational illnesses in 2017 were musculoskeletal disorders (28 per cent), NIHL (36 per cent), and stress (19 per cent).

We continued to work with local governments and health organisations to ensure effective education in, control of and where necessary, treatment of our employees, contractors and communities surrounding our operations for vector-borne and infectious diseases such as tuberculosis, Ebola, malaria, plague, HIV/AIDS and Zika virus.

During 2017, we completed the first phase of the epidemiological study of the workforce at the Rössing uranium mine in Namibia. The objective of the study is to improve understanding of possible health effects from mine-related radiation exposure.

### Employee relations

Our approach to working with our people is centred on building and enabling a highly capable, high-performing, engaged and inclusive business. We understand the relationship between employee engagement, the health and safety of our employees, and productivity. We also want to be an attractive and competitive employer of choice.

We value the strength that a diverse workforce and an inclusive culture bring to our business. We employ people on the basis of job requirements and we do not discriminate on grounds of age, ethnic or social origin, gender, sexual orientation, politics, religion, disability or any other status. We do not employ forced, bonded or child labour. We employ people with disabilities and make considerable efforts to offer suitable alternative employment and retraining to employees who become disabled and can no longer perform their regular duties.

In 2017, we reset our employee relations focus. Our people survey indicates that while we have made progress we still have work to do to improve employee satisfaction and continue to make Rio Tinto a better place to work. The results in the second half of the year show improvement as a result of our work to simplify core processes, strengthen engagement and develop our people.

During the year, we introduced a new global minimum standard for paid parental leave, which is available to every employee regardless of their personal circumstances or location. We also produced a package to protect and support families affected by family and domestic violence, and are in the process of obtaining Australia's White Ribbon accreditation.

We continue to focus on meeting our objectives for workforce diversity. We continue to increase the gender balance in senior management positions by creating opportunities at this level and partnering with recruitment agencies to increase the female employee pipeline and talent pool. During the year we worked on diversity targets to be introduced in 2018. We target 50 per cent representation of women in our graduate intake. Further information on inclusion and diversity can be found on page 36.

During 2017, we launched several leadership signature programmes to develop and recognise leaders. Over 100 participants from frontline to senior leader levels were selected to develop their global leadership and networking skills over a 12-month period. Supported by an executive sponsor, participants are also taught by other leaders and exposed to an internationally recognised business faculty.

More broadly, over 1,500 leaders across Australia, Canada, China, Mongolia, South Africa, the UK and the US completed a six-month Leading for Success programme and developed core leadership capabilities.

We recognise the right of all employees to choose to belong to a union and seek to bargain collectively. During the year, we successfully negotiated enterprise agreements at Rio Tinto Kennecott, Kitimat, Havre-Saint-Pierre and Gove Aluminium, and with the European Works Council. In France, agreements with unions were reached regarding salary policy, profit sharing and healthcare benefits. We also continued dialogue with union representatives at Richards Bay Minerals, QIT Madagascar Minerals and Rössing Uranium operations.

We remain one of the largest private sector employers of Indigenous Australians, with over 1,431 full time Indigenous employees who represented approximately eight per cent of our Australian employees in 2017.

In 2017, we employed 47,000 people, including the Group's share of joint ventures and associates in around 35 countries. Of these, approximately 25,000 were located in Australasia, 14,000 in North America, 5,000 in Africa, 2,000 in Europe, and 1,000 in Central and South America. See page 207 for a breakdown of employees by business units.

### Communities and regional development

Our approach to Communities and Social Performance (CSP) is to establish relationships with host communities founded on trust and mutual respect. Using our local knowledge, we engage with communities and develop programmes that reflect mutually agreed priorities. Our CSP standard and

framework enable us to identify and manage social risks, and thus build relationships that secure community support for our operations.

Agreements are the basis of many of our relationships and currently we have 40 comprehensive participation agreements and over 120 global exploration access agreements in place. In 2017, we celebrated 20 years of the Yandicoogina Agreement between Rio Tinto and the Gumala Aboriginal Corporation, which represents the interests of the Nyiyaparli, Banjima and Yinhawangka people in the Pilbara, Australia. Our agreement with the Cheslatta Carrier Nation people in British Columbia, Canada progressed, with a final conclusion anticipated during 2018.

The Apache Leap Special Management Area (SMA) was added to the bipartisan legislation that passed US Congress in 2013 to facilitate a land exchange between the Tonto National Forest and Resolution Copper. A milestone critical to the process was achieved in December with the approved SMA plan for Apache Leap, a culturally significant site above the town of Superior in Arizona. The US Forest Service conducted comprehensive consultation with 12 Arizona tribes and specific measures were adopted to accommodate concerns about public access, grazing and other protections for culturally important locations within the SMA. This allows us to make adjustments to our plans to ensure that Apache Leap is protected.

We work with local communities during the planning for closure of our mines and facilities, and during divestments of our assets. In 2017, our engagement with the Jabiru community and governments continued ahead of the closure of the Ranger uranium mine in the Northern Territory, Australia, and on the impacts and opportunities identified from the recent social impact assessment. During the divestment process, we continued to place a high priority on the interests of local communities with whom we worked over many years. In 2017, we worked to ensure that the divestment of our thermal coal assets in Australia did not negatively impact the local communities in the Hunter Valley.

Sharing the value our operations create is also fundamental to our approach. In addition to the taxes and royalties paid to both regional and federal governments in 2017 (see our *Taxes paid in 2017* report, which will be published later this year on the Group's website), we also contributed to 1,336 programmes covering health, education, environmental protection, housing, agricultural and business development sectors. Our business spent US\$176 million on community contribution programmes. This was an increase in overall community contributions of five per cent compared with 2016 due to higher agreement-related payments flowing from higher commodity prices.

Our CSP targets for 2016-2020 are focused on increasing local economic participation at our assets and reducing significant CSP incidents. All sites established their targets in 2016, and in 2017 commenced the first year of reporting their performance towards meeting the target. At the end of the year, 42 per cent of sites were already on track to meet their targets by 2020. For those sites who reported risk of not achieving their 2020 targets, management activities are in place for early intervention of performance and outcomes.

During the year, five significant community incidents were reported through our CSP complaints and incidents management system. These related to unauthorised impacts to cultural heritage and a community safety incident.

In 2017, we were pleased to reach the resolution of herder complaints lodged with the International Finance Corporation (IFC) Ombudsman regarding our Oyu Tolgoi operation. This followed a four-year dispute resolution process involving herder households, local government and our Oyu Tolgoi operational representatives.

## Protecting the environment

### Climate change

We acknowledge the changing global climate and support the intent of the Paris Agreement to limit global warming to less than two degrees Celsius above pre-industrial levels. We are aiming for a substantial decarbonisation of our business by 2050. Our approach is supported by our climate change position statement available online at [riotinto.com](http://riotinto.com).

Climate change presents complex challenges for companies, governments and society. In partnership with our stakeholders, we are reducing emissions, managing risk and building resilience to climate change.

Our climate change programme focuses on reducing the energy intensity of our operations and the carbon intensity of our energy. We expect the

most significant changes to the energy intensity of our operations and therefore changes to our greenhouse gas (GHG) emissions to be attributed in the next few years to changes in the portfolio and asset sales.

In 2017, our total GHG emissions were 30.6 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e), 1.4 million tonnes lower than in 2016. The Group's performance against the Group target of GHG emissions intensity has bettered the forecast for 2017. The majority of our GHG emissions are generated through energy use (electricity, fuel) and chemical processes (anodes and reductants) at our operations. Most (69 per cent) of the electricity we use is from hydro, wind and solar power, a similar level to previous years.

Transportation, processing and use of our products also contribute to GHG emissions. In 2017, the three most significant sources of indirect emissions associated with our products were:

- 529 million tonnes of CO<sub>2</sub>-e associated with customers using our iron ore to produce steel. These emissions are not all in addition to the coal-use emissions presented below, as some customers use both our iron ore and our coal to produce steel. This was a one per cent increase from 2016.
- 70 million tonnes of CO<sub>2</sub>-e associated with customers using our coal in electricity generation and steel production, a 31 per cent decrease from 2016.
- 6.2 million tonnes of CO<sub>2</sub>-e associated with third-party transport of our products and raw materials, a 2 per cent increase from 2016.

We consider climate change and future energy scenarios in our strategic positioning of the business. We are using scenarios based on the International Energy Agency's (IEA) 450 scenario to assess the resilience of the commodities we produce to market-related potential impacts, and have also undertaken an exposure assessment of our operations to the physical risks of climate change. This is in response to the 2016 shareholder resolution on climate change.

We support the Task Force on Climate-related Financial Disclosures' (TCFD) recommendations for voluntary financial reporting on climate change risks and will evolve our reporting to align within them.

### Operational environment

We manage ongoing environmental aspects at our operations to prevent, or otherwise minimise and remediate, our effects on environments and communities. We have internal environmental standards and are subject to environmental regulations and voluntary codes of practice.

During 2017, we reviewed all our environmental standards as part of the process of continuous improvement. A new standard for biodiversity protection and natural resource management has been developed with input and expertise from non-governmental organisations and conservation groups. Participatory environmental monitoring from local community members is a key inclusion in all these standards.

We work with neighbouring communities to understand our impact and improve practices. We have mechanisms to record and enable us to respond to complaints about issues such as noise, dust and water quality. We also share air quality monitoring information through site-specific websites and community monitoring programmes.

Where waste reuse and recycling are not possible, we manage it in purpose-designed facilities while minimising disposal costs and future liabilities, and avoiding potential adverse impacts. In 2017, we disposed of, or stored, 1,317 million tonnes of mineral waste (predominantly waste rock and tailings) and 328,050 tonnes of non-mineral waste. About one-fifth of our mineral waste has the potential to react with air and water or break down to create potentially harmful contaminants, such as acid and metalliferous drainage (AMD). Our controls are designed to prevent AMD impacts.

Our water resource management programme focuses on site-specific risks, such as security of water supply, managing the quality of water returned to the environment, and balancing operational needs with those of local communities, Traditional Owners and regulatory requirements. In 2017, we strengthened our water governance and planning processes.

Where sites have material water risks, they have site-specific water targets. We confirm performance against these targets and focus efforts on operations that need to improve. At the end of 2017, 77 per cent of managed operations were on track to meet their local water performance targets by 2018.

## Management of tailings and structures

We operate tailings and large water storage facilities at 30 sites and have closed impoundments that we monitor at eight sites.

We continue to review and audit facilities (including independent external reviews) to ensure that practices at all managed tailings and major water storage facilities conform to our Management of tailings and water storage facilities standard. We align our approach to the ICMM position statement on tailings management. Assurance over these storage facilities by internal and independent third-party reviews remains a focus. We also work with our joint venture partners to minimise the environmental and social impacts and risks associated with tailings management at our non-managed operations.

During 2017, we improved our tailings governance and data reporting processes and we completed detailed analyses of practices at five operations. From these analyses we will adopt further improvements in 2018.

We are working with mining and metals industry peers to better understand and implement best practices to manage risks associated with tailings and water storage facilities. We are collaborating on two research projects led by the University of Western Australia to understand static liquefaction in mine tailings and the placement of filtered tailings on top of conventional wet tailings.

## Value chain

Sharing part of the wealth created from our operations with communities, regions and countries associated with our purchases, operations and sales provides long-term opportunities. Responsible supply practices are critical to our partner-to-operate approach, establishing sustainable supply chains for our customers and meeting expectations for greater transparency about our supply chain.

Our contributions include the payment of tax to local and national governments, dividends to shareholders, the direct and indirect employment we generate, procurement opportunities and investment in community programmes. The payments we make to our suppliers represent a significant part of our global economic contribution. The figures in this section include the Group's share of joint ventures and associates.

Globally, the Group's direct economic contribution was US\$41.8 billion in 2017. This includes:

- US\$27.7 billion in value add, made up of payments to employees, payables to governments and returns to capital.
- US\$14.1 billion as payments to suppliers for goods and services.

Our capital investment was US\$4.5 billion.

We are a major employer and tax contributor to local, state and national jurisdictions. We promote governance over the benefits of mining that flow through to host communities and governments by being transparent in the payments we make and by providing local employment and procurement opportunities. Details of the payments (including corporate income tax, royalties and other taxes) we made to governments will be published in our *Taxes paid in 2017* report, and made available online.

During 2017, we continued improvements to our Know your supplier procedure which establishes a process to understand legal, ethical and reputational risks arising from use of a supplier, and continued with our Supplier code of conduct. Both include human rights considerations. We also progressed work on third-party risk-based due diligence assessments on our commercial relationships.

Our local procurement practices aim to deliver benefits for communities, suppliers and businesses. In 2017, our Iron Ore business introduced a local procurement programme, including an online portal for local businesses to register their interest and view upcoming procurement opportunities.

During 2017, we officially opened Silvergrass, the 16<sup>th</sup> mine in our Pilbara iron ore operations, and continued to build the Amrun bauxite project and the underground copper mine expansion at Oyu Tolgoi. These growth developments enable us to continue sharing wealth and opportunities. Details of these and other developments can be found in the product groups and Growth & Innovation pages of this Annual report.

## Governance

### Business integrity

We are firmly committed to operating with integrity and being accountable for our actions. The key principles that guide our behaviour in *The way we work* are supported by standards that cover antitrust, bribery and corruption, conflicts of interest, benefits, sponsorships and donations, data privacy, fraud and third-party due diligence. All these are reinforced annually through workforce training both online and face to face. In 2017, we launched our new company purpose and promoted the values of safety, teamwork, respect, integrity and excellence. This was supported by face-to-face sessions using real scenarios to promote discussion and understanding.

We maintain a strict stance against bribery and corruption, which is prohibited in all forms. Any Rio Tinto employee found to be not complying with anti-bribery and anti-corruption laws will face disciplinary action, up to and including termination. Details of regulatory matters can be found on page 50 in the chairman's governance review of this Annual report.

Our business integrity compliance programme is aligned with the risk-based approach included in our business integrity standard. Our training programme and materials are updated to ensure they remain engaging and relevant to the risks employees encounter. During 2017, we provided additional training to targeted audiences on specific areas of our programme.

*Speak-OUT*, the Group's confidential and independently operated whistleblowing programme, enables employees, suppliers, contractors and community members to report anonymously, subject to local law, any significant concerns about the business, or behaviour of individuals.

We are committed to a culture of transparency and encourage employees to speak up about their issues and concerns, whether through their management, human resources team or through *Speak-OUT*.

As part of our efforts to continually improve our *Speak-OUT* programme, we launched our Talk to Peggy campaign during 2017. The campaign gives *Speak-OUT* a human face that engenders trust and confidence that reports are taken seriously and we respond to the facts. This is helping us to create a safe environment in which to report.

We have also centralised our reporter management process and improved engagement with whistleblowers through regular and personalised contact. This has resulted in better quality of investigations and improvement in case cycle time.

These actions have contributed to an increase in reporting rate and changed the feedback received from reporters, from negative and demonstrating lack of confidence in the process, to positive, including reporters interacting more openly with investigators. We are also seeing employees raising concerns face to face, outside of the hotline, as well as using *Speak-OUT* to seek advice on an emerging issue.

In 2017, 712 incidents were reported through *Speak-OUT*, compliance managers or management, representing an increase of approximately six per cent on last year. The increase is mainly due to a higher volume of incidents raised outside of the hotline. Thirty-three per cent of cases raised this year were substantiated, resulting in corrective and preventative actions, representing an increase of seven points on 2016. These include business integrity issues in general, but also issues relating to safety violations, environmental procedures, human rights, financial reporting, harassment and bullying, and retaliation for reporting.

We remain dedicated to open and transparent dealings with our stakeholders. Information on the Group's operational, financial and sustainable development performance is issued on time through a number of channels, such as media releases and regulatory filings. We communicate views to governments and others on matters affecting our business interests.



## Respecting human rights

Wherever we operate, we respect and support human rights consistent with the Universal Declaration of Human Rights. We have a human rights policy and procedures and have made voluntary commitments to the OECD Guidelines for Multinational Enterprises, the UN Global Compact and the Voluntary Principles on Security and Human Rights (VPSHR). Our human rights approach is consistent with the United Nations Guiding Principles on Business and Human Rights (UNGPs). Where our standards and procedures are stricter than local laws, we apply our own standards.

Our most salient human rights issues include those relating to security, land access and resettlement, Indigenous people's rights including cultural heritage, environment including access to water, labour rights and in-migration-related impacts on local communities such as access to health services.

In 2017, we engaged investors, civil society and community members on land access, cultural heritage, environment, labour rights, and modern slavery issues.

We undertake due diligence activities in line with the UNGPs to identify, prevent and mitigate adverse human rights impacts of our operations. Human rights considerations are included in our social risk analysis and impact assessment processes. We conduct human rights studies and programmes at high-risk sites when required. In 2017, all employees were required to complete business integrity training including a human rights module. Training sessions on modern slavery were also conducted on a targeted basis with our procurement, ethics and compliance teams.

To support our Communities and Social Performance target for 2016-2020, operations collect data on the effective capture and management of community complaints. All operations are required to have a complaints, disputes and grievance mechanism in line with the effectiveness criteria for operational-level grievance mechanisms in the UNGPs. We strive for the free, prior and informed consent of Indigenous communities as defined in the 2012 International Finance Corporation Performance Standard 7 and the ICMM position statement on Indigenous Peoples and Mining.

In 2017, we progressed a pilot embedding human rights considerations in tender documentation for major construction projects. We have further included human rights into our risk and incident management framework.

We publish our annual slavery and human trafficking statement in compliance with the UK Modern Slavery Act 2015, which outlines the steps taken during the year to ensure that slavery and human trafficking are not taking place in any of our operations or supply chains. The statement is published online at [riotinto.com](http://riotinto.com). In 2017, Rio Tinto made a formal submission to the Australian Parliament's Joint Standing Committee on Foreign Affairs, Defence and Trade regarding its inquiry into establishing a Modern Slavery Act in Australia. Further information on Rio Tinto's support of the introduction can also be found on [riotinto.com](http://riotinto.com).

We provide training for security personnel and conduct security and human rights analysis in support of our security arrangements. Our online VPSHR training is mandatory for all security personnel at high-risk sites and elsewhere it is strongly recommended. During the year, we conducted VPSHR and use-of-force training at five of our locations in South Africa, Madagascar, Namibia and Jamaica. As a participant in the Voluntary Principles Initiative we also contributed to the design of a VPSHR training package for private security personnel and public security forces.

## Closure

The metals and mining industry is entering a new stage in its life cycle, with Rio Tinto and many of our peers developing detailed planning to enable the closure of a number of large operations over the next decade. Rio Tinto's planning and cost provisioning for closure of mines and facilities starts during project development and extends across the asset life cycle to ensure that post-closure outcomes are achievable and that impacts and risks are minimised. The work is governed by our Closure Steering Committee.

During 2017, we reviewed our closure strategy so that our approach to closure is consistent and effective across the full life of each asset. A result of the review is the establishment of a dedicated centralised closure group to support our businesses and sites to manage closure activities across the life of all assets and to manage post-production decommissioning and deconstruction, rehabilitation, remediation and any long-term management obligations.

We work with local communities and regulators to evaluate potential post-closure land uses and develop closure objectives. During 2017, we continued detailed closure planning for a number of large operations that will reach the end of their commercially viable life over the next ten years.

We manage a range of non-operational legacy sites, including those inherited through acquisitions and mergers. During 2017, 11 of the sites progressed to the point where we can relinquish them.

In many jurisdictions we maintain long-term responsibility for monitoring and managing closed sites. We are also learning from the commitments and expectations associated with operations we have relinquished. During 2017, we conducted a post investment review of the Holden mine remediation in Washington State, US and are now applying the lessons learned when planning future closures.

In many jurisdictions where we operate, regulatory frameworks for large mine closure remain undeveloped or untested. In collaboration with our peers, we are improving our understanding of opportunities, seeking solutions to challenges and engaging governments to establish good closure policies and regulations.

We aim to progressively rehabilitate land as we operate an asset. In 2017, 25 per cent of our disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated.

## Non-managed operations and arrangements

We hold interests in companies and joint ventures we do not manage, across a range of commodities, the two largest being the Grasberg copper-gold mine in Indonesia and the Escondida copper mine in Chile. Details of other non-managed joint ventures are included in the Production, reserves and operations section on page 223.

We actively engage with our partners in these larger joint ventures through formal governance structures and technical exchanges to learn and improve performance. We endeavour to ensure that the principles in *The way we work* are applied and we encourage our partners to embed a strong safety, security and human rights culture in their workforces.

PT Freeport Indonesia (PTFI), a subsidiary of Freeport-McMoRan, Inc., owns and operates the Grasberg mine. We have a joint venture interest attributable to the 1995 mine expansion. We engage with PTFI through five forums: the Operating, Technical, Exploration and Sustainable Development committees, and the Tailings Management board.

The largest of these, the multidisciplinary Technical Committee, enables discussion of joint venture activities such as environmental management, orebody knowledge, project execution, worker health and safety, communities, mine planning, processing and tailings management. Rio Tinto is represented by a senior environmental manager on the PTFI tailings management board, which meets twice a year at Grasberg and includes third-party experts. A Rio Tinto senior safety professional based in Indonesia also works closely with PTFI on issues of strategic significance such as fatality prevention programmes.

Rio Tinto has a 30 per cent interest in Escondida, which is managed by BHP Billiton. Our seats on the Owners' Council enable us to give regular input on strategic and policy matters. During 2017, construction of the Escondida Water Supply desalination project was completed, and the system became fully operational. By utilising seawater, the plant will significantly reduce demand on fresh groundwater resources around the mine which is located in an extremely arid climate.

Tragically, there were three fatalities at the operations of our non-managed joint arrangements in 2017. Two fatalities occurred at PTFI: one contractor died in a landslide resulting from heavy rains and flash flooding; and one contract employee died when preparing a mine area for production activities. One employee working at the Alumar alumina refinery in Brazil died from burns while working on a washer tank in the refinery. Rio Tinto has a 10 per cent interest in Alumar, which is managed by Alcoa.

We continue to work with our partners to share fatality prevention initiatives, including CRM and learning critical lessons, to ensure the circumstances leading to incidents are not repeated. The exchange is two-way, as we learn from their efforts as well.

## Assurance

We engaged an independent external assurance organisation, PricewaterhouseCoopers, to provide the directors of Rio Tinto with assurance on selected sustainable development subject matters, as explained on page 35.

PricewaterhouseCoopers' assurance statement satisfies the requirements of subject matters 1 to 4 of the ICMM assurance procedure.

Further information on external auditors and internal assurance is included in the Governance report on pages 65 and 66.

## What we found

Based on the work described below, nothing has come to our attention that causes us to believe that the selected subject matter for the year ended 31 December 2017 has not been prepared, in all material respects, in accordance with the Reporting criteria.

To the directors of Rio Tinto plc and Rio Tinto Limited (together Rio Tinto)

## What we did

Rio Tinto engaged us to perform a limited assurance engagement on the selected subject matter within the Sustainable development sections of the Rio Tinto 2017 Annual report and the Rio Tinto 2017 Strategic report for the year ended 31 December 2017.

### Selected subject matter

- Rio Tinto's assertion that it has incorporated the requirements of the 10 sustainable development principles of the International Council on Mining and Metals (ICMM) and the mandatory requirements set out in ICMM Position Statements into its own policies.
- Rio Tinto's assertions regarding the approach that it has adopted to identify and prioritise its material sustainable development risks and opportunities
- Rio Tinto's assertions regarding the existence and status of implementation of systems and approaches used to manage the following selected sustainable development risk areas:
  - Safety
  - Greenhouse gas emissions
  - Energy use
  - Water management
- The following Rio Tinto performance data related to the selected sustainable development risk areas:
  - Number of fatalities
  - All injury frequency rate
  - Lost time injury frequency rate
  - Number of lost time injuries
  - Total greenhouse gas emissions
  - Greenhouse gas emissions intensity
  - Total energy use
  - Percentage of managed operations with material water risk that are on track to achieving their approved local water performance targets

## Reporting criteria

The subject matter above has been assessed against the ICMM Sustainable Development Framework and the definitions and approaches within the Glossary which will be presented at [www.riotinto.com/sd2017](http://www.riotinto.com/sd2017) as at 9 March 2018.

## Our Independence and Quality Control

We have complied with relevant ethical requirements related to assurance engagements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Auditing Standard ASQC 1 Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, Other Assurance Engagements and Related Services Engagements and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

## Responsibilities

### PricewaterhouseCoopers

Our responsibility is to express a conclusion based on the work we performed.

### Rio Tinto

Rio Tinto management is responsible for the preparation and presentation of the selected subject matter in accordance with the Reporting criteria.

## What our work involved

We conducted our work in accordance with the International Standard on Assurance Engagements 3000 (Revised) Assurance Engagements Other than Audits or Reviews of Historical Financial Information and (for selected subject matter relating to greenhouse gas emissions) the International Standard on Assurance Engagements 3410 Assurance Engagements on Greenhouse Gas Statements. These Standards require that we comply with independence and ethical requirements and plan the engagement so that it will be performed effectively.

### Main procedures performed

- Making enquiries of relevant management of Rio Tinto regarding the processes and controls for capturing, collating and reporting the performance data within the selected subject matter, and evaluating the design and effectiveness of these processes and controls
- Validating the operation of controls over the accuracy of injury classification and assessing the final injury classification applied for a sample of injuries reported during the year ended 31 December 2017
- Testing the arithmetic accuracy of a sample of calculations of performance data within the selected subject matter
- Assessing the appropriateness of the greenhouse gas emission factors applied in calculating the Total greenhouse gas emissions and Greenhouse gas emissions intensity
- Testing performance data, on a selective basis, substantively at both an operational and corporate level, which included testing at a selection of operations from across Aluminium, Copper & Diamonds, Energy & Minerals, and Iron Ore
- Undertaking analytical procedures over the performance data within the selected subject matter
- Making enquiries of relevant management and reviewing a sample of relevant management information and documentation supporting assertions made in the selected subject matter

We believe that the information we have obtained is sufficient and appropriate to provide a basis for our conclusion.



Liza Maimone  
Partner  
28 February 2018



PricewaterhouseCoopers  
ABN 52 780 433 757  
Melbourne

Liability limited by a scheme approved under Professional Standards Legislation

## Inherent limitations

Inherent limitations exist in all assurance engagements due to the selective testing of the information being examined. Therefore fraud, error or non-compliance may occur and not be detected. Additionally, non-financial data may be subject to more inherent limitations than financial data, given both its nature and the methods used for determining, calculating and sampling or estimating such data.

## Restriction on use

This report has been prepared in accordance with our engagement terms to assist Rio Tinto in reporting its sustainable development performance. We do not accept or assume responsibility for the consequences of any reliance on this report for any other purpose or to any other person or organisation. Any reliance on this report by any third party is entirely at its own risk.

We consent to the inclusion of this report in the Rio Tinto 2017 Annual report and the Rio Tinto 2017 Strategic report to assist Rio Tinto's members in assessing whether the directors have discharged their

responsibilities by commissioning an independent assurance report in connection with the selected subject matter.

## Limited assurance

This engagement is aimed at obtaining limited assurance for our conclusions. As a limited assurance engagement is restricted primarily to enquiries and analytical procedures and the work is substantially less detailed than that undertaken for a reasonable assurance engagement, the level of assurance is lower than would be obtained in a reasonable assurance engagement.

Professional standards require us to use negative wording in the conclusion of a limited assurance report.

# Inclusion and diversity

## Our commitment to inclusion and diversity

We are a global company and, wherever we operate and across every part of our business, we strive to create an inclusive culture where diversity is recognised and valued. By bringing together men and women from diverse backgrounds and giving each person the opportunity to contribute their skills, experience and perspectives, we believe that we are able to develop the best solutions to challenges and deliver value for Rio Tinto and its stakeholders. This approach is reflected and put into effect through the company's Diversity and Inclusion policy, which is available on our website.

## What inclusion and diversity means for Rio Tinto

- Embracing workforce diversity – age, gender, race, national or ethnic origin, religion, language, political beliefs, sexual orientation and physical ability.
- Valuing diversity of perspective – leveraging the diverse thinking, skills, experience and working styles of our employees and other stakeholders.
- Building a flexible organisation – providing opportunities for work arrangements that accommodate the diverse needs of individuals at different career and life stages.
- Respecting stakeholder diversity – developing strong and sustainable relationships with diverse shareholders, communities, employees, governments, customers and suppliers.

## Our current focus

Our goal is to have a workforce that is representative of the countries and communities in which we operate, and to have a culture that is inclusive where all people feel heard, valued and respected. Currently our focus is to improve the representation of women and of people from nationalities representative of our current and future footprint, and to continue to build an inclusive culture in which all talent can thrive.

Some of our activities and initiatives relating to diversity during 2017 and our plans for 2018 include:

- A global minimum standard for paid parental leave for all employees. With a successful roll-out in the US during 2017, in 2018 we will implement the changes through the organisation so that all employees will be able to access a minimum standard of paid parental leave, regardless of their personal circumstances.

- Rio Tinto took a stand against family and domestic violence, including implementing standard support available to affected employees. This was launched in Australia with plans to roll out further in 2018. Our Australia business undertook the path of White Ribbon accreditation, which recognises workplaces that are taking active steps to stop violence against women.
- Through innovative online focus groups, we heard directly from over 500 employees about their views on inclusion and diversity and what matters to them. Using these insights, in 2018 we will be developing a stronger narrative to engage our whole population on the diversity journey.
- Building leadership capability is a key enabler of inclusion and diversity. Our Leading for Success programme was launched and 1,500 of our senior leaders completed the programme, including the chief executive and Executive Committee. During 2018 a further 5,000 middle and front-line leaders will participate in the programme.
- The Rio Tinto Graduate Talent programme was re-launched, with a focus on bringing diverse graduates into the business on a two-year development programme. Forty one per cent of the graduates we hired were women and 29 per cent were nationals from regions where we are developing new businesses. In 2018, we aim to hire 50 per cent women and 30 per cent from regions where we are developing new businesses.
- Our sites all over the world continue to invest in building local capability and increasing the representation of Indigenous employees in our workforce.
- Ongoing active involvement in local Women in Mining groups, professional women's associations and other key diversity groups.
- Local inclusion and diversity committees and interest groups across the organisation continue to bring tangible actions to life.

## Proportion of women employees and board members

As at 31 December 2017, the proportion of women on the board was 18 per cent (two female; nine male). This is set to increase to 30 per cent in 2018 as a result of planned succession changes at the board level.

The proportion of women on the Executive Committee was 27.3 per cent (three female; eight male). The proportion of women in senior management was 22.4 per cent and in the overall workforce was 18 per cent. For these purposes, "senior management" are employees in business unit or functional leadership roles who are direct reports of Executive Committee members, and those at general manager, Group adviser and chief adviser levels.

## Subsidiary board diversity

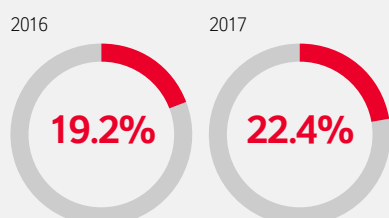
Women represented 12 per cent of the directors of our principal controlled subsidiary undertakings during 2017 (15 female; 110 male).

## Measurable objectives and progress

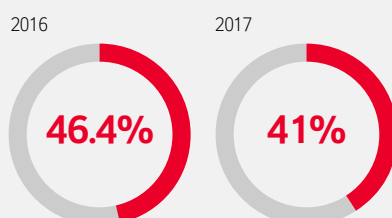
Progress continues to be made in meeting our measurable objectives for workforce diversity and we will continue to put strong focus on increasing these measures for 2018.

In 2017, we increased the graduate pool from 69 (2016) to 150 and maintained the focus for gender diversity and intake of graduates who were nationals from regions where we are growing new businesses. Through strategic business impacts (ie divestments) we were able to maintain our gender balance and increase under-represented nationalities. Strong focus will continue in 2018 for our graduate intake with measures of 50/50 gender split and 30 per cent under-represented nationalities.

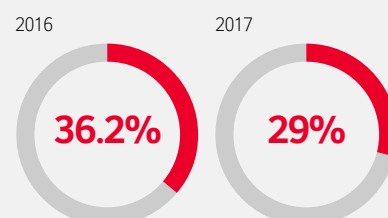
### Percentage of women represented in our senior management



### Percentage of women represented in our graduate intake



### Percentage of our graduate intake who were nationals from regions where we are growing new businesses





# Rio Tinto's commitment to pay equity

Rio Tinto strives to create an inclusive culture where all people are heard, valued and respected. We embrace workforce diversity and value differences. Consistent with our vision for inclusion and diversity, we are committed to ensuring that employees with similar skills, knowledge, qualifications, experience and performance are paid equally for the same or comparable work.

Both the 'equal pay gap' and the 'gender pay gap' measure pay differences between women and men in the workplace, but they measure two different things:

- An '**equal pay gap**' arises when men and women employed by the same company, in the same location, performing equal work, do not receive the same pay.
- The '**gender pay gap**' is a measure of the difference between men's and women's average earnings across an organisation or industry, regardless of the roles that each are performing. It is normally expressed as a percentage of men's earnings.

## Equal pay

Equal pay is at the core of Rio Tinto's approach to pay equity. We use a like-for-like approach to measure and monitor equal pay across the Group (irrespective of the regulatory requirements and methodologies that we are required to adopt for local reporting). This means that we compare the pay of employees performing the same roles in the same location or country.

This like-for-like approach is used for all jobs where both females and males are represented, and it is weighted based on the number of female incumbents in each job. A positive percentage indicates an equal pay gap in favour of men. A negative percentage indicates an equal pay gap in favour of women. Rio Tinto's equal pay gap on 1 February 2018 was three per cent\*. Rio Tinto will continue to monitor

equal pay to ensure that any differences are due to legitimate factors, and will take action as appropriate.

## Gender pay gap

The gender pay gap, unlike equal pay, is also influenced by the relative seniority of men and women in an organisation or industry. Across the entire Group, the gender pay gap on 1 February 2018 was just under one per cent\*. However, this apparently good result for the Group as a whole reflects the large sample size and marks a less favourable position at our head office in the UK. Across the entire workforce, as the equal pay gap suggests, there is relatively little difference between the average pay of men and women, but there is still a relatively low level of gender diversity in the most senior management positions. Rio Tinto is addressing this issue through a number of initiatives, including a target to increase the representation of women in senior management roles by two per cent year on year, and for women to represent 50 per cent of our graduate intake in 2018.

Both the equal pay gap and the Group-wide gender pay gap are measured and monitored on a voluntary basis by Rio Tinto, in parallel with country-specific mandatory reporting requirements. Under UK regulations, while none of our UK employing entities meet the minimum reporting threshold of 250 employees, details of the gender pay gap for the largest entity (Rio Tinto London Limited) have been voluntarily disclosed on our website at [riotinto.com/payequity](http://riotinto.com/payequity).

\* Note: Defined as full time equivalent, contractual base salary; excludes Pacific Aluminium due to insufficient data being available

# Iron Ore

## Financial performance

	2017 US\$ million	2016 US\$ million
Gross revenue <sup>(a)</sup>	<b>18,251</b>	14,605
Net cash generated from operating activities	<b>8,466</b>	5,959
Underlying earnings	<b>6,692</b>	4,611
Capital expenditure <sup>(a)</sup>	<b>1,201</b>	868
Net operating assets	<b>16,537</b>	16,359
Underlying EBITDA	<b>11,520</b>	8,526

Iron Ore Company of Canada and Simandou are reported within Energy & Minerals (see page 45), reflecting management responsibility.

(a) Gross revenue and capital expenditure are defined on page 208 under Notes to financial information by business unit.

## Strategy and priorities

The Iron Ore product group's strategy is focused on delivering optimal value from a fully integrated system of assets.

The business strategy is guided by the following principles:

- Exclusive use of assets in a fully integrated system that delivers consistent returns throughout the cycle.
- Mine-to-market productivity that maximises free cash flow from the existing asset base.
- Sequencing resource development to optimise mines and product.
- Quality people and partners driving innovation.
- Making a lasting and positive contribution that will enable strong partnerships.

The product group's strategic priorities are to:

- Run safe, healthy and fatality-free operations.
- Fully engage all employees and contract partners.
- Sustain the competitive advantage of premium products, the flagship of which is Pilbara Blend.
- Realise the full potential of the system to maximise cash flow and productivity from the existing asset base.
- Harness innovation and technology to help drive superior performance.
- Follow a disciplined, value-over-volume strategy.
- Engage with highly valued partners and support sustainable local and regional investment.

## Safety

In 2017, there was a 19 per cent reduction in potential fatal incidents (PFIs). This improvement was supported by the critical risk learning programme, which facilitated engagement sessions focusing on application of incident learnings at a team level.

Despite this reduction, we maintain a vigilant approach to our safety risks. We continue to embed our critical risk management fatality prevention programme, focusing relentlessly on control to support fatality elimination.

The all injury frequency rate decreased by 2 per cent from 2016 to 0.48. Throughout 2017 and continuing into 2018, the focus is on the basics; quality leadership in the field, improving the effectiveness of safety interactions and pre-start meetings, and leader coaching to enable quality verifications.

The product group continues its work to improve the wellbeing of our employees through wellbeing training and the peer support programme.

Iron Ore's commitment to safety was recognised at the Western Australian Department of Mines, Industry Regulation and Safety Awards for Excellence ceremony in October. Rio Tinto had six finalists across three award categories that focused on safety and health, environmental excellence, as well as community partnerships. Innovative work on a rail-mounted platform – to eliminate risks associated with working at heights – won the engineering category in the Safety and Health section.

## Greenhouse gas emissions

Throughout 2017, the Iron Ore product group continued to reduce its greenhouse gas emissions intensity compared with the baseline target set in 2008. Since 2008, the product group's greenhouse gas emissions intensity has improved by 5.3 per cent.

## Review of operations

In the Pilbara region of Western Australia, Rio Tinto operates the world's largest integrated portfolio of iron ore assets. This system comprises 16 mines, four independent port terminals, over 1,700km of the largest privately owned heavy freight railway in Australia, and supporting infrastructure, all linked by the Operations Centre in Perth. Five highly valued products are sold to over 100 customers globally.

In 2017, Rio Tinto opened Silvergrass, its 16<sup>th</sup> mine. The US\$338 million mine will produce low-phosphorous ore crucial to maintaining the premium Pilbara Blend product.

In May, Rio Tinto reached the historic milestone of five billion tonnes of iron ore exported from the Pilbara.

In August, Rio Tinto and Sinosteel marked the 30<sup>th</sup> anniversary of their historic Channar Mining Joint Venture. The event was attended by former Australian Prime Minister Bob Hawke, who was present at the original signing ceremony in 1987. Rio Tinto has delivered more than 250 million tonnes under the joint venture.

In December, the 15<sup>th</sup> anniversary of the Bao-Hi Joint Venture, involving Rio Tinto and China Baowu Group, was celebrated. More than 150 million tonnes have been delivered into the joint venture since it was created in 2002.

In 2017, the Iron Ore product group's underlying earnings increased by US\$2,081 million, up 45 per cent on 2016. This was achieved through record sales volumes, continued cash cost savings and higher iron ore prices.

Iron ore shipments for 2017 met guidance at 330.1 million tonnes (Rio Tinto share: 272 million tonnes), an increase of 1 per cent on 2016. Initial guidance for 2017 of 330 million to 340 million tonnes was revised in July to 330 million tonnes due to lower first half production and rail maintenance. Production of 329.8 million tonnes (Rio Tinto share: 271.3 million tonnes) in 2017 was in line with 2016 output. A stronger performance in the second half offset the impacts of adverse weather conditions in the first quarter and accelerated rail maintenance in the second quarter.

In 2017, China's crude steel production remained well-supported at an all-time high of almost 900 million tonnes for the second year in a row. Broad-based steel demand across key end-use sectors, including construction, manufacturing and infrastructure, kept steel inventories well below average throughout the year. Meanwhile, supply-side reforms were reflected in a structural boost to steel-making capacity utilisation – to rates significantly above historical trends both in China and the other major steel producing regions.

Concurrently, the Chinese Government's focus on air quality improvement made the need for productivity and the reduction in emissions paramount. This in turn incentivised demand for high-grade, low-impurity iron ore products, such as the Pilbara Blend. The reduction of small-scale secondary steelmaking capacity meant that more scrap became available to the large integrated steel producers.

However, these producers had to expand their output to compensate for the closures of inefficient mills, which, coupled with the preference for higher quality products, lifted China's iron ore imports for the seventh consecutive year, reaching an estimated record figure of almost 1.1 billion tonnes. Port inventories also rose by more than 30 million tonnes to end the year at around 145 million tonnes, though the growth was primarily driven by lower-grade ores.

The Platts 62 per cent Fe CFR (cost and freight) iron ore price peaked at US\$95 per tonne in late February, but this was followed by a sharp decline to US\$54 per tonne in June. Prices oscillated around the US\$65 per tonne level during the fourth quarter of 2017.

A strong pipeline of initiatives implemented in 2017 resulted in pre-tax cash cost reductions of US\$341 million. The Iron Ore product group has now delivered US\$1.7 billion of cumulative savings, compared with the 2012 base, making a significant contribution to the wider Rio Tinto Group pre-tax savings.

Further efficiency improvements reduced the Pilbara cash unit costs to US\$13.4 per tonne in 2017, compared with US\$13.7 per tonne in 2016.

Operating cost initiatives included optimising maintenance strategies and tactics and partnering with suppliers for improved commercial outcomes. Productivity improvements included increasing ore train payloads and decreasing cycle times.

The Iron Ore product group continues to be a leader in safe autonomous mining technologies. The Operations Centre controls and operates major assets, including autonomous haul trucks and drills, processing plants, train loading and unloading, and stockyard stacking and reclaiming machines.

A fourth site enabled by an Autonomous Haulage System (AHS) was opened during the year at Silvergrass. In addition, retrofitting projects at the Marandoo and Brockman 4 mines will see the fleet expand to more than 140 AHS-enabled trucks by the end of 2019. The automated truck fleet continues to provide advantages relating to safety, productivity and operating costs. On average, the autonomous fleet operated an additional 700 hours and at 15 per cent lower load and haul cost in 2017 than comparable conventional haul trucks.

The performance of autonomous trucks and the increased utilisation of all trucks, together with improvements in payload, has reduced fleet requirements, resulting in lower capital expenditure and operating costs.

Automated haul trucks have also been shown to offer significant safety benefits with zero injuries attributed to AHS-enabled trucks since deployment.

Considerable progress was made by the AutoHaul™ project during 2017. More than 60 per cent of all train kilometres are now completed in autonomous mode with a driver on board for supervision.

A pilot run was completed in September with the train making a nearly 100 kilometre journey without a driver on board: the first fully autonomous heavy haul train journey ever completed in Australia.

The project is on schedule to be completed by the end of 2018. The total approved spend for the AutoHaul™ project is US\$940 million.

Throughout 2017, the Iron Ore product group maintained its focus on supporting Traditional Owners, local businesses and communities within its operational footprint. The product group continued actively implementing the Regional Framework Deed and its ten land access agreements with Pilbara Traditional Owners.

Iron Ore has agreements with all Pilbara Traditional Owner groups on whose land it operates. These agreements incorporate mutual obligations to deliver positive outcomes in areas such as employment, education and training, cultural heritage management, environmental management and land access. Five reviews of Benefits Management Structures established under these agreements were completed during 2017, with joint participation by Traditional Owner and Rio Tinto representatives. Over 100 heritage surveys were undertaken in 2017 across the Pilbara footprint, with the full involvement of Traditional Owner representatives.

The Iron Ore product group employs approximately 960 Indigenous employees, including 437 Pilbara Aboriginal people (PAP) as at 31 December 2017. In May 2017, the Pilbara Aboriginal employment target was met for the first time with a result of 12.4 per cent against a target of 12.2 per cent. The PAP target is based on the latest census data. Total Indigenous employment was 8.2 per cent across the product group as at 31 December 2017. With this result Iron Ore also exceeded the Indigenous employment target of 8 per cent in the national Reconciliation Action Plan for Australia.

The Iron Ore product group continues to support programmes and initiatives across the Pilbara, and its fly-in, fly-out (FIFO) source communities in regional Western Australia and Perth. The ten-year anniversary of FIFO operations from Busselton in the South West to operations in the Pilbara was celebrated in August.

The Community Infrastructure and Services Partnerships (CISP) with the City of Karratha and the Shire of Ashburton were extended a further five years, helping to improve infrastructure and services in the region. Rio Tinto will contribute a further A\$7.7 million to the City of Karratha CISP and A\$5.7 million to the Shire of Ashburton CISP over a period of five years.

Rio Tinto will contribute A\$8 million towards the construction of the Wickham Community Hub and a further A\$7.5 million toward its operation. The Hub will feature a public library, a water playground, a skate park and multi-purpose facilities.

During the year the company partnered with the country's leading science and research agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to implement a new community sentiment survey in the Pilbara – to better understand

the views of local communities near our operations and improve regional and community planning.

Rio Tinto began working with the West Australian Government and TAFE Western Australia to pioneer a new curriculum for the mining industry's jobs of the future. The company will provide up to A\$2 million toward the Vocational Education Training initiative.

## Development projects

The Iron Ore product group's mineral resources position increased in 2017 as part of ongoing resource development drilling programmes. This continues to support sustaining production and growth options. Managing this resource base efficiently will create a development sequence that maximises the value of assets and maintains the required delivery of product. Ore reserves also increased after mine depletion. Given their significance to the business and its customers, the focus continues on the premium Pilbara Blend products.

Since 2012, the product group has followed a disciplined, value-accretive, low-cost brownfield approach to expansion. The addition of Silvergrass, comprising the installation of a satellite crusher and an overland conveyer, added an extra 10 million tonnes of capacity.

The Koodaideri project is being studied as the next major replacement mine and is a low-cost option that would help underpin the Pilbara Blend product. An investment of US\$30.9 million was approved in May to complete the feasibility study.

The study is assessing a number of options, including a 40 million tonne per annum capacity dry crushing and screening plant, non-process infrastructure, product stockyards, a rail loop and load-out and a 170 kilometre rail link to the main line. It has a suggested capital requirement of approximately US\$2.2 billion, with the potential for construction to begin in 2019. The feasibility study will build on this work and consider a range of capital, timing and scale options.

A number of sustaining mine developments also progressed in 2017 including Yandi Oxbow and West Angelas Deposit F, which provide high-quality, low-cost options to sustain existing production. New projects in development include Yandi Billiard South which will benefit greatly from an in situ processing plant and infrastructure, and will utilise the existing Yandicoogina automated truck fleet.

Around US\$2 billion has been allocated for replacement mine capital over the next three years, the majority of which is still to be approved and includes some spend on Koodaideri.

## Outlook

Having exceeded 100 million tonnes in both 2015 and 2016, Chinese steel exports reversed trend and declined more than 30 per cent to approximately 75 million tonnes in 2017. This was in spite of robust Chinese steel production in 2017, as strong demand and higher prices in the domestic market led to a decline in exports.

Lower Chinese steel exports in turn incentivised restarts and commissioning of new steelmaking capacities in the rest of Asia. The combination of supply-side reform in the Chinese steel industry, together with synchronised global economic growth, is likely to result in a continuation of the trend of rising steel output across the rest of Asia. Augmented by cyclical recoveries in developed regions, Rio Tinto expects ex-China crude steel production to significantly outpace China in growth terms and reach a record of more than 850 million tonnes in 2018, exceeding levels not seen since before the global financial crisis.

However, contestable seaborne iron ore supply is also expected to continue to expand in 2018, with the ramp-up of major producers' expansion projects to nameplate capacity.

# Aluminium

## Financial performance

	2017 US\$ million	2016 US\$ million
Gross revenue	11,005	9,458
Net cash generated from operating activities	2,648	2,278
Underlying earnings	1,583	947
Capital expenditure	1,436	916
Net operating assets	16,346	15,782
Underlying EBITDA	3,423	2,472

## Strategy and priorities

Rio Tinto's Aluminium product group remains focused on delivering industry-leading performance and value creation throughout the cycle.

Safety and health continue to be the product group's number one priority. Central to its strategy is a continuing emphasis on mine-to-market productivity improvements. These are designed to optimise performance and returns from its high-quality asset base, while also enhancing the bauxite and smelting growth options embedded within the portfolio, where the priority is always on value over volume.

The Aluminium product group benefits from a sector-leading bauxite position, cost-competitive alumina refineries and a smelter portfolio with average costs in the first quartile of the global industry cost curve. Its Canadian smelters are positioned in the first decile.

Each of the three areas of the business – bauxite, alumina and primary metal – has its own targets and strategies, summarised below:

- In bauxite, the emphasis is on capturing value from expanding seaborne demand. This involves continuing to enhance performance and output at current operations, while developing Tier 1 growth opportunities, such as the Amrun project currently under way in Queensland, Australia.
- In alumina, providing security of supply to the product group's smelter portfolio is essential. The focus is on aggressively driving down costs to improve the refineries' position on the industry cost curve, while providing reliable supply.
- In primary metal, the Aluminium product group focuses on leveraging its low-cost, low-carbon power position – a significant and sustainable competitive advantage.

Commercial excellence is crucial to Aluminium's overall mine-to-market productivity agenda. The three product areas are supported by a single global commercial organisation managed from Singapore, tasked with maximising value across the product group. One of the team's main areas of focus is partnering with customers to develop new applications that will drive increased sales of higher-margin, value-added products.

In 2017, Rio Tinto announced that a suite of three operational assets (the ISAL smelter and the non-managed Aluchemie and Alufluor joint ventures) were being placed under strategic review. On 10 January 2018, Rio Tinto received a binding offer from Liberty House to acquire the Aluminium Dunkerque smelter in northern France for US\$500 million, subject to final adjustments. These actions reflect the continuing strategic focus for the portfolio on high-quality assets in the first quartile of the cost curve. On 26 February 2018, Rio Tinto received a binding offer from Hydro of US\$345 million, subject to final adjustments, to acquire Rio Tinto's ISAL smelter in Iceland, its 53.3 per cent share in the Aluchemie anode plant in the Netherlands and its 50 per cent share in the Aluminium fluoride plant in Sweden.

The board of Rio Tinto made the decision to permanently shut the Gove refinery in October 2017.

## Safety

Rio Tinto's Aluminium product group achieved a third consecutive fatality-free year in our managed operations in 2017. The all injury frequency rate continued its downward trend, ending the year at 0.44, compared with 0.46 at the end of 2016 and representing another record. Lost-time injuries reduced by more than 24 per cent to 28, which was also a record. The product group has deployed a comprehensive systems-

based approach, including the roll-out of the critical risk management fatality prevention programme during 2017.

In September, a contractor employee died from burns while working on a washer tank at the non-managed joint venture refinery, Alumar in Brazil. Rio Tinto has a 10 per cent interest in Alumar, which is managed by Alcoa.

## Greenhouse gas emissions

The Aluminium product group's success in dramatically reducing its carbon footprint has been instrumental in positioning Rio Tinto to capitalise on the increasing market demand for "responsible metal". Its pioneering RenewAl™ brand of aluminium boasts one of the lowest greenhouse gas (GHG) footprints in the industry, based on a life-cycle analysis approach. The product group's footprint is 50 per cent lower than the global industry average – thanks to a combination of low-carbon sources of electricity and Rio Tinto's world-leading smelting technology.

Since 2008, the Aluminium product group has reduced its GHG emissions by 50 per cent in absolute terms and by 39.5 per cent in intensity. GHG emissions intensity of primary aluminium production had reduced by 42 per cent by 2017, compared with 2008, due to portfolio management. Almost 81 per cent of the Aluminium product group's total power needs are supplied through carbon-free sources, with 57 per cent coming from self-generated hydropower, compared with around 30 per cent for the industry in both cases.

## Review of operations

In 2017, the Aluminium product group achieved EBITDA of US\$3.42 billion – an increase of 38 per cent versus 2016 (US\$2.47 billion), and underlying earnings of US\$1.58 billion – 67 per cent higher than in 2016 (US\$947 million). This represents sector-leading performance with an integrated operations EBITDA margin of 35 per cent (2016: 28 per cent). Cash generated from operating activities was US\$2.65 billion – a 16 per cent increase on 2016 (US\$2.28 billion) – which reflected the strong EBITDA, partly offset by higher trade working capital related to higher pricing.

Market sentiment improved considerably as China's supply-side reforms and environmental measures in the winter months were implemented and global inventory levels dropped to around ten weeks. Global primary aluminium demand remained strong in 2017, increasing by six per cent, driven by firm Chinese growth and higher intensity of use in global automotive production. As a consequence, the average realised price for alumina improved by 28 per cent year-on-year, while the average realised price for primary metal, including regional and product premia, improved by 21 per cent to US\$2,231 per tonne.

The improved pricing environment was partially offset by a strengthening of the Australian and Canadian dollars, as well as by increases in the prices of raw materials – most notably caustic soda, petroleum coke and tar pitch – relating mainly to the same underlying drivers supporting the aluminium and alumina prices. Cost headwinds related to these raw materials are expected to be ongoing in 2018. Volume creep (or gradual increase), cost improvements and value-added product initiatives executed by the product group over the course of 2017 totalled US\$198 million, and more than offset the negative impact of the higher raw material input costs (US\$149 million higher than in 2016). The Aluminium product group has now delivered US\$1.6 billion of cash cost improvements, compared with the 2012 base, consolidating its position as the leading business in the aluminium sector.

Alumina production for 2017 was in line with 2016 levels, with a strong performance at Yarwun partially offset by marginally lower production at the Queensland Alumina refinery.

Production of primary metal was one per cent lower than in 2016. Production creep of one per cent achieved at the product group's wholly owned Canadian smelters was more than offset by a partial production curtailment at the Boyne smelter in Australia, prompted by higher power prices, and a production incident at the non-managed Sohar smelter in Oman.

Central to Aluminium's performance has been the continuous drive to creep the capacity of its assets at minimal cost to enhance margin, while always maintaining a focus on value over volume.

Bauxite production increased six per cent, with Gove up 23 per cent and Weipa up five per cent, reflecting the successful execution of this

strategy. This enabled the product group to ship 32 million tonnes of bauxite to third parties in 2017, a ten per cent increase compared with 2016, further reinforcing Rio Tinto's position as the global leader in the seaborne bauxite trade.

The Aluminium product group has initiated an ambitious productivity and commercial capability improvement programme that aims to deliver an additional after-tax free cash flow of US\$0.5 billion per annum by 2021, compared with the 2016 baseline. At the end of 2017, more than 2,400 improvement initiatives were under way across its various operations and functions.

### Development projects

The high quality and expandable nature of its asset portfolio means the Aluminium product group is very well positioned to pursue value-driven growth as warranted by the market, and to generate attractive returns. The development pipeline focuses primarily on its bauxite and Canadian smelting businesses, and it is in these areas that the product group continues to progress from option-rich to option-ready.

Construction continued during 2017 on the Amrun bauxite project in Queensland, Australia. Amrun is a long-life, low-cost and strategically located project, that represents a step-change in Rio Tinto's bauxite business and is expandable to satisfy increasing demand for seaborne bauxite. At the end of 2017, the project was 62 per cent complete, and proceeding on time and on budget (total approved US\$1.9 billion) towards its scheduled first shipment during the first half of 2019. Planned initial output for Amrun is 22.8 million tonnes per annum.

The expansion of the partially owned Compagnie des Bauxites de Guinée (CBG) from 14.5 to 18.5 million tonnes is also progressing on budget (total approved US\$0.7 billion) and on schedule with first bauxite planned for delivery in the fourth quarter of 2018.

### Outlook

Aluminium demand is expected to remain strong and the product group forecasts growth of three to four per cent per year over the next five years. Robust demand growth is expected to continue over the next 15 years, underpinned especially by the growth in the transport sector, with the uptake in electric vehicles offering further potential upside.

The fundamentals of the supply side of the smelting industry are now looking increasingly favourable, with Chinese pollution controls and cuts of illegal capacity driving market tightness. The curtailed capacity is expected to be restarted, but timing remains uncertain. More significantly, over the medium to longer term, Rio Tinto expects that China is likely to be broadly balanced in aluminium, which will have implications for rest-of-world supply. When combined with strength in demand, this is expected to result in a return to balanced inventory levels of seven to eight weeks before the end of this decade, much earlier than previously expected.

In bauxite, demand is expected to remain robust given the continued strong growth in aluminium production. Chinese growth in alumina production will remain a major driver of seaborne demand.



# Copper & Diamonds

## Financial performance

	2017 US\$ million	2016 US\$ million
Gross revenue	4,842	4,524
Net cash generated from operating activities <sup>(1)</sup>	1,695	977
Underlying earnings/(loss)	263	(18)
Capital expenditure <sup>(2)</sup>	1,374	924
Net operating assets	11,743	11,530
Underlying EBITDA	1,904	1,387

(a) Net cash generated from operating activities excludes the operating cash flows of an equity accounted unit (Escondida) but includes dividends received from the equity accounted units.

(b) Capital expenditure excludes the capital expenditure of an equity accounted unit (Escondida).

## Strategy and priorities

The Copper & Diamonds product group's portfolio of large, high-quality assets includes interests in three of the world's Tier 1 copper mines.

The product group's strategy is to deliver sustainable value by:

- Driving continuous improvements in health, environment and safety – the number one priority and value.
- Maximising value from existing operations through improvements in productivity.
- Developing brownfield copper growth options and new, world-class greenfield projects in low-risk jurisdictions.
- Focusing on cost control and cash generation.
- Developing people and partnerships, and engaging employees.

## Safety

In 2017, the all injury frequency rate for Copper & Diamonds' managed operations<sup>(a)</sup> was 0.80, compared with 0.67 in 2016. Product group operations are focused on addressing this trend by embedding safety activities through education, leadership and workplace improvements.

Tragically, a Rio Tinto Kennecott employee suffered a fatal injury when exposed to sulphur dioxide gases while performing regular work to remove debris from a boiler. There were also two fatalities at the Grasberg mine, in which Rio Tinto is a joint venture partner.

In addition to its efforts to reduce injuries, Copper & Diamonds has continued to embed the company's critical risk management fatality prevention programme and process safety programmes into all its operations. These are aimed at identifying and mitigating the risks that can lead to fatalities and catastrophic events. In the spirit of continuous improvement, the product group also continues to learn from and share leading safety practices with its joint venture partners.

## Greenhouse gas emissions

At 3.4 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>-e), Copper & Diamonds' greenhouse gas (GHG) emissions<sup>(a)</sup> increased by 0.1 million tonnes CO<sub>2</sub>-e compared with 2016. An intensity improvement at Argyle from an increased production was offset by marginal increases in intensity at Rio Tinto Kennecott, Oyu Tolgoi and Diavik.

## Review of operations

The product group has four copper assets and two diamonds assets in production. In 2017, total mined copper decreased by 9 per cent, and total diamonds production increased by 20 per cent.

Rio Tinto was the world's ninth largest copper supplier in 2017 and one of the largest diamond producers. During the year, the product group produced 478 thousand tonnes of mined copper (Rio Tinto share), and 22 million carats of rough diamonds (Rio Tinto share). In addition, the Copper & Diamonds group produced 260 thousand ounces of mined gold, 4,194 thousand ounces of mined silver and five thousand tonnes of molybdenum as by-products.

(a) Safety measures reported for Copper & Diamonds exclude those for Oyu Tolgoi; these are included within Growth & Innovation. Refer to page 46.

Copper & Diamonds' underlying earnings were US\$263 million, compared with an underlying loss of US\$18 million in 2016. The change in underlying earnings was driven by improved prices and cost reductions together with final the insurance settlement relating to the Manefay slide at Kennecott in 2013, which more than offset the one-off impacts of the Escondida strike (US\$176 million) and a deferred tax asset write-down at Grasberg (US\$144 million).

The product group achieved pre-tax cash cost improvements in 2017 of US\$160 million, bringing total savings delivered across Copper & Diamonds since 2012 to US\$1.4 billion.

Net cash generated from operating activities (inclusive of dividends received from Escondida) of US\$1,695 million was 73 per cent higher than 2016, with all managed operations being cash flow positive before capital expenditure as a result of higher prices and cost reductions. Increased capital expenditure of US\$1,374 million included US\$820 million for development of the Oyu Tolgoi underground mine in Mongolia.

### Rio Tinto Kennecott

Rio Tinto Kennecott (Rio Tinto: 100 per cent) operates a mine, concentrator, smelter, copper refinery and precious metal plant in the US state of Utah. Rio Tinto Kennecott accounts for almost 11 per cent of the US's annual copper production and is one of the largest copper producers in the country. The operation is focused on maximising value through asset optimisation and operational excellence at all stages of its value chain. Rio Tinto Kennecott's mined copper production was 3 per cent lower than 2016, with lower grades partially offset by higher mill throughput. The operation produced 126 thousand tonnes of refined copper, 204 thousand ounces of refined gold, and five thousand tonnes of molybdenum in 2017. Improved utilisation and payload increased truck productivity in 2017 resulting in higher volumes of total material moved compared with 2016. In addition, the operation maximised available smelter capacity by the receipt of 161 thousand tonnes of third-party concentrate for tolling in 2017.

In April 2017, Rio Tinto Kennecott reached a labour contract agreement with four unions representing its employees.

### Oyu Tolgoi

Located in Mongolia's South Gobi Desert, Oyu Tolgoi (Rio Tinto: 33.5 per cent indirect interest through a 50.8 per cent interest in Turquoise Hill Resources Ltd) is one of the world's largest copper-gold developments. Since 2012, operations have been mining ore from the Oyu Tolgoi open pit and producing copper-gold concentrate at a facility located adjacent to the mine site. Open-pit operations produced 157 thousand tonnes of copper, 114 thousand ounces of mined gold and 974 thousand ounces of silver (100 per cent basis) during 2017. Mined copper production for 2017 was 22 per cent lower than 2016 with production from the open pit reducing as anticipated due to lower head grades, as phases two and three, which were sources of higher grade ore, were fully depleted by the end of 2016.

### Escondida

Located in Chile's Atacama Desert, Escondida (Rio Tinto: 30 per cent interest), is the world's largest copper-producing mine. Escondida's two open-cut pits currently feed three concentrator plants, as well as two leaching operations. In 2017, Escondida produced 903 thousand tonnes of mined copper (100 per cent basis). Mined copper production was 11 per cent lower than 2016 due to a 43-day labour strike. Concentrator throughput increased towards the end of 2017 following commissioning of the Los Colorados Extension. The construction of a desalination facility (approved in 2013) to provide a long-term sustainable supply of water for the operations reached completion on budget in December 2017.

### Grasberg

Located in the province of Papua, Indonesia, Grasberg is one of the world's largest copper mines. Grasberg is owned and operated by PT Freeport Indonesia (PTFI), a subsidiary of US-based Freeport-McMoRan, Inc. ("Freeport"). Through a joint venture with Freeport, Rio Tinto is entitled to a 40 per cent share of production above an agreed threshold until the end of 2021 and 40 per cent of all production thereafter. Rio Tinto's full participation has been delayed due to the application of force majeure provisions in the joint venture agreement. The first full year in which Rio Tinto will participate to the full extent of 40 per cent of production is now expected to be 2023.



Rio Tinto's share of mined copper production at Grasberg was approximately six thousand tonnes of copper in 2017. Rio Tinto's share of mined gold was nil due to the minimum production threshold not being met.

In January and February 2017, the Indonesian Government issued new mining regulations to address exports of unrefined metals, including copper concentrates, and other matters related to the mining sector. These regulations impact PTFI's operating rights, including its right to continue to export concentrate without restriction, and, as a result, had a significant impact on Rio Tinto's share of production in 2017.

In March 2017, the Indonesian Government amended the regulations and issued a permit to PTFI that allowed concentrate exports to resume in April 2017. On 19 February 2018, PTFI received an extension of its export permit to 19 February 2019. PTFI continues to engage with the Indonesian Government in relation to the basis upon which operations at Grasberg will continue beyond 2021 with regard to the rights conferred by its Contract of Work and the Government's stated intention to apply the provisions of the 2009 Minerba Law and associated regulations.

#### *Argyle Diamond Mine*

Located in the remote east Kimberley region of Western Australia, Argyle (Rio Tinto: 100 per cent) is one of the world's largest producers of diamonds by volume. In 2017, Argyle's carat production increased by 23 per cent, compared with 2016, as a result of the reprocessing of higher-grade recovery tailings.

A combination of lower production volumes compared with forecast, a smaller than expected contribution from productivity improvements and lower realised prices triggered a reassessment of the recoverable value of Argyle's assets. In assessing the recoverable value, it was determined that the property, plant and equipment was fully impaired resulting in a pre-tax impairment charge of US\$172 million. The lower than previously forecast diamond production has resulted in a reduction to reserves and the elimination of resources. The remaining reserves underpin the operation until 2020, with opportunities to extend subject to technical and financial performance. A JORC Table 1 supporting the changes will be released to the ASX in conjunction with this Annual report ([riotinto.com/JORC](http://riotinto.com/JORC)).

#### *Diavik Diamond Mine*

Diavik (Rio Tinto: 60 per cent) is located in Canada's remote Northwest Territories, producing predominantly large, white gem-quality diamonds. Carats recovered in 2017 were 12 per cent higher than 2016 due primarily to an improvement in the grade of the ore.

### Development projects

At Rio Tinto Kennecott the South Wall Pushback project continued in 2017. This development project will extend the life of the mine and remains on track for completion in 2020 to underpin over a decade of high-quality cash flow and a return to higher grades from 2021. In addition, depressurisation activities performed prior to and during 2017 reduced geotechnical risk within the mine. Rio Tinto Kennecott is also in the process of refining its closure planning, which looks beyond the operational stage in the life cycle of the mine to its post-mining future. This is a complex process due to the size, complexity and longevity of the operation. Throughout the closure planning process, engagement with affected and interested parties will take place, thereby better positioning the business for strategic decisions that are an essential part of maintaining the licence to operate.

Work to develop Oyu Tolgoi's underground mine (approved project spend of US\$5.3 billion before power supply) continued in 2017 and remains on track. The total project workforce was over 6,600 at the end of 2017, more than 85 per cent of whom are Mongolian nationals. Lateral development is on schedule; Shaft 2 sinking completed in January 2018 and completion of Shaft 5 sinking is expected by the end of the first quarter of 2018. The underground mine is expected to be fully ramped up in 2027, with the highest grades anticipated between 2024 and 2026. First production tonnes are expected in 2020.

Rio Tinto continues to work with its partners to develop the best solution for a domestic power supply for the Oyu Tolgoi operation, following the Government of Mongolia's withdrawal from the Tavan Tolgoi Power Project (TTPP). The Government of Mongolia has terminated the Southern Region Power Sector Cooperation Agreement (PSCA) such that the TTPP project is no longer a viable option. As a result, and in line with the terms of the 2009 Investment Agreement, Oyu Tolgoi is obliged to

source all of its power requirements for the operation from domestic sources within four years from 15 February 2018.

Oyu Tolgoi LLC is continuing to evaluate all viable power options, including the construction of an Oyu Tolgoi site-based power plant. The cost and means of financing the power plant will be finalised between shareholders. Rio Tinto will continue to review its capital expenditure forecasts for the project but has already earmarked US\$250 million per annum for the development of a power station in Mongolia in its 2019 and 2020 capital expenditure forecasts.

The Resolution Copper project (Rio Tinto: 55 per cent) located in Arizona, US, is one of the world's largest known undeveloped copper deposits. Drilling, proposed development and engineering studies continue and the permitting process is on schedule. In 2017, Resolution Copper executed an Agreement To Initiate with the United States Forest Service and the Bureau of Land Management, which establishes the schedule for completion of the pre-conditions to full implementation of the Southeast Arizona Land Exchange and Conservation Act.

In December 2017, Rio Tinto approved a US\$368 million commitment (Rio Tinto share: US\$202 million) to further advance the Resolution Copper project. The funding will improve infrastructure and facilitate mine planning as part of the pre-feasibility study.

The Grasberg mine is in the process of developing large-scale, high-grade underground orebodies located beneath and near the Grasberg open pit. Work on the underground orebodies is expected to ramp up over several years following the anticipated transition from the Grasberg open pit.

During 2017, Diavik continued to advance the development of the A21 kimberlite pipe. The A21 pipe is expected to be at full production capacity by the fourth quarter of 2018.

### Outlook

The copper market experienced an eventful start to 2017, when two major disruptions of mine supply resulted in a price spike to a three-year high. After three consecutive years of supply surplus, 2017 recorded a moderate deficit, conditions that Rio Tinto expects to continue over the next two years. During this period, China will remain a key driver of copper fundamentals from both supply and demand perspectives. The Chinese Government's ambition to improve environmental standards may disrupt metal production and trade flows, although policy aimed at widespread adoption of green technologies will boost growth in copper consumption.

Outside of China, favourable conditions in the industrial sector across most major economies are expected to underpin sustained demand in 2018. Meanwhile, supply growth will remain constrained by low grades and major mine depletion, as well as challenges to mine extension plans and greenfield start-ups.

Global rough diamond supply grew in 2017 and volumes may remain at a similar level in 2018. Prices partially recovered in 2017 as the downstream sentiment improved, and the outlook for jewellery retail markets in 2018 appears healthy across major regions. Key indicators of demand have turned positive in the EU, remained positive in the US, and are strengthening in India and China. Market sentiment is improving as polished dealers expect restocking to occur on strong seasonal demand.

Mixed signals emanated from Indian diamond cutters and polishers, who make up the bulk of the industry's midstream operators. Financial and fiscal policies in India have helped trading conditions, although stocks of low-grade rough diamonds have coincided with weak prices and some bankruptcies of midstream participants.

# Energy & Minerals

## Financial performance

	2017 US\$ million	2016 US\$ million
Gross revenue	7,764	6,734
Net cash generated from operating activities	1,939	1,370
Underlying earnings	1,242	612
Capital expenditure	467	141
Net operating assets	6,313	7,049
Underlying EBITDA	2,803	1,806

Iron Ore Company of Canada and Simandou are reported within Energy & Minerals, reflecting management responsibility.

## Strategy and priorities

The Energy & Minerals product group has a portfolio of high-quality mining, refining and marketing operations and projects. These connect customers and consumers around the world with products that enhance their quality of life and contribute to human progress. Demand growth for industrial minerals typically comes mid-to-late in the economic development cycle, following peak requirements for commodities such as iron ore and copper.

The product group's strategy is focused on operating low-cost, demand-led businesses. Through its integrated marketing strategies and insight, the product group creates and grows global markets for its products to deliver value for Rio Tinto and its shareholders.

Energy & Minerals' strategy focuses on:

- Safety as the number one priority.
- Prioritising value over volume.
- Operating demand-led, integrated operations that can respond quickly to the changing external environment.
- Creating and growing global markets through technical research and development and market insight.
- Enhancing operating performance by driving productivity, cost optimisation and by streamlining the organisation.
- Strengthening its position in traditional segments and entering attractive new markets.

## Rio Tinto Ventures

Rio Tinto Ventures was formed in early 2017. The team's principal objective is to identify, evaluate and acquire new, value accretive advanced projects and operating businesses, across a spectrum of commodities, principally those which are not currently represented in the Group's portfolio and which Rio Tinto believes will benefit from macro-economic trends such as urbanisation and disruptive technology. This is to provide options for and support execution of the Group's growth agenda and capital allocation strategy to create value for Rio Tinto shareholders.

## Safety

The product group is committed to supporting the Group's approach to ensuring its teams' safety, health and wellbeing. With a workforce spanning multiple geographies, languages and cultures, and processes that range from underground mining to smelting, the Energy & Minerals product group faces diverse health and safety risks. It continues to focus on fostering a culture of accountability, visible and engaged leadership, and teamwork across employees and contractors.

The product group's primary focus is the elimination of work-related fatalities. This has been supported by a focused implementation of the critical risk management fatality prevention programme, with an emphasis on critical control verification for fatality risks and process safety exposures.

In 2017, there were no fatalities in the product group for a second consecutive year and a continued year-on-year reduction in potential fatal incidents (PFIs). The primary causes of PFIs involved driving, working at height and isolation. The explosion at Rio Tinto Iron & Titanium's Sorel-Tracy facility – involving the carbon monoxide gas collection system – underlined the importance of the process safety work. The all injury frequency rate reduced from 0.47 in 2016 to 0.43 in 2017.

The Energy & Minerals product group continued to embed learnings from PFIs, and to carry out PFI review processes through peer reviews to reduce control breaches. The product group also developed a new approach for process safety, which uses internal and external resources,

tracks progress centrally, and ensures the Process Safety standard requirements are met.

## Greenhouse gas emissions

Since 2008, the product group's greenhouse gas emissions intensity has improved by 4.5 per cent. Iron Ore Company of Canada began implementation of a coke reduction strategy resulting in an improved intensity of 0.062 tonnes of carbon dioxide equivalent per tonne of iron concentrate and pellets produced, compared with 0.064 tonnes in 2016.

## Review of operations

Energy & Minerals' underlying earnings of US\$1,242 million were US\$630 million higher than 2016, reflecting higher prices, primarily for coal, iron ore and the majority of Rio Tinto Iron & Titanium's products, along with higher volumes and cash cost improvements across many of the operations. These more than offset stronger local currencies and the impact of Cyclone Debbie which affected coal production in early 2017. Coal & Allied's thermal coal operations are included up to their sale on 1 September 2017: the 2016 comparative therefore includes an additional four months of Coal & Allied earnings, equivalent to US\$109 million, compared with 2017.

Gross sales revenues for the product group in 2017 of US\$7,764 million were 15 per cent higher than 2016 as a result of higher prices and higher sales volumes across most products. The exception was coal, which was impacted by the cyclone and disposal of Coal & Allied.

Pre-tax cash cost improvements achieved by the product group in 2017 were US\$116 million and Energy & Minerals has now delivered US\$1.5 billion of cumulative savings compared with the 2012 base.

Net cash generated from operating activities of US\$1,939 million was 42 per cent higher than 2016, benefiting from higher prices and further cost improvements. The 2016 comparative included cash flows generated from Coal & Allied for the last four months of US\$136 million. The increase in capital expenditure included the development of the Wabush 3 open pit mine at Iron Ore Company of Canada. 2016 capital expenditure was presented net of the US\$192 million proceeds from the sale of the Mount Pleasant thermal coal assets. The resulting free cash flow achieved during 2017 of US\$1,467 million was 19 per cent higher than in 2016.

Energy & Minerals also contributed US\$2.5 billion disposal proceeds to the Group following the sale of Coal & Allied in September 2017.

## Borates

Rio Tinto Borates (Rio Tinto: 100 per cent) supplies approximately 30 per cent of the world's refined borates from its world-class deposit in Boron, California. It also has borates refineries and/or shipping facilities in China, France, Malaysia, the Netherlands, Spain and the US, as well as the Jadara lithium-borate project (Rio Tinto: 100 per cent) in Serbia. Rio Tinto Borates production of 517,000 tonnes boric oxide equivalent was 3 per cent higher than in 2016, with production aligned to market demand. Gross revenue of US\$630 million was comparable to 2016, and earnings of US\$126 million were 8 per cent higher, which included a gain on the sale of mineral rights in 2017.

Following a review of the technical and economic support for treatment of calcium borate ore types, this material has been written back to mineral resources at Boron and a revised life of mine is now 2042. A Joint Ore Reserves Committee (JORC) Table 1 release supporting the changes will be released to the Australian Securities Exchange (ASX) in conjunction with this Annual report.

## Coal

Rio Tinto Coal Australia (RTCA) manages the Hail Creek (Rio Tinto: 82 per cent) and Kestrel (Rio Tinto: 80 per cent) coal mines. On 24 January 2017, Rio Tinto announced it had reached a binding agreement for the sale of its 100 per cent shareholding in Coal & Allied Industries Limited to Yancoal Australia Limited. The transaction completed on 1 September 2017 for a consideration of US\$2.69 billion, before working capital and other adjustments.

Hard coking coal production of 7.7 million tonnes (Rio Tinto share) was 5 per cent lower than in 2016 due to the impact of Cyclone Debbie in the first quarter of 2017. The sale of Coal & Allied, coupled with mine production sequencing changes at Hunter Valley Operations and Mount Thorley Warkworth, resulted in semi-soft coking coal production of 2.0 million tonnes and thermal coal production of 13.9 million tonnes. These figures were lower than in 2016 by 51 per cent and 17 per cent respectively. Revenues increased to US\$2,829 million, a 7 per cent increase on 2016, as the impact of higher prices outweighed the impact of the sale of Coal & Allied and Cyclone Debbie. This was also the main reason for earnings increasing from US\$382 million to US\$716 million. As at the year end, RTCA run-of-mine reserves and resources were 398 million tonnes and 2,153 million tonnes respectively (100 per cent

basis), reflecting the loss of Coal & Allied tonnes following the divestment on 1 September 2017.

### Iron Ore Company of Canada (IOC)

IOC (Rio Tinto: 58.7 per cent) operates a mine, a concentrator and a pelletising plant in the Canadian province of Newfoundland and Labrador, together with rail and port facilities in Sept-Îles, Quebec. IOC continued as a supplier of high-quality, premium pellets and high-quality, low-contaminant concentrate. The company remains focused on further increasing productivity and increasing production to nameplate capacity (the full-load sustainable output of the facility) following completion of the Concentrate Expansion Project in 2014. The development of the Wabush 3 open pit mine, approved in the first quarter of 2017, is progressing as planned and is expected to be in production in the second half of 2018. IOC achieved full year production of 11.2 million tonnes (Rio Tinto share) of saleable production. Pellet production of 6.1 million tonnes was 7 per cent higher than 2016, with pellet demand continuing to be strong and product mix being optimised to meet customer demand. Concentrate production of 5.0 million tonnes was 2 per cent higher than 2016. Revenues of US\$1.9 billion were 41 per cent higher than 2016, mainly associated with higher prices and volumes, resulting in a US\$171 million increase in earnings to US\$235 million.

### Rio Tinto Iron & Titanium (RTIT)

RTIT is the world's largest producer of high-grade titanium dioxide feedstocks. It mines ilmenite at its wholly-owned Rio Tinto Fer et Titane (RTFT) operation in Canada, its managed Richards Bay Minerals (RBM) operation in South Africa (Rio Tinto: 74 per cent), and its managed QIT Madagascar Minerals operation (Rio Tinto: 80 per cent). RTIT produces high-grade titanium dioxide feedstocks at its world-class metallurgical complexes at RTFT and RBM, as well as valuable co-products that include high-purity ductile iron, steel billets, metal powders and zircon. At 1.3 million tonnes, titanium dioxide slag production was 25 per cent higher in 2017 than in 2016, as RTIT continued to optimise production to match demand. One of nine furnaces at RTFT remains idle, along with one of four furnaces at Richards Bay Minerals. RTIT's revenues increased by 24 per cent, due to the higher sales volumes and prices for titanium dioxide feedstocks and metallic products, along with higher prices for zircon. Earnings improved by US\$115 million to US\$201 million and, coupled with the higher sales volumes and prices, reflected cash cost improvements.

### Salt

Dampier Salt (Rio Tinto: 68.4 per cent), the world's largest solar salt exporter, produces industrial salt by solar evaporation of seawater at Dampier and Port Hedland, and from underground brine at Lake MacLeod, all in Western Australia. Salt is sold principally to base chemical industry markets in Asia. Salt production of 5.1 million tonnes (Rio Tinto share) was comparable to 2016, with a 2 per cent reduction to align to market demand. Earnings of US\$3 million were US\$22 million lower than 2016 reflecting lower prices.

### Uranium

The Uranium business comprises Energy Resources of Australia Ltd (ERA, Rio Tinto: 68.4 per cent), which operates the Ranger Mine in the Northern Territory of Australia, and Rössing Uranium Limited (Rio Tinto: 68.6 per cent) in Namibia, together with the Roughrider project (Rio Tinto: 100 per cent) in Canada's Athabasca Basin, which is managed by the Group's central exploration division. Uranium production of 6.7 million pounds (Rio Tinto share) was 5 per cent higher than in 2016 due to higher grades and mill throughput at Rössing. ERA continued to process existing stockpiles in 2017. The higher sales volumes were more than offset by lower prices, resulting in revenues decreasing by 9 per cent, and a loss incurred of US\$26 million (2016: earnings of US\$10 million). Also included in the loss was an expense to increase the provision for closure at ERA.

An impairment charge of US\$177 million (post-tax, Rio Tinto share) was recognised during 2017 relating to Rössing, due to oversupply in the uranium market resulting in structural changes to forecast prices. This charge was excluded from underlying earnings.

### Development projects

The Jadar project in Serbia is a lithium-borate deposit that was discovered by Rio Tinto in 2004. If developed, it could supply a significant proportion of the global demand for lithium and borates. Findings so far are encouraging, and prefeasibility assessments are ongoing to confirm the economic business case for the project and to advance its environmental and socioeconomic impact assessments. On 24 July 2017, Rio Tinto signed a Memorandum of Understanding with the Government of Serbia to form a joint working group to progress the study and permitting phase of the project.

Work continued on the feasibility study for the Zulti South mine expansion at RBM in South Africa, which will maintain RBM's low-cost smelting capacity and zircon production. The project remains one of the best undeveloped mineral sand deposits in the industry, given its large ilmenite resource with high rutile and zircon content in the overall mineral suite.

Rio Tinto remains in discussion with North Atlantic Potash Inc. (NAPI), a subsidiary of JSC Acron, a world leader in fertiliser production, regarding the optimum development pathway for their exploration joint venture in Saskatchewan, Canada.

On 28 October 2016, Rio Tinto and Chinalco signed a non-binding agreement to sell Rio Tinto's entire stake in the Simandou project in Guinea to Chinalco. The Heads of Agreement (HOA) set out the proposed principal terms of the sale with the aim of signing a binding agreement. Considering uncertainties in development timing and selection of final infrastructure options, the project ore reserves have been written back to mineral resources. A JORC Table 1 release supporting the changes will be released to the ASX in conjunction with this Annual report ([riotinto.com/JORC](http://riotinto.com/JORC)).

### Outlook

In 2017, metallurgical coal has been characterised by stronger than expected demand in China, coupled with supply disruptions, both in China and for seaborne exporters. 2017 premium hard coking coal prices averaged US\$190 per tonne, supported by synchronous steel demand and production growth across all major metallurgical coal demand regions; a trading environment not observed since before the global financial crisis. Robust Chinese steel margins have supported a push for mill productivity, resulting in increased demand for higher quality coking coal, and encouraging coastal mills to increase seaborne imports. However, supply disruptions, such as Cyclone Debbie in early 2017, removed more than 10 million tonnes of Australian supply from the market, and this was followed by port maintenance and logistics bottlenecks in Queensland during the fourth quarter of 2017.

Meanwhile, supply-side reforms and new environmental policies in China removed Chinese domestic supply, creating a tightly constrained market and elevating prices well above marginal costs. Additional supply is expected to come to the market from Australia, Mozambique and the US in 2018 and 2019, potentially leading to lower prices than those achieved in 2017.

The uranium market remained oversupplied in 2017, with many market players along the value chain reporting excess inventories. The uranium spot price fell from US\$26/lb in the first quarter to below US\$21/lb for much of the year, until capacity curtailment announcements boosted spot prices as the year drew to a close. Adverse policy shifts in South Korea and Japan, as well as an increasingly competitive energy market in the US, have dampened the expected demand growth in these markets.

Market conditions for titanium dioxide continued to improve in 2017, with strengthening pigment prices supported by low inventory and tight supply. Consequently, feedstock demand has improved year-on-year, with RTIT's sales volumes up significantly. RTIT will continue to flex production capacity to meet demand, while optimising working capital. Improved conditions have also been evident in the zircon market. The medium- and long-term view of these markets will continue to be driven by improving global economic conditions, urbanisation and demand growth in emerging markets, as per capita incomes rise.

Borates demand growth was primarily driven by the agriculture and construction sectors in 2017. Offtake across most regions held firm, although borates demand in China was impacted by environmental-related shutdowns during the third quarter. Rio Tinto Borates is focused upon increasing its share of higher value products to capture higher margin growth opportunities, while also improving safety performance and its cost position.



# Growth & Innovation

Growth & Innovation is responsible for finding, studying, developing and optimising assets so they are safe, productive and profitable. It supports Rio Tinto's assets and helps them to achieve superior performance throughout their lifecycle by optimising value from the initial concept through to when a mine or processing facility is eventually closed. It works with, and through, Rio Tinto's product groups to effectively deliver portfolio growth, drive innovative solutions, replicate and share best practice, and provide support for quality decision-making.

## Strategy and strategic priorities

Safety is the number one priority. It is a shared core value and Growth & Innovation is aligned to this integral part of Rio Tinto's strategy when delivering in these key areas, in partnership with the product groups:

- Exploration: discovering or acquiring new high-quality deposits that create business opportunities for Rio Tinto.
- Strategic planning: executing strategic shaping and long-term production planning to ensure the right projects proceed with the optimal business case.
- Projects: providing centralised leadership to ensure Rio Tinto delivers successful major studies, and delivering major capital projects safely and efficiently, on time and on budget (or better), and ready for a seamless handover to operations.
- Oyu Tolgoi: managing the existing Oyu Tolgoi operations and the underground project in Mongolia to ensure Growth & Innovation safely maximises value delivery and ultimately transfers a successful business to the Copper & Diamonds product group.
- Productivity and support: Productivity & Technical Support is leading a step change in the Group's mine to market productivity, as well as providing technical support to manage major hazard risks and support operational performance, and overseeing Rio Tinto's innovation and automation platforms.
- Technology: Information Systems & Technology is delivering support in industrial and operational technology and delivery of enterprise services to Rio Tinto's businesses.

## Safety

In 2017, there was a health-related death of a senior exploration field technician undertaking field reconnaissance work in the Pilbara. This was a solemn reminder of the critical health risks the team faces each day. The loss of a colleague has a profound effect on the entire team and galvanises the commitment to keeping health and safety priority number one.

Growth & Innovation achieved an all injury frequency rate of 0.26, representing a 19 per cent improvement compared with 2016. Rio Tinto Projects reported an all injury frequency rate of 0.35, compared with 0.66 in 2016, during a year of increased high-risk activity. However, Exploration's all injury frequency rate was 0.43 compared with 0.31 in 2016. Oyu Tolgoi underground project recorded the best safety performance of all Rio Tinto's underground mines in 2017 with an all injury frequency rate of 0.39. The Bundoora Technical Development Centre, which celebrated 25 years of operation this year, achieved five years free of lost time injuries in May.

Putting safety first, driving down the number of injuries, and embedding the critical risk management (CRM) fatality prevention programme, have been priorities for Growth & Innovation in 2017. Exploration has piloted, adapted and implemented CRM. Rio Tinto Projects is completing more than 15,000 CRM verifications each month, with leaders focusing on identifying critical risks and verifying controls are in place.

Growth & Innovation is leading the implementation of Rio Tinto's major hazard risk programme. These major hazard risks are underground safety, geotechnical and slope failures, tailings and water storage, and process safety risks. With the product groups, Growth & Innovation is implementing a programme of integrated risk assessments, leadership training, critical control verifications, improved assurance and transparent reporting and monitoring.

The East Waste Rock Extension project was awarded the Utah Safety Council's prestigious Award of Merit for outstanding achievements in corporate safety programmes. This project completed significant works at Bingham Canyon Mine to prepare mined land for reclamation.

## Performance

### Exploration

Exploration creates value for Rio Tinto by safely delivering quality growth options to the Group through greenfield and brownfield opportunities and disciplined divestment of non-core discoveries. It also provides orebody knowledge and resource evaluation support to existing operations, new projects and opportunities identified through Rio Tinto Ventures.

At the end of 2017, Exploration was active in 15 countries and continued to assess opportunities across a range of commodities, including copper, nickel, iron ore, bauxite, diamonds and mineral sands. In 2017, Exploration's commercial activities continued, providing access to new opportunities. Exploration partnerships were established in Chile, Canada, Zambia, Tanzania, Australia and China.

Along with bringing projects into the pipeline, Exploration actively reviews its portfolio, and seeks to exit and monetise projects that no longer meet target criteria. This active recycling of the portfolio provides additional cash flow to Rio Tinto and has, in certain periods, led to Exploration being a cash flow positive business. In the past decade, Rio Tinto has spent approximately US\$1.8 billion on centrally controlled exploration, and has in turn generated US\$1.9 billion from divestments.

A post-tax impairment of US\$257 million was recognised relating to the Roughrider uranium deposit in Canada. Roughrider's recoverable amount was determined to be nil following a decision in the first half of 2017 to cease further expenditure on the project. This charge was excluded from underlying earnings.

In 2017, Exploration increased investment and effort in the Pilbara region of Western Australia, to reinvigorate the search for high-grade iron ore mineralisation closer to existing infrastructure, while seeking opportunities in a range of other commodities. Rio Tinto also signed a partnership with Shore Gold on their Star-Orion South diamond project while also securing multiple other early-stage diamond opportunities in Canada. The signing of a technical collaboration agreement in 2017 between Rio Tinto and China's Minmetals allows for the combination of knowledge, data and expertise in specific areas both inside and outside of China subject to future agreement.

The targeted capture of publicly available data and a focus on data accuracy and availability delivered efficiency improvements. In 2017, modern analytical techniques for mineral geochemistry, enabling better exploration targeting, were applied across several regions.

Expenditure on exploration and evaluation in 2017 was US\$445 million. This represented a 10 per cent decrease compared with 2016 expenditure of US\$497 million. Of the 2017 spend, US\$204 million relates to centrally controlled exploration and evaluation activity. In total, Rio Tinto's 2017 exploration and evaluation activity covered eight commodities across a range of greenfield and brownfield environments.

### Evaluation

Rio Tinto evaluates discoveries and projects, which are aligned to company strategy, ensuring the right projects proceed with the optimal business case. During evaluation, Growth & Innovation engages a broad range of stakeholders to protect and enhance our partner-to-operate position. The enduring relationships built during the exploration and evaluation stages are essential to future operational success.

Throughout 2017, Growth & Innovation applied a range of strategic planning processes and expertise to identify, analyse and select the optimal configuration and timing of greenfield and brownfield projects. This support was provided to projects in all of the product groups.

Extensive work continued on developing a pilot process for the Jadar project to enable production of both borates and lithium from the newly discovered mineral jadarite.

The Group's major evaluation projects in 2017 were:

Project	Commodity	Country
La Granja	Copper	Peru
Resolution	Copper	US
Pilbara	Iron ore	Australia
Zulti South	Mineral sands	South Africa
Jadar	Lithium/borates	Serbia
Weipa	Bauxite	Australia

## Projects

Rio Tinto Projects strives to deliver the Group's major capital projects safely, efficiently, on time and on budget (or better), with a seamless handover to operations upon completion.

In 2017, Rio Tinto Projects' remit was expanded to include leadership of major studies, including greenfield, some brownfield and closures. This transition commenced when leadership for the Jadar study moved from Energy & Minerals to Growth & Innovation in April. Rio Tinto Projects also remains firmly focused on improving project outcomes, and has several continuous improvement initiatives under way to enhance performance. Overall, the current portfolio contains nine projects in execution and five studies.

In 2017, Rio Tinto Projects successfully completed the MAP Demolition Project, Yandi Oxbow, West Angelas Deposit F, Holden and the safety award-winning East Waste Rock Extension projects.

During 2017, the US\$1.9 billion Amrun bauxite project in the Weipa region, Australia advanced to schedule. The project is using pioneering construction methods with significant modularisation of the marine facilities and process plant. The wharf has 13 modules, which were made in China and shipped to Weipa for assembly. This approach is at least two times faster than conventional wharf construction methods in Australia and has improved health and safety risks, cost and schedule.

The full commissioning of the Silvergrass iron ore mine was completed on schedule, following the official opening in August. This brownfield expansion project has used further innovative construction methods, with the footings of a nine-kilometre conveyor system being poured as a continuous slipform rather than discrete footings, reducing work hours, safety risk exposure and the construction timeframe.

The Oyu Tolgoi underground project has the lowest injury rate of any of Rio Tinto's underground operations. In May, the project celebrated one year since notice to proceed. Lateral development is on plan and shaft sinking productivity continues to improve. The project has 85 per cent Mongolian workforce participation. It is scheduled for first drawbell in 2020 and ramp up to full production in 2027.

The AutoHaul™ project achieved Australia's first fully autonomous heavy haul train journey in September. A close to 100 kilometre pilot run was completed without a driver on board at the Pilbara iron ore operations. More than 60 per cent of all train kilometres are currently being run in autonomous mode, with a driver on board for supervision, which puts Rio Tinto on schedule to complete AutoHaul™ in 2018.

At the end of 2017, other projects in execution included Resolution Shaft 9 extension, Yandi Billiard South, Cape Lambert Power Station and Kemano Tunnel. At the end of 2018, all major studies will be fully transitioned into Projects.

## Productivity, innovation and technology

Productivity & Technical Support is leading a step change in productivity and technical excellence across Rio Tinto. During 2017, the team continued building their capability and establishing smarter ways to use people, equipment and infrastructure more effectively to generate US\$1.5 billion in extra cash flow each year from 2021. The integrated productivity programme has a comprehensive plan to focus on and improve the basics, while redesigning the value chain for the future. It is fully underpinned by a technical excellence backbone to secure real and tangible productivity improvements.

Progress has been made against key metrics, including the utilisation of plant and equipment, payload, maintenance intervals and processing rates. Examples in 2017 include: a six per cent increase in mean time between truck failure; a three per cent increase in effective truck utilisation; a four per cent increase in truck payload of waste and ore; a

seven per cent increase in average processing rates at Weipa operations and Oyu Tolgoi.

Rio Tinto continues to progress its automation and innovation programme. In December, Rio Tinto and the University of Sydney celebrated ten years of research partnership, aimed at increasing innovation in mining. Key outputs of this partnership have included autonomous drills, the Mine Automation System (MAS) and the RTVis™ 3D visualisation software. MAS and RTVis™ are now implemented at 95 per cent of surface mining sites, helping operators in the field make better real-time decisions and supporting other work, including mine planning, incident investigation and orebody modelling. In May, Australia's mining equipment, technology and services association, Austmine, awarded MAS and RTVis™ the 2017 Austmine Miners for Innovation Award.

The Technical Excellence programme is an enabler of the productivity strategy, and also helps to safely manage technical risks. In 2017, six leadership forums were established, including orebody knowledge, underground mining, asset management, open pit mining, processing and integrated operations.

At the beginning of 2017, Information Systems & Technology transitioned into Growth & Innovation. The team is responsible for the Group's approach to cyber security and uses different technology and practices to help protect Rio Tinto against this sort of attack. A priority in 2017 has been stabilising services impacted by the scale and complexity of migrating disparate legacy centres to a cloud-based solution. The majority of these stabilisation activities are now complete. Information Systems & Technology has a five-year forward plan and investment programme for delivering 21<sup>st</sup> century digital to Rio Tinto. It is an ambitious programme of work, reflecting the critical role information technology will play in supporting Rio Tinto in becoming a safer, smarter and more productive workplace.

## Outlook

### Exploration

In 2018, Exploration will continue to prioritise the portfolio of greenfield and brownfield projects. It will advance copper projects in Chile, Peru, the US, Serbia, Kazakhstan, southern Africa and Australia. The majority of these projects are in the early drilling stage of exploration. It will continue project generation in several geographies and testing existing targets within the portfolio. For 2018, exploration projects that have reached a more advanced stage are listed in the table below.

### Projects

Rio Tinto Projects will continue to deliver priority projects, including Amrun, Oyu Tolgoi underground and AutoHaul™ projects. It will also progress studies for the Jadar project in Serbia, Resolution Copper, several sites approaching closure and the feasibility study for Zulti South. It will continue to improve health, safety and risk outcomes through the use of industry-leading construction techniques and continuous improvement.

### Productivity, innovation and technology

In 2018, Productivity & Technical Support will continue to replicate best practice, partner with suppliers and apply technology and automation. It will work with the product groups and suppliers to drive further productivity gains, including improving equipment and fleet utilisation and further improving the control and performance of Rio Tinto's processing plants. Information Systems & Technology will focus on simplifying Rio Tinto's operating environment, and building a foundational, integrated data platform designed for agility and freedom to operate. In a rapidly evolving and increasingly digital world, it will establish a stable, yet flexible and scalable information technology backbone for the Group.

## 2018 exploration projects

Project	Commodity	Country	Type	Stage
Sanxai	Bauxite	Laos	Greenfield	Project of Merit
Stargrove	Diamond	Canada	Greenfield	Project of Merit
Pilbara	Iron ore	Australia	Brownfield	Project of Merit
Weipa	Bauxite	Australia	Brownfield	Project of Merit
Stella	Diamonds	Canada	Greenfield	Order of Magnitude
Oyu Tolgoi	Copper	Mongolia	Brownfield	Project of Merit

# Five year review

## Selected financial data

The selected consolidated financial information below has been derived from the historical audited consolidated financial statements of the Rio Tinto Group. The selected consolidated financial data should be read in conjunction with, and qualified in their entirety by reference to, the 2017 financial statements and notes thereto. The financial statements as included on pages 112 to 201 have been prepared in accordance with IFRS as defined in note 1.

### Rio Tinto Group

#### Income statement data

For the years ending 31 December	2017	2016	2015	2014	2013
Amounts in accordance with IFRS	US\$m	US\$m	US\$m	US\$m	US\$m
Consolidated sales revenue	40,030	33,781	34,829	47,664	51,171
Group operating profit/(loss) <sup>(a)</sup>	14,135	6,795	3,615	11,346	7,430
Profit/(loss) for the year	8,851	4,776	(1,719)	6,499	1,079
Basic earnings/(losses) for the year per share (US cents)	490.4	256.9	(47.5)	353.1	198.4
Diluted earnings/(losses) for the year per share (US cents) <sup>(b)</sup>	486.9	255.3	(47.5)	351.2	197.3

Dividends per share	2017	2016	2015	2014	2013
Dividends declared during the year					
US cents					
– interim	110.0	45.0	107.5	96.0	83.5
– final	180.0	125.0	107.5	119.0	108.5
UK pence					
– interim	83.13	33.80	68.92	56.9	54.3
– final	129.43	100.56	74.21	78.0	65.8
Australian cents					
– interim	137.7	59.13	144.91	103.1	93.0
– final	228.5	163.62	151.89	153.0	120.14
Dividends paid during the year (US cents)					
– ordinary	235.0	152.5	226.5	204.5	178.0
Weighted average number of shares – basic (millions)	1,786.7	1,797.3	1,824.7	1,848.4	1,847.3
Weighted average number of shares – diluted (millions) <sup>(b)</sup>	1,799.5	1,808.6	1,824.7	1,858.7	1,857.7

## Balance sheet data

at 31 December	2017	2016	2015	2014	2013
Amounts in accordance with IFRS	US\$m	US\$m	US\$m	US\$m	US\$m
Total assets	95,726	89,263	91,564	107,827	111,025
Share capital/premium	8,666	8,443	8,474	9,053	9,410
Total equity/Net assets	51,115	45,730	44,128	54,594	53,502
Equity attributable to owners of Rio Tinto	44,711	39,290	37,349	46,285	45,886

(a) Group operating profit or loss includes the effects of charges and reversals resulting from impairments (other than impairments of equity accounted units) and profit and loss on disposals of interests in businesses. Group operating loss or profit amounts shown above exclude equity accounted operations, finance items, tax and discontinued operations.

(b) The effects of dilutive securities has not been taken into account when calculating diluted loss per share for the year ended 31 December 2015, in accordance with IAS 33 "Earnings Per Share".

## Directors' approval statement

This Strategic report is delivered in accordance with a resolution of the board, and has been signed on behalf of the board by:



Jan du Plessis

Chairman

28 February 2018



# Governance report

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# Chairman's governance review

## Dear shareholders,

I firmly believe that good corporate governance is critical in helping to build a successful business that can be sustained over the longer term and through the cyclical markets in which we operate.

### Reporting against applicable codes and standards

We are reporting this year against the UK Corporate Governance Code (2016 version) (the Code), the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (3<sup>rd</sup> edition) (the ASX Principles), and New York Stock Exchange Corporate Governance Standards (the NYSE Standards).

We welcome the publication by the UK Financial Reporting Council of its proposed new UK Corporate Governance Code for consultation. The focus on the themes of corporate and board culture, stakeholder engagement and sustainability are critical factors for us as we partner with our stakeholders to build an enduring business. We have also begun to consider ways in which a stronger and more meaningful engagement can take place between the board and the workforce and we look forward to updating you on these initiatives next year. The engagement, among other things, will be a vital barometer for the directors to gauge how the Group's new values and purpose are embedding within the organisation under J-S Jacques' leadership.

### Strategic focus

Throughout the year, the board agenda was structured to allow for regular updates on the optimisation of our portfolio, such as the disposal of Coal & Allied Industries Limited, and the announcement of our various share buy-back programmes, totalling some US\$4 billion in 2017. We spent time on our major capital projects, including Silvergrass, Oyu Tolgoi, Grasberg and Resolution, and oversaw management's initiatives to drive productivity in every part of the business from mine to market. During 2017, the board has also conducted deep dives into aspects of the Group's risk management and internal control systems, and this focus will continue into 2018. I hope that the following pages of this report provide you with greater insight into our discussions during the year.

### Appointment of Simon Thompson as the new Rio Tinto chairman

In early December, we announced the appointment of Simon Thompson as the new chairman of Rio Tinto with effect from 5 March 2018. He brings to the role a deep understanding of the mining industry, as well as a strong track record as a non-executive. Having worked closely with Simon since he joined the board some three years ago, I am confident that he will continue to promote a culture of integrity and openness and a diversity of perspective among the board that will provide the necessary blend of support and constructive challenge to the executive management team. I know that Simon is looking forward to working with J-S, our chief executive, to ensure that Rio Tinto continues to deliver superior returns for its shareholders by maintaining its capital discipline and value-over-volume approach.

I would like to take this opportunity to acknowledge Ann Godbehere for her work in leading the chairman succession process this year. She led the global search process, as the senior independent director, with the benefit of frequent support from a specially constituted committee comprising other independent non-executive directors (not including myself). The committee reported regularly to the full board on its activities and deliberations.

I am pleased to say that in the transition period prior to 5 March 2018, Simon has really hit the ground running, and I know he is keen to harness the collective experience of the board to try new approaches and enhance the overall effectiveness of the board. Some of these enhancements were identified by this year's board evaluation exercise, further details of which are set out on page 62.

## Changes to the board

Throughout my tenure as chairman of Rio Tinto, I have focused on ensuring that the board has worked effectively and cohesively, with a range and balance of skills, expertise and attributes that matches the geographical, operational and regulatory complexity in which our business operates.

During the year, there were a number of changes to board composition. As outlined in last year's report, we appointed three new independent non-executive directors: David Constable, Sam Laidlaw and Simon Henry, while non-executive directors Robert Brown and Anne Lauvergeon stepped down from the board at the conclusion of the Rio Tinto Limited AGM on 4 May 2017.

In addition, in June 2017, Rio Tinto senior independent director John Varley resigned with immediate effect. Ann Godbehere assumed the role of senior independent director and Simon Thompson moved to replace John Varley as chairman of the Remuneration Committee. I am extremely grateful for John's outstanding contribution over the five or so years that he was on the board.

Following the appointment of David, Sam and Simon, and with Anne Lauvergeon's retirement, the proportion of women on the board fell to 18 per cent. We recognised that we needed to re-intensify our efforts when considering the next non-executive appointments to the board to promote not only gender diversity, but also diversity in its widest sense, including social and ethnic backgrounds, and cognitive and personal strengths.

On 15 February 2018, we were therefore pleased to announce the appointment of Moya Greene to the board as an independent non-executive director. Moya will join Rio Tinto during the second half of 2018 and we will announce her start date separately in due course. At the same time, we announced Paul Tellier's decision to retire from the board at the conclusion of the Rio Tinto Limited AGM on 2 May 2018. When Moya joins Rio Tinto, the proportion of women on the board will be 30 per cent.

Finally, in September 2017, Rio Tinto's chief financial officer, Chris Lynch, informed the board of his intention to retire by the end of September 2018. Planning for the chief financial officer succession was already in progress and finding a suitable replacement is a priority for the Nominations Committee in the first half of 2018.

Upon assuming the role of chairman, Simon Thompson will step down as chairman of the Remuneration Committee and will also cease to be a member of the Audit Committee. Sam Laidlaw, who previously chaired the remuneration committee at HSBC Holdings plc, will succeed Simon as chair of the Rio Tinto Remuneration Committee with effect from 5 March 2018. In 2018, I anticipate that the board will also look to strengthen and deepen the experience on the Audit Committee and Simon, as your incoming chairman, will update you on these changes in next year's report.

### Regulatory matters

In October 2017, we announced that Rio Tinto had been notified by the US Securities and Exchange Commission (SEC) that the SEC had filed a complaint in relation to Rio Tinto's disclosures and timing of the impairment of Rio Tinto Coal Mozambique (RTCM). The impairment was reflected in Rio Tinto's 2012 year-end accounts. The SEC alleges that Rio Tinto, a former chief executive, Tom Albanese, and the previous chief financial officer, Guy Elliott, committed violations of the antifraud, reporting, books and records and internal control provisions of the federal securities law by not accurately disclosing the value of RTCM and not impairing it when Rio Tinto published its 2011 year-end accounts in February 2012 or its interim results in August 2012. We believe that the SEC case is unwarranted and that, when all the facts are considered by the court, or if necessary by a jury, the SEC's claims will be rejected. We will defend the allegations vigorously.

Separately, but at the same time, Rio Tinto reached a settlement with the UK's Financial Conduct Authority (FCA) in relation to the timing of the impairment of RTCM. The FCA determined that Rio Tinto should have carried out an impairment review in relation to RTCM for its 2012 interim results and, if it had done so, those results published in August 2012 would have reflected the impairment it recorded six months later. The FCA determined that Rio Tinto had breached the FCA's Disclosure and Transparency Rules and imposed a financial penalty on Rio Tinto of £27,385,400 (US\$36.4 million). It is important to stress that the FCA made no findings of fraud, or of any systemic or widespread failure by Rio Tinto. This separate FCA case is now closed. The Australian Securities and Investments Commission is also reviewing the RTCM impairment.

In addition, we continue to co-operate fully with relevant authorities in connection with their investigations in relation to contractual payments totalling US\$10.5 million made to a consultant who had provided advisory services in 2011 on the Simandou project in Guinea.

The outcomes of these matters, and associated class actions that have been commenced on behalf of securities holders, remain uncertain, but they could ultimately expose the Group to material financial cost. I can assure you that the board is giving these matters its full and proper attention and that the dedicated board committee that monitors progress of these matters is continuing under Simon Thompson's leadership.

### Shareholder engagement

The board has undertaken extensive engagement with our shareholders during 2017 and expects to continue this positive trend of engagement under Simon's new chairmanship. We will also seek next year to engage with our shareholders through the Investor Forum on a range of strategic, financial, business and corporate governance issues. The Investor Forum is a group established in London by a number of large investors with the objective of promoting a long-term approach to investment and creating a model for collective engagement with UK companies.

The board also looks forward to meeting with many of our retail shareholders at our AGMs in London and Melbourne in April and May this year.

At the 2017 Rio Tinto plc AGM, the resolution to disapply pre-emption rights on up to five per cent of Rio Tinto's issued share capital was passed by a majority of 76.16 per cent, meaning that the vote against was in excess of 20 per cent. I would like to stress that Rio Tinto adhered to best practice by seeking authority to disapply pre-emption on only up to five per cent and was not seeking any additional disapplication. Further details on this matter are set out on page 69.

In recognition of the role that responsible stewardship can play in improving corporate governance, we also note that the UK Financial Reporting Council has asked some high level questions about the future direction of the Stewardship Code. We believe that the interaction of the Stewardship Code and the revised Code will be crucial in maintaining a flexible, principles-based Code that drives best practice in corporate governance on a "comply or explain" basis.

### Conclusion

In closing, I would like to extend my warm and sincere thanks to all past and present members of the Rio Tinto board with whom I have had the tremendous privilege to serve as chairman for nearly nine years. When I stand down from the board and as chairman on 5 March 2018, I am handing over the baton at a time when the business is in great shape and Rio Tinto has a balance sheet among the strongest in the sector. I am confident that I am leaving the company in safe hands.



**Jan du Plessis**  
Chairman

### Statement of compliance with governance codes and standards in 2017

In compiling this report, the directors have referred to the Code, the ASX Principles, and the NYSE Standards.

Throughout 2017, and at the date of this report, the Group applied the principles of, and was compliant with the provisions of, the Code and the ASX Principles, as summarised in the Governance report, the Remuneration report, the Directors' report and Financial statements.

For the purposes of ASX Listing Rule 4.10.3 and the ASX Principles, page 50 to 69 of this Governance report form our "Corporate Governance Statement". This statement is current as at 31 December 2017, unless otherwise indicated, and has been approved by the board.

Rio Tinto plc, as a foreign issuer with American Depositary Receipts (ADRs) listed on the NYSE, is obliged by the NYSE Standards to disclose any significant ways in which its practices of corporate governance differ from the NYSE Standards.

The company has reviewed the NYSE Standards and considers that its practices are broadly consistent with them, with the following exceptions where the literal requirements of the NYSE Standards are not met due to differences in corporate governance between the US, UK and Australia.

The NYSE Standards state that companies must have a nominating/corporate governance committee composed entirely of independent directors which, in addition to identifying individuals qualified to become board members, develops and recommends to the board a set of corporate governance principles applicable to the company. Rio Tinto has a Nominations Committee comprising the chairman and independent non-executive directors, information about which is set out on page 59. This Committee does not develop corporate governance principles for the board's approval. The board itself develops such principles.

Under US securities law and the NYSE Standards, the company is required to have an audit committee that is directly responsible for the appointment, compensation, retention and oversight of the work of external auditors.

While the Rio Tinto Audit Committee makes recommendations to the board on these matters, and is subject to legal and regulatory requirements on oversight of audit tenders, the ultimate responsibility for the compensation of the external auditors and the appointment of the external auditors of Rio Tinto rests with the shareholders.

# Board of directors

## Key for committee memberships:

- (A) Audit Committee
- (N) Nominations Committee
- (R) Remuneration Committee
- (S) Sustainability Committee
- (C) Chairman's Committee

### Jan du Plessis (R, N and C)

*Chairman, BCom, LLB, CA (SA), age 64*

**Appointment:** September 2008 (board), April 2009 (chairman). Chairman of the Nominations Committee. Jan will retire as chairman and as a director with effect from 5 March 2018.

**Skills and experience:** Jan, a South African and British citizen, has significant experience on the boards of major UK public companies, having served as chairman and non-executive director of various FTSE100 companies across a range of sectors. His breadth of experience and leadership skills enable him to fulfil his role as chairman effectively. Jan was group finance director of Compagnie Financière Richemont, the Swiss luxury goods group, from 1988 to 2004. He was appointed a non-executive director of British American Tobacco plc in 1999, prior to holding the chairmanship from 2004 to 2009. He was a non-executive director of Lloyds TSB from 2005 to 2009.

**External appointments (current and recent):** Non-executive director and chairman of BT Group plc from June 2017 and November 2017 respectively, non-executive director and chairman of SABMiller plc from September 2014 and July 2015 respectively, until October 2016. Non-executive director and senior independent director of Marks and Spencer Group plc from 2008 and 2012 respectively, until March 2015.

### Simon Thompson (R, A and N)

*Independent non-executive director, MA (Oxon), age 58*

**Appointment:** April 2014 (board), from 5 March 2018 (chairman). Chairman of the Remuneration Committee until 5 March 2018.

**Skills and experience:** Simon, a British citizen, has a wealth of global experience in the metals and mining industry, having held numerous executive and non-executive positions in this sector. This enables Simon to provide valuable insight as a member of the board. Simon was an executive director of Anglo American plc, chairman and chief executive of the Base Metals Division, chairman of the Exploration Division and chairman of Tarmac. Prior to his career with Anglo American he held investment banking positions at S. G. Warburg and N M Rothschild.

**External appointments (current and recent):** Chairman of 3i Group plc since 2015, non-executive director and chairman of Tullow Oil plc since 2011 and 2012 respectively until 2017, non-executive director and senior independent director of Artec Foster Wheeler plc from 2009 and 2014 respectively until 2015, non-executive director of Sandvik AB from 2008 until 2015, and non-executive director of Newmont Mining Corporation from 2008 until 2014.

### Jean-Sébastien Jacques (C)

*Chief executive, MSc, age 46*

**Appointment:** March 2016 (board), July 2016 (chief executive).

**Skills and experience:** Jean-Sébastien, a British citizen, has strong executive leadership skills and expertise in leading significant growth projects. He is also highly respected for his thought leadership across a wide range of geopolitical and economic issues within the mining industry and more broadly.

Jean-Sébastien was appointed chief executive officer of Rio Tinto's Copper group in 2013 and chief executive of the Copper & Coal group in February 2015. He led the transformation of this group, delivering a step-change in both safety and cash performance while reshaping the portfolio to focus on a core of the highest-quality assets. He also had responsibility for two growth projects, Oyu Tolgoi in Mongolia and Resolution in the US, both of which saw significant progress during his tenure. Prior to joining Rio Tinto, Jean-Sébastien spent more than 15 years working in various roles across

Europe, South East Asia, India and the US. He covered a wide range of operational and functional positions for the aluminium, bauxite and steel industries and notably served as group director, Strategy, for Tata Steel Group from 2007 to 2011.

**External appointments (current and recent):** Chairman of the International Copper Association since late 2014.

### Chris Lynch (C)

*Chief financial officer, BCom, MBA, age 64*

**Appointment:** September 2011 (board), April 2013 (chief financial officer).

**Skills and experience:** Chris, an Australian citizen, has significant experience in the mining and metals industry, having spent over 30 years working in these fields globally. Chris also has extensive listed company experience at board level across a variety of leadership roles, providing the board with significant operational and financial expertise. He was chief executive officer of the Transurban Group, an international toll road developer and manager with interests in Australia and North America, until 2012. His career has included seven years at BHP Billiton, where he was chief financial officer and then executive director and group president – Carbon Steel Materials.

Prior to this, Chris spent 20 years with Alcoa Inc. where he was vice president and chief information officer based in Pittsburgh, and chief financial officer of Alcoa Europe in Switzerland. He was also managing director of KAAL Australia Limited, a joint venture company formed by Alcoa and Kobe Steel.

**External appointments (current and recent):** Chief executive officer of the Transurban Group Limited from 2008 until 2012. Commissioner of the Australian Football League from 2008 until 2014.

### Megan Clark AC (S, N and R)

*Independent non-executive director, BSc, PhD, age 59*

**Appointment:** November 2014. Chairman of the Sustainability Committee.

**Skills and experience:** Megan, an Australian citizen, has had an extensive career in both the private and public sector, combining expertise in the metals and mining business with high-level experience in science, research and technology. Her core industry experience and knowledge bring valuable insight and effective contributions to the board. Megan was chief executive of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) from 2009 until 2014. Prior to CSIRO, Megan held various roles with Western Mining Corporation, was a director at N M Rothschild and Sons (Australia) and was vice president, Technology, and subsequently vice president, Health, Safety, Environment, Community and Sustainability, with BHP Billiton. She holds a PhD in economic geology from Queen's University, Canada, and is a Fellow of the Australian Academy of Technological Sciences and Engineering, the Australian Institute of Mining and Metallurgy and the Australian Institute of Company Directors. In 2014, she was appointed a Companion of the Order of Australia.

**External appointments (current and recent):** Non-executive director of CSL Limited since February 2016, non-executive director of CARE Australia since 2016, member of the Prime Minister's Science, Industry and Engineering Council from 2009 to 2014.

### David Constable (N and S)

*Independent non-executive director, BSc. Engineering, age 56*

**Appointment:** February 2017.

**Skills and experience:** David, a Canadian citizen, is an experienced executive with strong corporate governance, board and leadership credentials in the engineering, construction, energy, mining and chemical sectors. He brings an international perspective to the board, having worked across the globe while based in Canada, the US, Chile, Argentina, the Netherlands, China and South Africa. David was the chief executive officer of Sasol Limited from 2011 to 2016, where he drove a comprehensive group-wide change programme, which culminated in the roll-out of the organisation's new operating model and its related structures, systems and processes.

David held various roles with Fluor Corporation from 1982 to 2011, most recently as Group president, Operations. He also served as Group president for Fluor's Power Business, heading up its activities in the global coal, gas, nuclear and renewable power generation industries. Prior



to this, David was Group president, Operations and Maintenance, focusing on Fluor's operational asset productivity improvement business across a wide range of industries.

**External appointments (current and recent):** Non-executive director of Anadarko Petroleum Corporation since 2016 and ABB Ltd since 2015, chairman of the Compensation Committee at ABB Ltd, senior advisor of Cerberus Capital Management since 2017, member of the US Business Council, member of the International Business Council until June 2016, member of Sasol Limited's Risk and Safety, Health and Environmental Committee and Capital Investment Committee until June 2016, and was also chairman of the Sasol Global Foundation.

**Ann Godbehere (A, R and N)**

*Independent non-executive director, FCPA, FCGA, age 62*

**Appointment:** February 2010 (board), June 2017 (senior independent director). Chairman of the Audit Committee.

**Skills and experience:** Ann, a Canadian and British citizen, has more than 25 years' experience in the financial services industry. She spent ten years at Swiss Re, a global reinsurer, latterly as chief financial officer from 2003 until 2007. She was interim chief financial officer and executive director of Northern Rock bank after its nationalisation. Ann is a qualified accountant and was made a fellow of the Institute of Chartered Professional Accountants in 2014. Ann's strong financial background and extensive board level experience enable her to effectively fulfil the role of Audit Committee chairman and senior independent director.

**External appointments (current and recent):** Non-executive director of UBS Group AG since 2014 and non-executive director of UBS AG since 2009, non-executive director of British American Tobacco plc from 2011 until April 2018, non-executive director and chairman of the audit committee of Prudential plc since 2007 and 2009 respectively until May 2017, non-executive director of Atrium Underwriting Group Limited from 2007 until 2014, non-executive director of Arden Holdings Ltd from 2007 until 2014.

**Simon Henry (A and N)**

*Independent non-executive director, MA, FCMA, age 56*

**Appointment:** April 2017.

**Skills and experience:** Simon, a British citizen, has significant global experience in the oil and gas industry, having spent over 30 years at Royal Dutch Shell plc, most notably as chief financial officer, a position that he held from 2009 to 2017. He was chief financial officer and executive vice president, Finance, Exploration & Production from 2004 to 2009, and prior to this he was head of Group Investor Relations from 2001 to 2004. Simon brings extensive financial expertise to the board and is a fellow of the Chartered Institute of Management Accountants (CIMA) and has a BA in Mathematics and an MA from the University of Cambridge.

**External appointments (current and recent):** Non-executive director (and a member of the Audit Committee and Risk Committee) of Lloyds Banking Group plc since June 2014, Independent director of PetroChina Company Limited since June 2017, member of the Advisory Board of the Centre for European Reform and the Advisory Panel of CIMA, member of the UK Defence Board and Chair of the Defence Audit Committee from January 2018. Member of the Main Committee of the 100 Group of UK FTSE CFOs from 2009 to 2017, chair of the European Round Table CFO Taskforce from 2011 to 2017.

**Sam Laidlaw (N and S)**

*Independent non-executive director, MA, MBA, age 62*

**Appointment:** February 2017. Chairman of the Remuneration Committee from 5 March 2018.

**Skills and experience:** Sam, a British citizen, has had a long and distinguished career in the energy industry, both in the UK and internationally. Sam brings to the board deep experience of long-cycle, high-capex and safety critical industries from his involvement in the upstream oil and gas industry for over 30 years. Sam has particular experience of health, safety and community engagement issues in the mining industry. He also brings experience of operations in developing countries that have a significant economic, environmental and social footprint. Sam was chief executive officer of Centrica plc from 2006 to 2014. His other previous roles include executive vice president of Chevron Corporation; chief executive officer of Enterprise Oil plc; and president and chief operating officer of Amerada Hess Corporation. He was also non-executive director of Hanson PLC, a member of the UK Prime Minister's Business Advisory Group and was senior director of the UK

Department of Transport. Sam is a qualified solicitor and has a Master's degree in Business Administration from INSEAD.

**External appointments (current and recent):** Non-executive director of HSBC Holdings plc from 2008 until April 2017 (including chairman of the Remuneration Committee and Nomination Committee), chairman of Neptune Energy Group Holdings Ltd, chairman of the National Centre of Universities & Business, a board member of the Oxford Said Business School and a council member of Radley College.

**Michael L'Estrange AO (N and S)**

*Independent non-executive director, BA (Sydney), MA (Oxon), age 65*

**Appointment:** September 2014.

**Skills and experience:** Michael, an Australian citizen, has long and distinguished public service experience in Australia and brings to the board valuable, global expertise in foreign policy, international relations and trade. His long standing career has enabled him to gain practical experience of the broader geostrategic, economic and societal trends which impact Rio Tinto's global operations. Michael joined the Australian Government's Department of Prime Minister and Cabinet in 1981. From 1989 to 1994, he worked in a range of policy advisory positions before he was appointed the inaugural executive director of the Menzies Research Centre in Canberra in 1995.

In 1996, he was appointed by the Prime Minister as secretary to cabinet and head of the Cabinet Policy Unit. He served in that role until 2000 when he became Australia's high commissioner to the United Kingdom. He returned to Australia as secretary of the Department of Foreign Affairs and Trade from 2005 to 2009. In 2007, he was appointed as an Officer of the Order of Australia.

**External appointments (current and recent):** Director and Deputy Chancellor of the University of Notre Dame, Australia, since 2014 and 2017 respectively, and head of college of the National Security College at the Australian National University in Canberra from 2009 until 2014, continuing as a professor until 2015. Non-executive director of Qantas Airways Limited.

**Hon. Paul Tellier (A, R and N)**

*Independent non-executive director, LLL, BLitt (Oxon), LL.D, C.C., age 78*

**Appointment:** October 2007.

**Skills and experience:** Paul, a Canadian citizen, has extensive experience in both the corporate sector and the civil service, broadening the board's diversity and enabling Paul to contribute effectively as a member of the Audit Committee and Remuneration Committee. He entered the civil service in the 1970s and was clerk of the Privy Council Office and secretary to the Cabinet of the Government of Canada from 1985 to 1992. He became president and chief executive officer of the Canadian National Railway Company from 1992 to 2002. From 2002 to 2004, he was president and chief executive officer of Bombardier Inc., the aerospace and transportation company.

**External appointments (current and recent):** Director of Groupe Harnois since January 2017, chairman of Global Container Terminals Inc. from 2007 to January 2016, member of the advisory board of General Motors of Canada since 2005, trustee of the International Accounting Standards Foundation from 2007 until 2012, co-chair of the Prime Minister of Canada's Advisory Committee on the Renewal of the Public Service from 2006 until 2014, strategic adviser to Société Générale (Canada) from 2005 until 2013, director of BCE Inc. (Bell Canada Enterprises) from 1999 until 2010, director of Bell Canada from 1996 until 2010, director of McCain Foods Limited from 1996 until 2014.

## New director appointment to take effect after the AGMs

### Moya Greene

*Independent non-executive director, BA, LL.B., age 63*

**Appointment:** The effective date of Moya's appointment will be announced separately, but she is expected to assume her role in the second half of 2018. She will first stand for election at the 2019 AGMs.

**Skills and experience:** Moya, a Canadian citizen, brings to the board a wealth of experience gained across both the private and public sectors in a number of leadership roles. She also has extensive expertise in logistics and strategic planning and complex negotiations, which will further strengthen the diverse mix of experience on the board. Moya is chief executive officer of Royal Mail plc, a position she has held since 2010. Prior to this, she was the president and chief executive officer of Canada Post Corporation from 2005 to 2010, and has also held other senior roles at Canadian companies including Bombardier Inc. and The Toronto-Dominion Bank. Moya moved into business leadership roles following a distinguished career in the Canadian civil service, culminating with her serving as Assistant Deputy Minister for Transport Canada.

**External appointments (current and recent):** Non-executive director of EasyJet plc since July 2017, member of the board of trustees for the Tate Gallery. Non-executive director of Great-West Lifeco Inc. from 2015 to 2016 and non-executive director of Tim Hortons Inc. from 2008 to 2014.

### Directors who served for part of the year

Robert Brown and Anne Lauvergeon retired from the board on 4 May 2017, having been directors since 1 April 2010 and 15 March 2014, respectively.

John Varley retired from the board on 20 June 2017, having been a director since 1 September 2011.

### Company secretaries

#### Steve Allen

*BA (Modern Languages and European Studies), Solicitor (England and Wales), age 46*

**Appointment:** January 2017.

**Skills and experience:** Steve joined Rio Tinto as Group company secretary in January 2017. He is company secretary of Rio Tinto plc and joint company secretary of Rio Tinto Limited. Prior to joining Rio Tinto, Steve was deputy general counsel at BG Group plc. He served as company secretary of BG Group from 2011 to 2016, having previously been chief counsel, Corporate, from 2008 to 2011. Before joining BG Group in 2005, Steve was a corporate lawyer for Herbert Smith LLP in London.

**External appointments (current and recent):** Member of the GC100 Executive Committee.

#### Tim Paine

*BEC, LLB, FGIA, FCIS, age 54*

**Appointment:** January 2013.

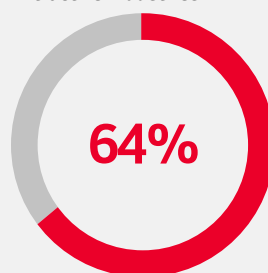
**Skills and experience:** Tim joined the Group in 2012 and became joint company secretary of Rio Tinto Limited in 2013. He has over 25 years' experience in corporate counsel and company secretary roles, including as general counsel and company secretary at Mayne Group, Symbion Health and Skilled Group. Prior to that, Tim spent 12 years at ANZ Bank, including a period as acting general counsel and company secretary. Tim commenced his career as a solicitor in private practice and has also managed his own consulting company.

**External appointments (current and recent):** Company secretary for the Foundation for Australia-Japan Studies and a member of the Governance Institute of Australia's Legislation Review Committee.

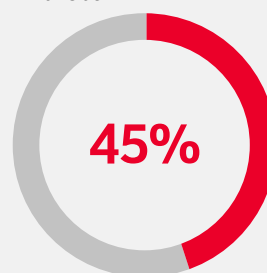
## Skills and experience

The diagrams below illustrate the mix of skills and sectoral experience of the directors

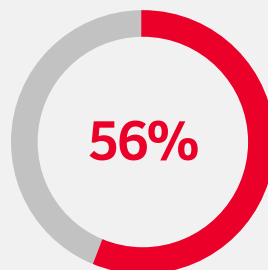
### Extractive industries



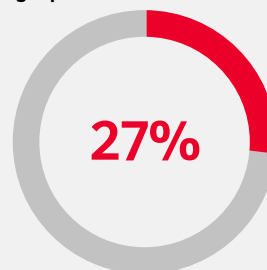
### Financial



### Health, safety, security environment and communities



### Government relations / geopolitical



## International experience



The table below shows the professional experience of the board in a number of our key jurisdictions

Country	Number of directors
Australia	11
Canada	3
France	1
South Africa	2
UK	11
USA	3



# Executive Committee

## Bold Baatar

*MBA (Business Administration), age 44*

Bold was appointed chief executive, Energy & Minerals in November 2016. He was previously a member of the Rio Tinto Iron Ore Executive Committee, as managing director, Iron Ore Sales and Marketing and head of Rio Tinto's Marine business. Bold joined Rio Tinto in May 2013 as president of Copper International Operations. Prior to joining the Group, he held executive positions with a diversified investment management business and a local gold mining company in Mongolia. Until 2009, Bold spent 11 years as an investment banker with JP Morgan in New York and London.

He was the chairman of the Mongolian Stock Exchange from 2010 to 2012, chairman of the Mongolian Mining Association from 2012 to 2014 and served as a non-executive director on the board of Southgobi Resources Ltd from 2013 to 2014.

## Alfredo Barrios

*PhD (Energy Economics), BSc (Physics), MSc (Management), age 52*

Alfredo was appointed chief executive, Aluminium, in 2014. He joined Rio Tinto after a wide-ranging career in leadership positions with BP plc. His most recent role was executive director and executive vice president, Downstream, at TNK-BP, based in Moscow, where he was directly responsible for the refining, trading, supply, logistics, and marketing businesses.

Alfredo has held board positions in a number of companies, including CLH (Spain) from 2007 to 2011 where he was chairman of the Audit Committee, and OAO NGK Slavneft (Russia) from 2012 until 2013. He was president of the Spanish National Oil Industry Association (AOP) from 2009 until 2011.

## Joanne Farrell

*BSc (Psychology and Economics), Graduate Diploma (Management), age 60*

Joanne was appointed Group executive, Health, Safety & Environment in July 2016. She has more than 35 years' experience in the mining sector, and is also responsible for leading Rio Tinto's interaction with key stakeholders in Australia as managing director, Australia. Joanne has been with Rio Tinto for 30 years and brings a wealth of experience from roles across Organisational Resources, Government Affairs and Communities. She worked for BHP before joining Rio Tinto and prior to that was an economist in regional development with the Government of Western Australia.

Joanne is a director of the Perth Institute of Contemporary Art, a director of the Business Council and a member of its Economics and Competition and Citizenship and Governance Committee, a specialist adviser to the Male Champions of Change and a member of Chief Executive Women.

## Vera Kirikova

*MA (Inter-cultural Communications), MBA, age 44*

Vera was appointed Human Resources Group executive in January 2017. She joined Rio Tinto in 2015 as vice president, Human Resources, for the then Diamonds & Minerals product group and was appointed head of Human Resources for the Group in July 2016. She has accountability for the Group's Human Resources function, including strategy and execution. Prior to joining Rio Tinto, Vera was employed by Schlumberger, where she worked for over 20 years in human resources, operations, marketing and M&A positions in the US, Canada, UK, Russia and France.

## Stephen McIntosh

*MSc (Geology), age 54*

Stephen was appointed Group executive, Growth & Innovation, in July 2016. He has close to 30 years of service with the Group after joining the business as an exploration geologist. Stephen has deep experience across a wide range of commodities and geographies, having worked on projects in more than 45 countries. In his previous role as Rio Tinto's global head of Exploration, he led teams operating in 20 countries and drove a step-change in safety improvement while delivering industry-leading discovery performance.

Stephen has been actively involved in the management, exploration, evaluation or discovery of a number of the Group's exploration discoveries.

He is a fellow of the Australian Institute of Mining and Metallurgy, a fellow of the Society of Economic Geology, a member of the Australian Society of Exploration Geophysics and a graduate of the Australian Institute of Company Directors.

## Simone Niven

*BA (Comms), age 47*

Simone was appointed Corporate Relations Group executive in January 2017. She joined Rio Tinto in 2008 and has accountability for the Group's reputation and corporate relations areas – external affairs, communities, media, reputation and employee communications. Simone also has responsibility for the leadership of the country and regional office teams, including Africa, Australia, Canada, China, the European Union, India, Japan, the UK and the US. Prior to joining Rio Tinto, she spent over 15 years working in senior roles at some of the world's largest companies across many continents, including Vodafone, the United Technologies group, Smiths Group plc and Smith & Nephew plc in a range of corporate relations fields.

## Philip Richards

*MA (Jurisprudence), age 62*

Philip was appointed Group executive, Group General Counsel, in March 2017. Previously he was with Freshfields Bruckhaus Deringer, where he was a senior partner specialising in corporate law. Philip has extensive experience in governance, corporate advisory and transactional work. At Freshfields, he established and led the financial institutions group for many years, advising on a number of significant transactions in that and other sectors. Philip also spent four years as managing partner of Freshfields' Italian offices in Milan and Rome.

Philip read jurisprudence at Lincoln College, Oxford, before joining Freshfields in 1978. He became a partner in 1987.

## Chris Salisbury

*BEng (Metallurgical), FAICD, age 51*

Chris was appointed chief executive, Iron Ore in July 2016. Prior to this, he was appointed acting chief executive of the Copper & Coal group in March 2016, overseeing its operations and projects globally. Chris was previously chief operating officer, Coal, with accountability for strategy, project development, operations and logistics for Rio Tinto's coal mines in New South Wales, Queensland and South Africa. Chris joined Rio Tinto in 1988, with experience spanning bauxite, alumina refining, aluminium smelting, coal, port logistics and uranium.

He has served as executive and non-executive director of Energy Resources of Australia Ltd, chairman of Queensland Alumina Limited, president of the Namibian Uranium Stewardship Committee, and external chair for both the Northern Territory Minerals Council and the Australian Uranium Association.

## Arnaud Soirat

*PhD (Theoretical Physical Chemistry), age 53*

Arnaud was appointed chief executive, Copper & Diamonds in July 2016. He has 25 years' experience in the metals and mining industry and a wealth of operational and commercial experience gained in various roles, working across five continents.

Arnaud was previously Aluminium Primary Metal president and chief executive officer, responsible for managing and improving operations and businesses globally, with a particular focus on lean manufacturing and operational excellence. He joined Rio Tinto in 2010 as chief operating officer, Primary Metal, Europe, Middle-East & Africa. Before joining Rio Tinto, Arnaud spent 18 years in various technical and operational positions with Alcoa and Pechiney in both Australia and Europe.

## Simon Trott

*BSc (Resource Economics), age 43*

Simon was appointed chief commercial officer in January 2018. His role is to oversee how Rio Tinto derives maximum value from its products and continues to strengthen customer relationships. Simon is accountable for the global Sales & Marketing, Marine & Logistics, and Procurement organisations, supported by Market Analysis, among other functions.

Simon has been with Rio Tinto for almost 18 years and has held a wide variety of commercial, operating and business development roles across a number of commodities. In his previous role as Salt, Uranium & Borates managing director, Simon oversaw operations and projects in Australia, Africa, Europe and the US.

He has a graduate diploma in Finance & Investment (FINSIA) and is a graduate of the Australian Institute of Company Directors.

## Executive director members

Jean-Sébastien Jacques and Chris Lynch were also members of the Executive Committee in 2017 through their positions as chief executive and chief financial officer respectively. Their biographies are shown on page 52.

# Leadership

## Role of the board

Rio Tinto plc and Rio Tinto Limited have a common board of directors. The directors are collectively responsible for the stewardship and long-term success of the Group. Through the independent oversight of management, they are accountable to shareholders for the performance of the business. In performing this duty, the board recognises its wider responsibility to the interests of employees, customers, suppliers and other stakeholders. The board must also consider the impacts of the Group's operations on communities and the environment, as well as the desirability of maintaining a reputation for high standards of business conduct. The principal role of the board is to provide leadership within a framework of prudent and effective controls that enables risk to be assessed and managed.

A formal schedule of matters reserved for the board has been established by the board. This covers areas such as: setting the Group's purpose and strategic vision; monitoring the performance of delivery of the approved

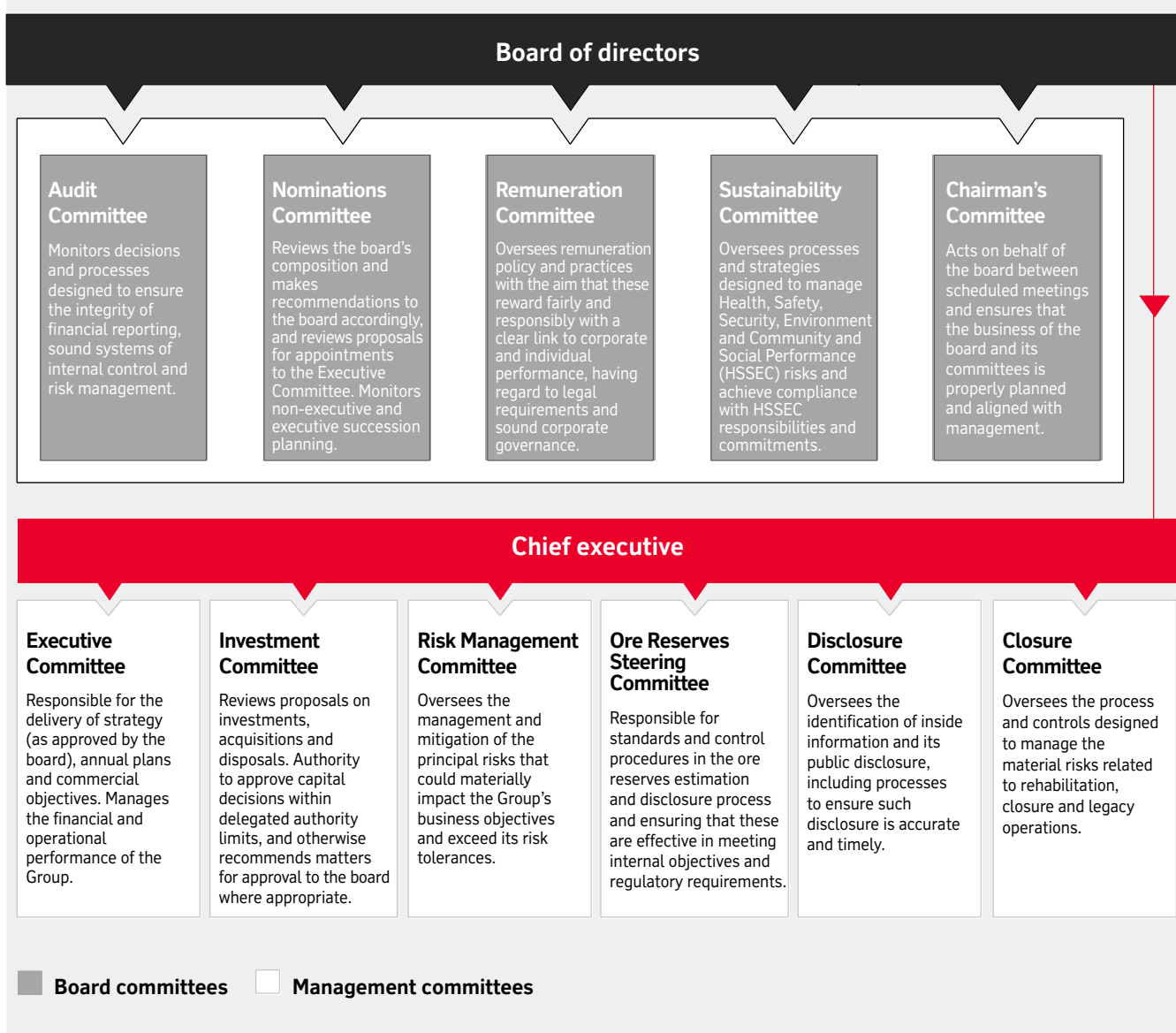
strategy; approving major investments, acquisitions and divestments; the oversight of risk and the setting of the Group's risk appetite; and reviewing the Group's governance framework. A copy of the matters reserved for the board is available on Rio Tinto's website.

The board delegates some of its responsibilities to the board committees, and details of how the committees have fulfilled these responsibilities on behalf of the board are included within this report. Copies of the committee terms of reference are available on the website. The board and its committees have rolling annual agendas with items for discussion. The agendas for board and committee meetings are prepared by the respective chairs, with the assistance of the Group company secretary.

Responsibility for day-to-day management of the business is delegated to the chief executive and through him to other members of the Executive Committee under a Group delegation of authority framework. A number of management committees support the chief executive in the performance of his duties.

The structure and role of the board and management committees are set out below. In addition, a dedicated sub-committee of the board has been established to consider issues regarding the Group's ongoing investigations.

## Governance structure



## Key roles and responsibilities

The board currently comprises a non-executive chairman, two executive directors and eight independent non-executive directors. The board is advised and supported by the Group company secretary. Their key roles and responsibilities are set out below:

Chairman	Chief executive	Chief financial officer
<ul style="list-style-type: none"> <li>Responsible for leadership and the overall effectiveness of the board.</li> <li>Sets the board's agenda.</li> <li>Promotes a culture of openness and debate.</li> <li>Ensures the board receives accurate, clear and timely information.</li> <li>Ensures effective implementation of the board's decisions and strategy.</li> <li>Ensures effective communication by the Group with its shareholders.</li> <li>Chairs the Nominations Committee and leads the process for board appointments.</li> <li>Leads the annual performance evaluation process for the board, its committees and individual directors.</li> </ul>	<ul style="list-style-type: none"> <li>Leads the executive team in the day-to-day management of the Group within the authority delegated by the board.</li> <li>Executes the Group strategy, as approved by the board.</li> <li>Develops and proposes Group strategy, annual plans and commercial objectives to the board.</li> <li>Advises on executive and senior management succession planning and development, and recommends candidates to the board.</li> <li>Manages the Group's risk profile and ensures that appropriate internal controls are in place.</li> <li>Sets an example and communicates the expectations of the board on culture, values and behaviour to the Group's employees.</li> </ul>	<ul style="list-style-type: none"> <li>Responsible for financial planning, reporting and analysis.</li> <li>Presents and reports historical and forecast financial information.</li> <li>Sets the target capital structure for the Group and oversees its implementation.</li> <li>Ensures adherence to a robust capital allocation decision framework, including the Evaluation and Investment Committee processes.</li> <li>Responsible for corporate development activity.</li> <li>Sets and implements Group tax strategy.</li> <li>Manages investor relations.</li> </ul>
Senior independent director	Non-executive directors	Group company secretary
<ul style="list-style-type: none"> <li>Provides a sounding board for the chairman.</li> <li>Serves as an intermediary for other directors when necessary.</li> <li>Available to shareholders if they have concerns which they have been unable to resolve through the normal channels.</li> <li>Liaises with major shareholders to ensure that their views are being considered.</li> <li>Leads the process for the appointment of a new chairman.</li> <li>Leads the board in evaluating the chairman's performance.</li> </ul>	<ul style="list-style-type: none"> <li>Constructively challenge and help develop proposals on strategy.</li> <li>Scrutinise the performance of management and monitor the reporting of performance.</li> <li>Bring independent judgment to the board's deliberations, taking into account the views of shareholders and other stakeholders.</li> <li>Determine appropriate levels of remuneration of executive directors.</li> <li>Uphold high standards of integrity and probity.</li> </ul>	<ul style="list-style-type: none"> <li>Advises the board, through the chairman, on all governance matters.</li> <li>Supports the chairman in designing the board agenda.</li> <li>Ensures good information flows and that members of the board are comfortable with the amount, quality and timeliness of information they receive.</li> <li>Facilitates directors' training and induction.</li> <li>Develops and supports the annual performance evaluation process of the board.</li> </ul>

## Directors' attendance at board and committee meetings during 2017

	Board <sup>(a) (b)</sup>	Audit Committee <sup>(a)</sup>	Nominations Committee <sup>(a)</sup>	Remuneration Committee <sup>(a)</sup>	Sustainability Committee <sup>(a)</sup>	Chairman's Committee <sup>(a)</sup>	Annual general meetings <sup>(a)</sup>
Jan du Plessis	9/9	—	7/7	9/9	—	16/16	2/2
Jean-Sébastien Jacques	9/9	—	—	—	—	16/16	2/2
Chris Lynch	9/9	—	—	—	—	16/16	2/2
Robert Brown <sup>(c)</sup>	4/4	2/2	4/4	—	—	—	1/2
Megan Clark	9/9	—	7/7	9/9	5/5	—	2/2
David Constable <sup>(d)</sup>	8/8	—	6/6	—	3/3	—	2/2
Ann Godbehere <sup>(e)</sup>	9/9	6/6	7/7	4/4	—	—	1/2
Simon Henry <sup>(f)</sup>	6/6	4/4	3/4	—	—	—	2/2
Sam Laidlaw <sup>(d)</sup>	8/8	—	6/6	—	3/3	—	2/2
Anne Lauvergeon <sup>(c)</sup>	3/4	—	3/4	—	2/3	—	1/2
Michael L'Estrange	9/9	—	7/7	—	5/5	—	2/2
Paul Tellier	9/9	6/6	7/7	9/9	—	—	2/2
Simon Thompson <sup>(g)</sup>	9/9	3/3	7/7	9/9	3/3	—	2/2
John Varley <sup>(h)</sup>	5/5	3/3	5/5	5/5	—	—	2/2

(a) The number of meetings attended/maximum number the director could have attended.

(b) A number of additional ad hoc meetings of the board were held in 2017, including in relation to (i) the explosion at Rio Tinto Fer et Titane Site in Sorel-Tracy (Canada); (ii) the proposed sale of Coal & Allied Industries Limited to Yancoal Australia; and (iii) the proposed chairman appointment.

(c) Stood down from the board on 4 May 2017.

(d) Appointed to the board on 10 February 2017 and appointed to the Sustainability Committee on 1 April 2017.





(e) Appointed to the Remuneration Committee on 26 June 2017. Ann delegated responsibility at the Rio Tinto Limited AGM to John Varley, as an Audit Committee member, who was available to answer shareholder questions at the meeting.

(f) Appointed to the board and the Audit Committee on 1 April 2017.

(g) Stood down from the Sustainability Committee and appointed to the Audit Committee on 28 July 2017.

(h) Stood down from the board on 20 June 2017.

## Board activity in 2017

Subject	Link to strategic objectives
<b>Portfolio</b> <ul style="list-style-type: none"> <li>– Approved US\$500 million and US\$1 billion on-market share buy-back programmes of Rio Tinto plc shares.</li> <li>– Reviewed sale options for Coal &amp; Allied Industries Limited and agreed to recommend the sale to Yancoal Australia Limited to the Group's shareholders for a total consideration of US\$2.69 billion.</li> <li>– Upon receipt of those sale proceeds, approved an additional US\$2.5 billion to its ongoing share buy-back programmes through a combination of a US\$1.9 billion Rio Tinto plc on-market buy-back and an A\$750 million Rio Tinto Limited off-market buy-back tender, bringing the total share buy-backs announced during 2017 to US\$4 billion.</li> <li>– Reviewed the terms of a binding offer from Liberty House to acquire the Group's Dunkerque smelter in France for US\$500 million, subject to final adjustments and consultation processes.</li> <li>– Approved the purchase of up to US\$2.5 billion of outstanding bonds.</li> <li>– Reviewed and confirmed the Group's strategy at the annual two-day strategy workshop with the Executive Committee (see pages 8 to 11).</li> </ul>	
<b>Performance</b> <ul style="list-style-type: none"> <li>– Appraised the impact of investment in AutoHaul™ to date and approved additional funding to complete the project.</li> <li>– Reviewed updates of the Group's major capital projects, including Grasberg and Resolution, as well as the Group's Exploration portfolio.</li> <li>– Regularly reviewed financial, operational and safety performance against KPIs.</li> <li>– Approved the Annual Plan for 2017 and endorsed the Group's five-year business plan for the period 2018 to 2022.</li> <li>– Approved the 2016 full year results and the 2017 half year results announcements.</li> <li>– Approved the 2016 Annual report and Form 20-F.</li> <li>– Approved the 2016 final dividend and declared the 2017 interim dividend.</li> </ul>	
<b>People and partners</b> <ul style="list-style-type: none"> <li>– Reviewed the causes of and learnings from major safety events, including the circumstances around the fatality at the Rio Tinto Kennecott smelter in the US.</li> <li>– Reviewed the roll-out of the critical risk management fatality elimination programme across all Rio Tinto managed sites and reviewed safety performance of non-managed operations.</li> <li>– Approved an updated Group global code of conduct, <i>The way we work</i>, together with an updated purpose and values designed to improve employee engagement and build a high performance culture across the Group. Further details on <i>The way we work</i> can be found on page 69.</li> <li>– Led by the senior independent director, approved the appointment of Simon Thompson as the new chairman of the Group with effect from 5 March 2018.</li> <li>– Approved the appointment of three new non-executive directors, David Constable, Simon Henry and Sam Laidlaw.</li> <li>– Reviewed the results of the March and October 2017 employee engagement surveys and the actions contemplated by management in response.</li> </ul>	
<b>Governance</b> <ul style="list-style-type: none"> <li>– Reviewed updates from the Investigations Committee on the ongoing investigations into historical issues in Mozambique and Guinea and agreed actions to be taken.</li> <li>– Reviewed actions taken by the Group in response to the Modern Slavery Act and approved the annual statement.</li> <li>– Reviewed investor feedback after the Group's 2016 full year and 2017 half year results.</li> <li>– Reviewed material cyber security risks for the Group and external factors and threats driving the Group's cyber security strategy.</li> <li>– Discussed the board performance evaluation results and agreed practices and priorities for the board for the coming year.</li> <li>– Considered corporate governance and regulatory developments for the UK, Australia and the US.</li> <li>– Approved updated terms of reference for the board committees.</li> <li>– Reviewed the Group's tax strategy.</li> </ul>	

### Site visits

The board regularly visits sites to update their knowledge of the Group's business and operations, to demonstrate visible leadership, and to have the opportunity to meet employees and other key stakeholders.

#### Saguenay, Canada June 2017

The board visited a number of sites in the Saguenay–Lac-Saint-Jean region where they received operational and technical briefings, covering risks and controls around major accident events, as well as business, sales and marketing updates. The board met with community leaders, employees and the Canadian Minister of International Trade, discussing trade and commerce in North America and internationally.

#### Singapore Commercial Centre September 2017

The board visited the Group's commercial centre in Singapore to see first-hand how the Group is building marketing and commercial capability across all product groups with the aim of maximising value from mine to market. The board also met with the Singapore Minister for Trade and

Industry and discussed economic and political policy and reform, as well as foreign and social investment in Singapore.

#### Pilbara region, Australia November 2017

The visit to the Group's iron ore operations in the Pilbara region enabled the board to review the operations and strategy of recent significant investments such as the Silvergrass mine and the AutoHaul™ rail project. The board also visited the Operations Centre in Perth, from where automated trucks and trains will be controlled and production across the region is being optimised in response to customer demand. The visit also provided an opportunity to meet the Premier of Western Australia and several members of his Cabinet to discuss the Group's long-term commitment to investment in the state and to building closer ties with the local and Indigenous communities.



# Effectiveness

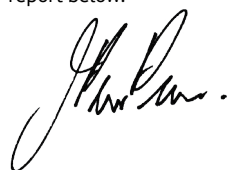
## Nominations Committee report

### Dear shareholders,

The primary focus of the Committee during 2017 has been succession planning at board level. This focus has been divided between shorter-term recommendations to support the requirements of the board and its committees, and longer-term succession planning for non-executive roles.

The Committee also spent time on succession planning at the Executive Committee level and considered appointment and succession plans for certain roles, such as those of the chief financial officer (CFO) and chief commercial officer (CCO).

The remainder of our activities during the year are summarised in the report below.



**Jan du Plessis**  
Nominations Committee chairman

### Membership and key responsibilities

The Committee comprises all of the non-executive directors and is responsible, on behalf of the board, for regularly assessing the balance of executive and non-executive directors, and the composition of the board in terms of skills, experience, diversity and capacity required to oversee the delivery of Rio Tinto's strategy.

The Committee monitors the nature and scope of external commitments of existing and potential directors in relation to the independence provisions set out in the UK and Australian corporate governance regimes, requirements in relation to conflicts of interest, as set out in the UK Companies Act and Australian Corporations Act, and regulation and best practice in relation to "over-boarding". On an annual basis, the Committee considers the re-election of directors prior to the board's recommendation to shareholders.

On behalf of the board, the Committee also reviews proposals for appointments to the Executive Committee and monitors executive succession planning.

The Committee's terms of reference set out its main responsibilities, and are available to view on the Rio Tinto website.

### Approach to recruitment

The Committee develops, and agrees in advance, the desired profiles of potential candidates for board membership. It oversees the recruitment process, ensuring it is formal and rigorous, including constructing shortlists, comprising candidates from diverse backgrounds, and conducting appropriate background and reference checks. Following a final review of short-listed candidates, the Committee makes recommendations to the board on the appointment of new board members. The Committee engaged Egon Zehnder International (EZI) as an external recruitment consultant to conduct searches and executive evaluations. EZI also conducts searches for senior management positions within the Group and are signatories to the Voluntary Code of Conduct on gender diversity and best practice.

### Diversity

Rio Tinto has a Group-wide policy, which the board fully endorses, on how diversity in all its forms can be protected and promoted when recruiting employees. Diversity in board composition is an important driver of a board's effectiveness, as it helps promote a breadth of perspective among

directors. The same recruitment principles are therefore applied in relation to board-level positions, whether executive or non-executive.

The board sets pre-defined and objective criteria for candidate selection at the outset of all recruitment exercises. The board values diversity in its broadest sense when considering appointments to the board. It seeks to identify and secure the best candidate available in the market against those criteria. It has not, as yet, set any measurable objectives for the outcomes of its board diversity policy, but is cognisant that the ideal blend of diverse backgrounds will remain a priority in 2018 and beyond. Further information on our Diversity and inclusion policy, together with data on the proportion of women employees and board members as at 31 December 2017 is available on page 36, along with the progress made in 2017 against the measurable objectives for workplace diversity as set by the board.

### Activities in 2017

The Committee met seven times in 2017 and attendance at these meetings is shown in the table on page 57. During the year, the Committee invited a number of additional attendees to its meetings, including the chief executive and the Group executive, Human Resources, to provide advice and enable the Committee to make informed decisions.

The Committee led the process which resulted in the addition of David Constable, Sam Laidlaw and Simon Henry as non-executive directors in the first half of 2017 and Moya Greene (announced in February 2018). Following their appointment as non-executive directors, the Committee recommended to the board that Simon Henry join the Audit Committee, and David Constable and Sam Laidlaw join the Sustainability Committee. A holistic review of the committee membership, taking into account the planned retirements and appointments of board members in 2018, will take place later this year.

The process for the selection and appointment of a new chairman was handled by a special committee under the leadership of the senior independent director. Members of the Nominations Committee participated in that special committee, enabling it to benefit from the board composition analysis and succession planning activities already undertaken by the Nominations Committee.

During the year, a review was conducted of members of the Executive Committee. To reinforce the Group's focus on driving value across the business from mine to market, the chief executive proposed the creation of a new role, a CCO based in Singapore. The Committee considered and reviewed the proposed appointment and selection process for the CCO (Simon Trott) and the new Group executive, Group General Counsel, (Philip Richards), and approved other succession planning changes that the chief executive was seeking to implement.

### Performance review

As part of its annual evaluation exercise, the Committee set various priorities for its work in 2018, which include:

- Focusing in detail on a succession plan for the next CFO;
- Spending more time with the chief executive on succession plans for the Executive Committee;
- While the chief executive is still relatively new in role, initial planning for his eventual succession and defining succession planning for that role in an emergency; and
- Ensuring that diversity and inclusion are addressed as a priority.

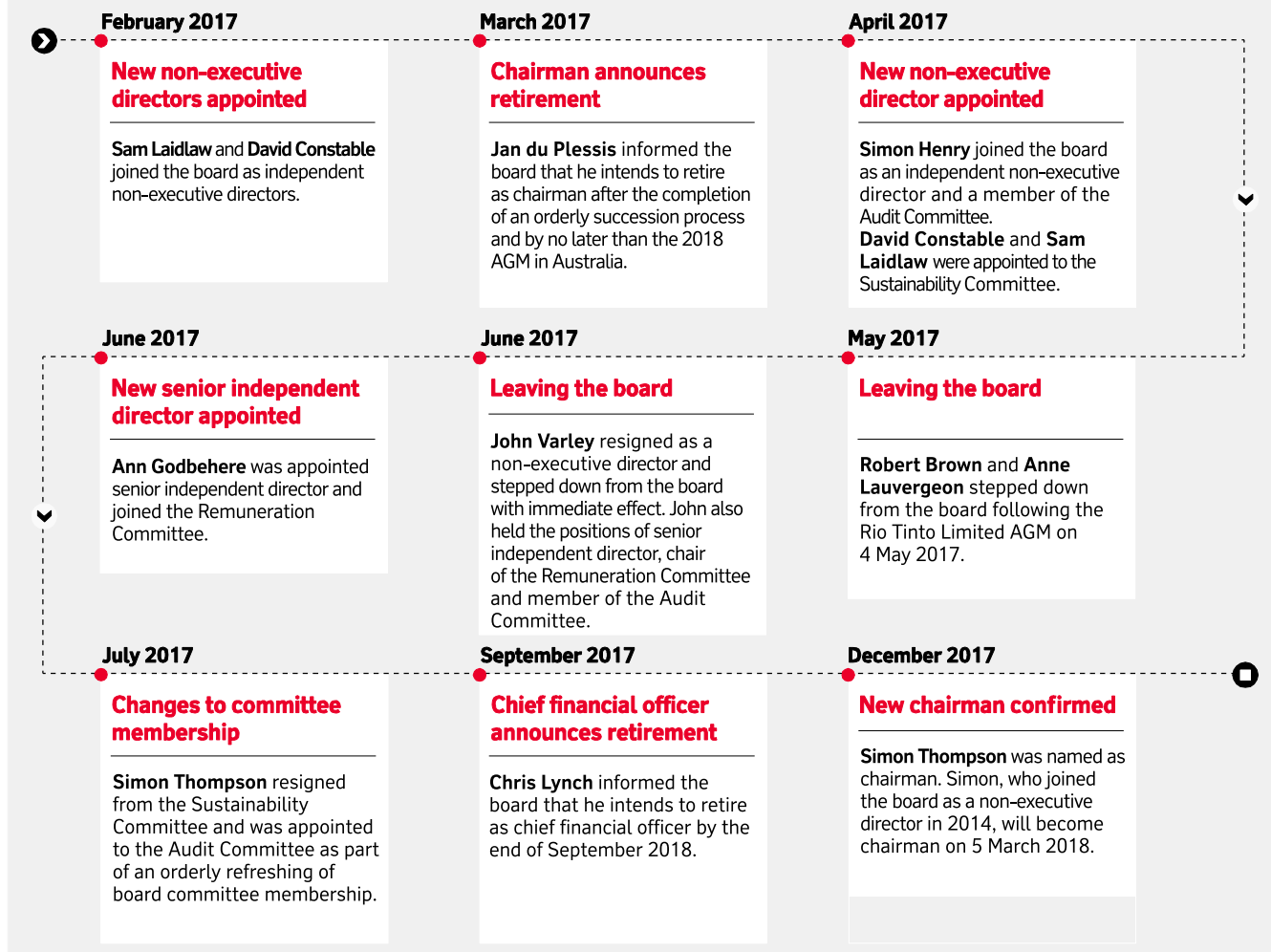
### Overall board and committee composition

The Committee confirms there are no matters in relation to directors' independence or conflicts of interest that are required to be disclosed in this report. While a number of the non-executive directors have appointments to the boards of other listed or traded companies, the Committee is satisfied that each director has sufficient time to devote to their role and is not "over-boarded".

Building on its previous work, the Committee agreed that the priorities for board succession in 2018 are to: (i) identify an executive director to succeed Chris Lynch as CFO; (ii) continue the refreshment and broadening of the membership of the Audit Committee; and (iii) consider the gender, ethnic and geographical diversity of the board.



## Board changes 2017



## Chairman succession planning

The process to appoint the new chairman was initially led by Rio Tinto senior independent director, John Varley and, subsequently, by Ann Godbehere, with the support of external consultants, Egon Zehnder International.

The board established a special committee of selected non-executive directors, chaired by the senior independent director, to assist the board by managing the succession planning process. In this regard, the special committee was authorised to act in place of the Nominations Committee. The special committee gave regular briefings to the full board on its progress and consulted the chief executive throughout the process.

The committee considered the specific business experience and leadership qualities that they were looking for in a new chairman, which included:

- **Board experience:** Has served on the board of a major listed company as a chairman or non-executive director and who is familiar with, and sensitive to, the chairman role in the UK Corporate Governance context or equivalent.
- **Business and sector experience:** Has led large, complex multinational businesses, preferably ones that are capital intensive, long cycle and safety focused. Operational experience, including managing physical risk. Able to build relationships with stakeholders, particularly in Australia, Asia and Canada. Strong track record with institutional shareholders.

- **Leadership attributes:** Will uphold the ethics, values and culture of Rio Tinto and ensure that the inclusive and cohesive culture of the board endures. Possesses the character, confidence, independence and emotional intelligence to ensure authority with the board and the Executive Committee. Provides support and advice to the chief executive.

Interviews of shortlisted candidates were held by the special committee and other board members. At the end of the process, the full board (other than Simon Thompson) unanimously approved the appointment of Simon Thompson as chairman with effect from 5 March 2018.

### What Simon brings to the role:

- **Board experience:** Simon has chaired two FTSE companies: 3i and Tullow Oil. His experience as a non-executive director includes serving on the boards of AngloGold Ashanti, Rusal and Newmont Mining Corporation.
- **Business and sector experience:** Simon has over 20 years' experience working globally in the mining and metals industry. He held a number of senior positions at Anglo American group, including executive director of Anglo American plc and chief executive of the Base Metals Division.
- **Leadership attributes:** Simon has worked with many of the leading international NGOs operating in the natural resources area as a result of his work on tax transparency while chairman of Tullow Oil and his membership of the IFC Advisory Panel on Business and Sustainability. He is vice president of the Institute of Business Ethics, which promotes high standards of integrity and corporate governance in business.

## Induction and training

On joining Rio Tinto, all non-executive directors receive a full, formal induction programme, delivered over a number of months, that is tailored to their specific requirements and takes into account their prospective committee responsibilities. The aim is to provide a deep understanding of Rio Tinto's business, operations and organisation, as well as the central functions and governance environment. In 2017, tailored programmes were provided to Simon Henry, a non-executive director and Audit Committee member, and Sam Laidlaw and David Constable, each a non-executive director and Sustainability Committee member. The programme included detailed briefings with key senior product groups and functional management.

All directors are expected to commit to continuing their development during their tenure, and this is facilitated by: (i) a combination of site visits; (ii) internal business and operational briefings provided in or around scheduled board and committee meetings; (iii) updates from Group functions, such as investor relations, tax, treasury, policy and corporate affairs and human resources; and (iv) external training programmes. In addition, the Group company secretary provides regular updates on corporate governance developments in the UK, Australia and the US.

In 2018, the Group company secretary will join the chairman in meeting with each non-executive director to discuss their work with the board and to agree individual development goals and training programmes.

## Induction plan

During my first year at Rio Tinto, I have received a full and tailored induction programme to the Group. In this period, I met with members of the Executive Committee and other key functional management.

As a member of the Sustainability Committee, I received detailed briefings from relevant members of the Executive Committee on health, safety and environment priorities; how the Group's partner-to-operate strategy informs our engagement with communities, suppliers and customers; and the operational environment at certain of our key assets and businesses.

The site visits to the Saguenay and the Pilbara regions also provided an opportunity to gain a deeper understanding of some of the Group's largest operations and a heightened awareness of the real risk of major accident events and what controls are needed to be in place to prevent them.

Prior to joining the Group, I was also provided with a suite of online reference materials, including recent financial and strategic documents and board papers, analyst presentations and risk and controls reports, which enabled me to gain a greater understanding of Rio Tinto's business and the activities of the board.

**David Constable**  
Non-executive director and member of the Sustainability Committee

## Board skills, experience and diversity

In leading a large global mining and metals company, the board aims to evolve its membership by seeking non-executive directors with diverse and complementary skills and experience. The board recognises that the evolution of the mix of skills and diversity (gender and nationality) is a long-term process and it weighs the various factors relevant to board balance and diversity when vacancies arise. The key collective skills and experience relevant for the board, as determined by the board on the recommendation of the Nominations Committee, are set out below.

<b>Capital projects</b>	Experience working in an industry with projects involving large-scale capital outlays and long-term investment horizons.
<b>Executive leadership</b>	Sustainable success in business at a senior executive level.
<b>Financial</b>	Proficiency in financial accounting and reporting, corporate finance and internal financial controls, corporate funding, and the associated risks.
<b>Global</b>	Experience in multiple global locations, exposed to a range of political, cultural, regulatory and business environments.
<b>Governance</b>	Commitment to the highest standard of governance, including experience with a major organisation that demonstrates rigorous governance standards.
<b>Government relations/geopolitical</b>	Interaction with government and regulators and involvement in public policy decisions.
<b>Health, safety and environment</b>	Familiarity with issues associated with workplace health and safety, environment and social responsibility, and communities.
<b>Marketing</b>	Senior executive experience in marketing, and development of product and/or customer management strategies.
<b>Mining</b>	Senior executive experience in a large mining organisation involved in the discovery, acquisition, development and marketing of natural resources.
<b>Remuneration</b>	Understanding of the link between strategy, performance and remuneration outcomes.
<b>Risk management</b>	Experience in developing an asset or business portfolio over the long term that remains resilient to systemic risk, and establishing risk management frameworks, setting risk appetite and overseeing organisational risk culture.
<b>Strategy</b>	Proven ability in developing and implementing successful strategies, including appropriately probing and challenging management on the delivery of agreed strategic objectives.
<b>Technology</b>	A strong understanding of technology and innovation, and the development and implementation of initiatives to enhance production.

## Performance evaluation

A formal and rigorous annual review of the performance of the board, its committees, the chairman and individual directors is carried out, with the results used to drive continuous development of individual directors and improvement in the effectiveness of the board.

In 2017, the board engaged Lintstock to undertake an externally facilitated evaluation, which covered the following topics: board composition, expertise and dynamics; management of meetings and board support; strategic oversight; risk management; personal development; and priorities for change. Lintstock is a specialist corporate advisory firm with no other connection to Rio Tinto.

The results of the board and committee evaluations were discussed by the board and each respective committee and a series of action points were agreed.

The chairman is responsible for the assessment of each individual non-executive director's performance and contribution. In addition to the review by Lintstock, the chairman met with each non-executive director to review their performance and training needs.

The non-executive directors, led by the senior independent director, are responsible for the performance evaluation of the chairman. Lintstock provided a report to the senior independent director who, in turn, met with the chairman to provide feedback based on the report and input from individual directors.

The performance of Executive Committee members, including executive directors, is continually evaluated as part of the Group's performance evaluation cycle. Further details are set out in the Remuneration report on pages 84 to 87.

A summary of key areas of focus for the coming year is highlighted below:

2016 topic	2017 progress	Further action
<b>Board composition</b>	The rating of the composition of the board was positive overall. The new appointments were commented on favourably having achieved an improved balance of financial and operational experience.	Work continues to enhance board diversity, in terms of gender, ethnicity, geographical representation and balance of skills and experience. Moya Greene's appointment to the board was announced on 15 February 2018.
<b>Strategic oversight</b>	The involvement of the board in the formulation of strategy was rated highly, and the board's oversight of the implementation of strategy was positively rated.	Strategic themes will be reviewed by the board more regularly on an ongoing basis, instead of focusing on strategy at the annual two-day strategy offsite.
<b>Risk management</b>	While positive overall, the board's oversight of the Group's principal risks could be enhanced by a more regular and deeper engagement, and suggestions were made for improvement in this area.	While risk is addressed effectively at committee level, more time will be spent by the board defining more precisely the board's risk appetite in relation to key financial and operational areas. The board will also undertake regular deep dives on particular risk themes.
<b>Stakeholders</b>	The rating of the board's understanding of major investors was positive overall. However, it was acknowledged that more focus could be placed in relation to customers and employees.	The board will seek to establish mechanisms in 2018 to gather the views of the workforce and report on how they were taken into account in decision-making. Focus will be given to the Commercial organisation to gain a better understanding of customers and suppliers.

## Independence

It is important that each non-executive director brings an independent perspective to the board's deliberations. On behalf of the board, the Nominations Committee assesses the independence of each non-executive director against an independence framework combining the requirements of the Code, the ASX Principles and NYSE Standards.

The board is satisfied that all of its non-executive directors are independent in character and judgment and are free from any relationships (material or otherwise) or circumstances that could create a conflict of interest. Although Paul Tellier has served as a non-executive director for more than nine years, the board does not believe his independence has been compromised by this tenure. Paul Tellier will not be seeking re-election at the 2018 AGMs.

A particularly rigorous independence review was conducted for Ann Godbehere, as she has served on the board for more than six years. This review concluded that she was free from any conflicts of interest, continued to ask searching and pertinent questions on a wide range of topics and continued to bring her extensive experience to bear in board deliberations, which was supported by the board evaluation process. The Nominations Committee believes that Ann continues to demonstrate independence and has therefore recommended that she stands for re-election at the 2018 AGMs.

Jan du Plessis was considered independent at the time of his appointment as chairman under the Code and, in the board's view, he continues to satisfy the tests for independence under the ASX Principles and NYSE Standards. In the board's view, Simon Thompson will be considered independent on appointment as chairman under the Code, and will satisfy the tests for independence under the ASX Principles and NYSE Standards.

## Board re-election and board composition

Directors are accountable to shareholders. Each director is subject to election by shareholders at the first AGMs after their appointment and then is required to seek re-election at each year's AGMs.

In planning the composition of the non-executive part of the board, a balance must be struck between retaining a collective understanding of the company and its business with a progressive refreshing of the board's composition. The tenure of the current non-executive directors (including the chairman) is shown in the chart below:

### Non-executive director tenure

Years	Number of directors
0-3	3
3-6	3
6-9	1
>9	2

There are currently nine non-executive directors on the board.

## Audit Committee report

### Dear shareholders,

The Audit Committee fulfils an important oversight role on behalf of the Rio Tinto board, monitoring the integrity of the Group's financial reporting and the effectiveness of both the Group's systems of internal control and its risk management framework.

In addition to fulfilling its normal full programme of work, this year the Committee has focused on the audit tender, which will be formally undertaken between April and June 2018. The applicable regulations do not permit PwC, the incumbent external auditors, to tender due to the length of their tenure. A recommendation to the board of a new firm of external auditors is expected in mid-2018, with the expectation that they would take office following PwC's completion of the 31 December 2019 audit.

Pre-tender planning and evaluation began in 2017 and we have developed a timetable to enable any non-audit services currently provided by the appointed firm to be transitioned to a new service provider in an orderly and considered manner.

We have identified clear selection criteria, defined the roles and responsibilities of management and the Committee, scoped the services to be tendered and planned for information to be provided to the firms. We have already interviewed the prospective lead audit engagement partners in the UK and Australia from each of Deloitte, EY and KPMG. Preparations for the remainder of the process are progressing well.

During the course of the year, the company continued to address two regulatory matters (both of which have been previously disclosed and relate to historical issues), overseen by the board and supported by the Audit Committee:

- In November 2016, the company announced that it had become aware of email correspondence from 2011 relating to contractual payments totalling US\$10.5 million made to a consultant providing advisory services on the Simandou project in Guinea. At the start of the year we commissioned a major accountancy firm to undertake a control and compliance framework review of our global procurement processes. The Committee has reviewed the findings of this review and, while no payment anomalies have come to light, management are implementing appropriate remedial actions to enhance controls; and
- In October 2017, it was announced that the UK's Financial Conduct Authority (FCA) had determined that the company should have undertaken an impairment review in relation to the carrying value of Rio Tinto Coal Mozambique for the 2012 interim results. The FCA determined that, if this had been done, those results would have reflected the impairment recorded six months later. As standard practice, the Committee considers the carrying value of any assets where there are indications of impairment, and all papers relating to accounting and financial reporting matters are reviewed by the external auditors in the drafting process, and include commentary from them as a matter of course. This matter is also the subject of an ongoing complaint by the SEC, as described elsewhere in the Strategic report.

During the year, the Committee had access to a number of sources of assurance, including in-house resources such as Group Internal Audit, Risk, Ethics & Integrity (which are described later in this report) and other support functions, as well as the external auditors. As an enhancement in 2017, the in-house resources now report on a functional basis and are combining their work into a "value-added" integrated assurance report, providing the Committee with an overview of the performance of individual assets or product groups across the assurance areas.

Finally, in considering going concern and the longer-term viability statement on behalf of the board, the Committee considered the impact on the Group's financial position of the principal risks and uncertainties facing the business. These risks include uncontrollable external macroeconomic drivers and also potentially catastrophic operational events and includes consideration of the secondary and tertiary impacts of those risks.

The Committee critically assessed the projections of future cash flows under different scenarios and compared these with cash balances and committed facilities available to the Group. The Committee satisfied itself that it was appropriate to recommend to the board the adoption by the Group of the going concern basis of preparation for the 2017 financial statements.

The Committee also reviewed management's projections following stress-testing of the Group's medium-term business plan in a range of severe but plausible scenarios in support of the board's assessment of the longer-term viability of the company.



**Ann Godbehere**  
Audit Committee chairman

28 February 2018

### Membership

The members of the Committee (who served throughout the year and to the date of this report unless otherwise stated) were:

Ann Godbehere (chairman)	
Robert Brown	(to 4 May 2017)
Simon Henry	(from 1 April 2017)
Paul Tellier	
Simon Thompson	(from 28 July 2017)
John Varley	(to 20 June 2017)

Simon Thompson will retire from membership of the Committee when he becomes chairman of the board, on 5 March 2018.

Each member of the Committee was, at all times, independent and free of any relationship that would affect their impartiality in carrying out their responsibilities. The members meet the independence requirements of the Code, the ASX Principles and the NYSE Standards. The Committee meets the composition, operation and responsibility requirements of the ASX Principles.

The Committee is also bound by SEC requirements for audit committees' financial experts, the requirements of the UK Disclosure Guidance and Transparency Rules (DTRs) in relation to audit committee composition and the respective recommendations of the Code and ASX Principles that at least one committee member should have recent and relevant financial experience and qualifications. Ann Godbehere, chairman of the Committee, and Simon Henry are both considered by the board to have recent and relevant financial experience and competence in accounting, as explained in their biographies on page 53.

Ann Godbehere has been designated as the Committee's financial expert. The other members of the Committee are, in the opinion of the board, deemed to be financially literate by virtue of their business experience. The DTRs and Code require that the Committee as a whole has competence relevant to the sector in which the company operates. Simon Henry and Simon Thompson have extensive experience of the natural resources sector, while the other members have gained relevant experience of the mining sector by virtue of their experience on the board and on the Committee. Further sectoral expertise has been obtained by the Committee members as a result of regular site visits and through training and development activities provided by the Group.

### Induction for new members

The two new members appointed to the Committee were provided with a full but tailored induction, including meetings with senior executives including the heads of Group Internal Audit, Risk and Ethics & Integrity, as well as the lead audit engagement partner.

## Key responsibilities

The Committee's main objectives are to assist the board in monitoring decisions and processes designed to ensure the integrity of financial reporting and sound systems of internal control and risk management.

The Committee's terms of reference set out its main responsibilities, available on the website, and it carries out its business following an agreed annual cycle of meetings and topics for consideration. The Committee is responsible for overseeing and reviewing:

- the integrity of the financial reporting process and the financial statements, including recommending to the board the adoption of the going concern basis of preparation and consideration of the board's longer-term viability statement, including appropriate stress testing;
- internal control, including internal control over financial reporting;
- the effectiveness of the risk management framework;
- the Group Internal Audit function;
- the relationship with the external auditors, with a focus on their independence and objectivity and their effectiveness in performing the statutory audits, plus the procedure for the selection and appointment of the external auditors; and
- the integrity and compliance programme including the Group's *Speak-OUT* whistleblowing programme.

In carrying out its responsibilities, the Committee has full authority to investigate all matters that fall within its terms of reference. Accordingly, the Committee may:

- obtain independent professional advice in the satisfaction of its duties at the cost of the Group; and
- have direct access to the resources of the Group as it may reasonably require, including the internal auditors, and have direct access to the external auditors.

The Committee chairman reports to the board after each meeting on the matters discussed, and the minutes of each meeting of the Committee are circulated to the board.

## Meetings in 2017 and in the year to date

The Committee met six times in 2017 and attendance at these meetings is shown in the table on page 57. There were also two informal meetings in the UK and Australia to meet the prospective lead audit engagement partners from each of the firms invited to tender. The Committee has met twice to date in 2018. The chairman of the board, chief financial officer, other senior financial managers and the heads of Group Internal Audit and Ethics & Integrity regularly attended the Committee's meetings. Other senior executives and subject matter experts attended by invitation as required.

The external auditors attended all six Committee meetings during the year. In advance of the Committee meetings, the auditors review all papers on accounting or tax matters and the audit partners brief the Committee chairman on key matters. Private discussion sessions were held between PwC and the Committee without management present to discuss the status of the audit and the nature of interactions with management.

The Committee meets privately with the heads of Group Internal Audit and Ethics & Integrity from time to time without management present and the Committee chairman has regular discussions with them.

### Significant issues relating to the financial statements

There were four significant issues considered by the Committee in relation to the financial statements:

Significant issues considered by the Committee in relation to the financial statements	How the issue was addressed by the Committee
<b>Review of carrying values of cash-generating units and impairment charges</b>	The Committee assessed management's determination of cash-generating units, review of impairment triggers and consideration of potential impairment charges and reversals over the course of the year. For cash-generating units dependent upon major capital spend (Oyu Tolgoi) and those where impairment indicators were identified (Argyle Diamond Mine, Rössing Uranium, Roughrider uranium assets and Grasberg), the Committee considered the key judgments made by management in relation to discount rates, forecasted commodity prices and updates to orebody estimates. The Committee reviewed disclosures related to impairment reviews in note 6 and the impairment charges of US\$0.8 billion.
<b>Estimate of provision for closure, restoration and environmental obligations</b>	The Committee reviewed the significant changes in the estimated provision for closure, restoration and environmental obligations by product group and legacy management. At 31 December 2017, the Group's balance sheet included provision for close-down, restoration and environmental obligations of US\$10.0 billion as described in note 26.
<b>Policy for items excluded from underlying earnings</b>	The Committee reviewed the Group's policy for exclusion of certain items from underlying earnings and confirmed the consistent application of this policy year on year. The items excluded from underlying earnings comprised income of US\$2.1 billion and expenses of US\$2.0 billion. A reconciliation of underlying earnings to net earnings is presented in note 2.
<b>The Group's tax exposures</b>	The Committee considered management's assessment of the Group's tax exposures, including the recoverability of deferred tax assets which are uncertain due to the timing of expiry of losses in certain jurisdictions and the appropriateness of provisions for uncertain tax positions. The Committee considered the accounting treatment of adjustments to deferred tax assets as a result of tax reforms in the US and France, and also reviewed the disclosure of the key uncertainties for the recoverability of deferred tax in Mongolia described in note 17 and reviewed with management the findings from the draft Tax Act received from the Mongolian Tax Authority in January 2018.



Aside from the matters referred to earlier in this report and its normal recurring workload, the Committee focused on the following key issues in 2017:

- Considering the control and compliance framework review of the Group's global procurement processes undertaken by a major accountancy firm and reviewing the findings and remedial actions with management;
- Reviewing the basis for an increase in the closure provision in respect of the Gove alumina refinery and the exclusion of this from 2016 underlying earnings;
- Reviewing asset carrying values, cash-generating units, pension valuations and other material accounting matters;
- Monitoring developments with new and emerging accounting standards and regulatory requirements, and planning for their implementation;
- Monitoring the effectiveness of the Group's internal controls and risk management systems;
- Monitoring legal and tax matters and reviewing associated accounting provisions; and
- Reviewing reports from the Ore Reserves Steering Committee and Closure Steering Committee.

The Committee considered reports from management to assess the quality and effectiveness of the Group's internal control systems. This included the effectiveness of the Group's internal controls over financial reporting and the Group's disclosure controls and procedures in accordance with sections 404 and 302 of the Sarbanes-Oxley Act 2002. The Committee separately received reports from Group Internal Audit and PwC on the activities undertaken in reviewing and auditing the control environment.

There was no contact during the year with the FRC's Corporate Reporting Review team. PwC's external audit of the 2016 financial statements was reviewed by the FRC's Audit Quality Review team and the findings of that review, including PwC's proposed actions in response, have been shared with the Committee.

In early 2018, the Committee considered, at the request of the board, whether the draft 2017 Annual report and accounts is, taken as a whole, fair, balanced and understandable. After following a robust process, the Committee recommended to the board that this was the case.

#### Committee effectiveness

The Committee undertook a performance evaluation during the year. Respondents completed an online questionnaire covering various aspects of the Committee's performance and effectiveness, with the opportunity to add narrative comments. The Committee reviewed the quantitative results and the comments received. There were no specific issues arising or actions required.

### Relationship with the external auditors

#### Engagement of the external auditors

PricewaterhouseCoopers LLP and PricewaterhouseCoopers (together, PwC) are respectively the auditors of Rio Tinto plc and Rio Tinto Limited. In the UK, the audit engagement partner, Paul Barkus, was appointed in 2016. In Australia, a new audit engagement partner, Debbie Smith, has been appointed for the 2017 audit. She shadowed the previous audit engagement partner, Paul Bendall, through the 2016 year-end audit process.

The Committee is responsible for overseeing the relationship with PwC. In this role it considered and approved the fees for the statutory audits of the financial statements and the review of the half-year accounts and also reviewed the engagement letters for the external auditors and approved these for signature. The Committee has also assessed PwC's independence and objectivity and effectiveness in performing the statutory audit.

In the light of these assessments, the Committee recommended to the board that PwC should be proposed for reappointment, which was accepted and supported by the board. PricewaterhouseCoopers LLP have indicated their willingness to continue in office as auditors of Rio Tinto plc and a resolution to reappoint them as auditors of Rio Tinto plc will be proposed at the 2018 AGM. A separate resolution will seek authority for the Audit Committee to determine the remuneration of PwC. PricewaterhouseCoopers will continue in office as auditors of Rio Tinto Limited.

#### Use of the external auditors for non-audit services

It can occasionally be more efficient or necessary to engage the external auditors to provide non-audit services because of their knowledge, experience and/or for reasons of confidentiality. However, safeguarding the objectivity and independence of the external auditors is an overriding priority. For this reason, the external auditors may not perform any functions of management, undertake any work which it may later need to audit or rely upon in the audit or serve in an advocacy role for the Group.

The Committee maintains a clearly defined policy for the pre-approval of permitted services provided by the Group's external auditors, which includes a financial limit on the total value of the non-audit services that can be provided. Where a permitted non-audit service is to be provided by the external auditors and the expected fee exceeds a predetermined level, that appointment must be subject to the Group's normal tender procedures. In exceptional circumstances, the chief financial officer is authorised to engage the external auditors to provide such services without going to tender, but unless the fees are clearly trivial, the chairman of the Committee must also give prior approval of the engagement.

At half-year and year-end, the chief financial officer and the external auditors submit to the Committee a schedule of the services that were performed by PwC during the period and the fees payable. All of the engagements for services provided by PwC were either within the pre-approval policies or specifically approved by the Committee.

The Committee members and board are satisfied that the provision of non-audit services by PwC in accordance with this procedure is compatible with the general standard of independence for auditors and the other requirements of the relevant Australian, UK and US regulations.

#### Fees for audit and non-audit services

The amounts payable to the Group's auditors, PwC, were:

	2017 US\$m	2016 US\$m
Audit fees <sup>(a)</sup>	14.3	13.5
Non-audit fees:		
Assurance services <sup>(b)</sup>	3.3	1.5
Taxation services	0.5	0.6
All other fees <sup>(c)</sup>	0.7	1.8
Total non-audit fees	4.5	3.9
Non-audit: audit fees (in-year)	31%	29%

(a) Audit fees relating to statutory audits.

(b) Assurance services in 2017 included support in relation to divestments and preliminary work in support of new accounting standards, in addition to normal annual fees associated with half-year review procedures and sustainability assurance.

(c) All other fees include services in connection with other corporate projects.

A breakdown of the categories of permitted non-audit services and the fees paid to PwC for such services is shown in note 39.

None of the non-audit engagements or categories of engagement were significant on a standalone basis, and the Committee is satisfied that the aggregate effect is not significant relative to the scale of, and fees for, the statutory audits.

### Effectiveness, independence and objectivity of the external auditors

During the year, the Committee reviewed the effectiveness of PwC for the Group audit. The evaluation, managed by the Group's financial controllers, took the form of a survey comprising a range of questions covering objectivity, quality and efficiency. This was completed by individual Rio Tinto business units, a range of senior executives and members of the Committee. The results of this survey and review were assessed by the Committee, which concluded that PwC remained objective and independent and continued to provide an effective audit.

Rio Tinto ensures independence through other means, including detailed review of all work performed by accounting firms, including those who act as external auditors to Group companies. A summary is presented annually to the Committee of the fees incurred and nature of work performed.

A copy of the declaration given by PwC, as the Group's external auditors, to the directors in relation to the auditors' compliance with the independence requirements of the Australian Corporations Act 2001 and the professional code of conduct for external auditors is set out on page 211 in the financial statements.

No person who was an officer of Rio Tinto during 2017 was a director or partner of PwC at a time when they conducted an audit of the Group.

### Tender process for the external audit

PwC have been the external auditors since before the formation of the DLC structure in 1995, and their reappointment has not been subject to a tender during that time. In all recent years, the decision to propose their reappointment at the AGMs has been the subject of rigorous scrutiny by the Committee, who consider, for recommendation to the board, the auditors' effectiveness, independence and objectivity.

As highlighted in the Committee chairman's introduction, in line with the relevant regulations the Committee has commenced preparations for an audit tender to enable an orderly transition to new auditors, who are expected to take office for the 2020 financial year. This timescale will allow the appointed firm to assemble the resources necessary to deliver the audit, including a proposed shadowing period to ensure a smooth handover from PwC, and allows the Group to transfer any non-audit services currently provided by that firm to another provider, such that the new auditors are free from any independence conflicts.

The process is short, centralised and controlled, and will be led by the Committee. The tender will take place between April and June 2018 and the preparations for this have progressed smoothly to date. The Committee expects to be able to recommend a new external auditor to the board in mid-2018.

The Committee keeps the external audit arrangements under regular review. The services are being tendered on the basis of a standalone annual external auditor appointment, with an understanding that it is possible that the firm could be reappointed each year for up to 20 years.

The company confirms that it complied with all the provisions of the UK Competition and Markets Authority's Order for the year under review.

### Risk management and internal controls

A description of the principal risks and uncertainties that could affect Rio Tinto (including economic, environmental and social sustainability risks) and the Group's governance framework for risk management and internal control can be found under the Risk management, Principal risks and uncertainties and Sustainable development headings within the Strategic report on pages 18 to 37.

Two of the Group's management committees, the Executive Committee and the Disclosure Committee, regularly review reports related to the Group's control framework to satisfy the internal control requirements of the Code, the ASX Principles, the NYSE Standards and section 404 of the Sarbanes-Oxley Act 2002. The Group Internal Audit function performs reviews of the integrity and effectiveness of control activities and provides regular reports to the Audit Committee, Sustainability Committee as well as management committees.

Each year, the leaders of the Group's businesses and functions complete a representation letter confirming that adequate internal controls are in place, are operating effectively and are designed to capture and evaluate failings and weaknesses, if any exist, and that action is taken promptly, as appropriate.

The Committee reviews the Group's risk management framework, typically twice annually, and this was most recently reviewed at the meeting in February 2018. The Committee also reviews the Group's risk management and internal control systems (including the internal financial controls) on a regular basis to ensure that the company has the relevant processes and policies in place and that they operate effectively. The board, on the advice of the Audit Committee, has completed the formal annual review of the effectiveness of the Group's risk management and internal control systems for the period 1 January 2017 to the date of this report, and concluded that executive management has taken or is taking appropriate actions to remedy any failings or weaknesses identified through the operation of the framework of controls. This review included consideration of material financial, operational and compliance controls.

### Internal audit

Group Internal Audit is an internal function which provides independent and objective assurance on the adequacy and effectiveness of the Group's systems for risk management and internal control, together with recommendations to improve the effectiveness of the relevant systems and processes. The function has an internal audit methodology, which is aligned with international auditing standards set by the Institute of Internal Auditors (IIA).

The function operates independently of management, under a mandate approved by the Audit Committee, and has full access to all functions, records, property and personnel of the Group. The head of Group Internal Audit administratively reports to the chief executive and has direct communication lines with the chairs of both the Audit Committee and Sustainability Committee and regularly attends their meetings.

A risk-based approach is used to focus assurance activities on higher risk areas and internal audit plans are presented annually to the Audit Committee and Sustainability Committee for approval. These Committees are provided with regular updates on the implementation of the plans and any material findings at their meetings and are able to refine or amend the plans during the year. The internal audit plan forms part of the larger programme of integrated assurance activities, and the Audit Committee considers the relationship of these to the Group risk register and the external audit plan.

In support of its internal audit function, Rio Tinto utilises the services of external service providers. The function has a policy that addresses conflicts of interest in relation to engagements of the service provider that are requested by management. The policy complies with the IIA's standards on independence. Certain services are pre-approved under the policy as they are not in conflict with the internal auditor's role. There is a list of prohibited services which may not be undertaken without approval of the head of Group Internal Audit, and guidance on the consideration of services which may give rise to a conflict of interest.

The Committee has assessed the effectiveness of the Group Internal Audit function during the year. The Committee set the internal audit plan for 2017, ensuring this was aligned with the Group's risks, then refreshed this on a quarterly basis during the year. It is satisfied that the quality, experience and expertise of the function is appropriate for the business and that Group Internal Audit was objective and performed its role properly. The Committee monitored management's responses to and implementation of internal audit findings and recommendations and believes that these supported the effective working of the function.

### Ethics, integrity and the whistleblowing programme

The head of Ethics & Integrity attended three Committee meetings during the year. His reports covered the external legal and regulatory landscape, the evolution and status of the compliance programme, completion of the mandatory ethics and integrity training and reviews of the Group's anti-fraud activities and the monitoring of benefits, sponsorship and donations. Importantly, each meeting included a full review of the *Speak-OUT* whistleblowing programme. This was the subject of a soft relaunch under the strapline *Talk to Peggy* during the year and was supported, at the Committee's request, by enhanced feedback for reporters.

Further information on the Group's ethics and integrity work and the *Speak-OUT* whistleblowing programme can be found on page 33.

## Internal control framework

Lines of defence	Organisational structures and internal controls	Financial risk	Operational risk				Health, Safety, Environment, Community and Security	Compliance risk
			Resource	Operations and projects	Services	People		
	Oversight	Board and its committees						
Third	Internal audit	Group Internal Audit						
Second	Framework documents	The way we work. operating model, delegation of authorities						
		Chief executive						
	Management committees	Executive Committee						
		Risk Management Committee						
		Plan Review Committee	Ore Reserves Steering Committee			Global Benefits Committee	Closure Committee	Disclosure Committee
		Investment Committee						
	HQ & Central Support	Finance LGR*	Exploration	Growth & Innovation	Finance LGR	Human Resources	Health, Safety and Environment LGR	Finance LGR
		Speak-OUT						
	Management assurance, reporting, monitoring and certifications	Annual reporting suite certifications (Executive committee & managing directors)						
		Internal Control over Financial Reporting Programme	Managing director & Competent person reporting	Insurance critical risk assessments			Regulatory energy & greenhouse gas reporting	Subsidiary entity boards
		Local statutory accounts	Ore Reserves & Mineral Resources reporting				Regulatory HSE reporting	Annual integrity certificates
							HSEC assurance	Mandatory compliance training
								Compliance reports and certification
	Group policies and standards	Group Treasury	Reserves & resources	Asset management	Acceptable use of information & electronic resources	Employment	HSEC	Governance
		Group Tax					HSEC management system	Risk Management
		Project evaluation			Procurement	Inclusion and diversity	Closure	Human Rights
						Security Technical safety (eg process safety and underground)	Business integrity	
							Data privacy	
							Antitrust	
							External communications	
First	Line management	Iron Ore, Aluminium, Copper & Diamonds, Energy & Minerals, Growth & Innovation						
		Group functions						

\*Legal, Governance and Risk

STRATEGIC REPORT

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PRODUCTION, RESERVES AND OPERATIONS

ADDITIONAL INFORMATION

# Sustainability Committee report

## Dear shareholders,

The Sustainability Committee oversees, on behalf of the board, the management processes, standards and strategies designed to manage risks associated with health, safety (and asset security), environment, community and social performance (HSEC), and to achieve compliance with our HSEC responsibilities and commitments. This includes risks associated with people and asset security including business resilience (excluding cyber-security), land access, closure and legacy management, human rights of communities, employees, contractors and suppliers and ensuring that Rio Tinto has no involvement in political party politics, or payments to political parties or individuals.

The Committee ensures Rio Tinto's approach is consistent with Rio Tinto's purpose and values, that material risks are managed effectively, and that our activities contribute to local and global sustainable development.

The Committee reviews periodic reports from management that identify the Group's material business risks within the Committee's scope, and the risk management strategies and controls applied to these risks.



**Megan Clark**  
Sustainability Committee chairman  
28 February 2018

## Membership

Members of the Committee (who served throughout the year and to the date of this report unless otherwise stated) were:

Megan Clark (chairman)	
David Constable	(from 1 April 2017)
Sam Laidlaw	(from 1 April 2017)
Anne Lauvergeon	(to 4 May 2017)
Michael L'Estrange	
Simon Thompson	(to 28 July 2017)

## Key responsibilities

The Committee's terms of reference set out its responsibilities, and are available to view on the website. The key responsibilities of the Committee are to:

- Review the Group's policies relevant to the Committee's scope.
- Oversee the management processes designed to ensure compliance with those policies.
- Assess the adequacy of the Group's health, safety, security, environment and communities framework.
- Monitor management's commitment to the behaviours required by the policies and standards within the Committee's scope.
- Receive reports from management on fatalities and other serious HSEC incidents within the Group, consider recommendations for improvement, and receive reports on the implementation of such recommendations.
- Review suitability of, and make recommendations to the Remuneration Committee, in relation to metrics for the safety component of the short-term incentive plans for the executive team; and annually assess, and make recommendations to the Remuneration Committee in relation to, the safety performance of the executive team against those metrics.
- Review and approve the proposed annual plan for independent audit and assurance projects relevant to the Committee's scope.
- Undertake an annual formal review of the role and responsibilities of the Committee, its organisation and effectiveness, and its terms of reference.

## Governance processes

In 2017, the Committee met five times.

The chairman of the board; chief executive; Group executive, Health, Safety and Environment; Group executive, Corporate Relations; and other senior management regularly attend the Committee's meetings.

The Committee chairman reports to the board after each meeting on the matters discussed, and the minutes of each meeting of the Committee are circulated before the board.

The Committee has authority and access to resources to investigate all matters falling within its terms of reference.

## Activities in 2017

In 2017 the Committee:

- Reviewed key risks associated with HSEC, including deeper dives into the risks and controls associated with material health exposures, water management, closure of legacy sites, the Group's process safety programmes, underground safety, tailings and water storage facilities, and the Group's "partner-to-operate" strategy.
- Reviewed work programmes formulated for managing HSEC matters and risks, and associated assurance over selected areas within the Committee's scope and approved the 2017 Annual HSEC Plan.
- Received updates on findings on the fatalities at the Rio Tinto Kennecott operations and also at the Group's non-managed operations. Lessons learnt and actions taken from the 2016 fatality in the Pilbara were reviewed.
- Reviewed the 2016 short-term incentive plan safety outcomes, and the 2017 safety targets in relation to fatalities, all injury frequency rates and critical risk management.
- Reviewed the 2016 Sustainable development online report and the Sustainable development sections of the 2016 Annual report.
- Reviewed the additional disclosures made by Rio Tinto in relation to its resilience to climate change and the actions being taken to manage climate change risk.
- Evaluated the Committee's performance and agreed actions.

The Committee's additional work during 2017 included visiting the Group's aluminium smelting facility in Saguenay, Quebec, and the Pilbara operations in Western Australia, and reviewing the management of the health and safety programmes at these sites.

For further information on HSEC matters, please see the Sustainable development report on pages 28 to 37 of this report.



# Relations with stakeholders

## Communication with markets and stakeholders

Rio Tinto recognises the importance of effective and timely communication with shareholders and the wider investment community.

To be sure that trading in its securities takes place in an informed and orderly marketplace, Rio Tinto has adopted procedures to ensure compliance with its continuous disclosure obligations.

It is Rio Tinto's policy to make sure that all public reports and other documents filed, disclosed or released by the Group shall: (i) be accurate, complete and timely; (ii) comply with the relevant regulatory requirements; and (iii) comply with all continuous and other disclosure obligations under applicable listing rules or other relevant legislation.

The Group's Disclosure Committee is responsible for determining whether information relating to Rio Tinto may require disclosure to the markets under the continuous disclosure requirements in the jurisdictions in which Rio Tinto is listed. In accordance with its terms of reference, the specific focus of the Disclosure Committee is to consider and determine on a timely basis whether information would, to the extent that the information is not public and relates directly or indirectly to Rio Tinto, be likely to have a significant effect on the price of Rio Tinto securities if that information was generally available.

The members of the Committee are the chief executive; chief financial officer; Group company secretary; the Group executive, Group General Counsel; the head of Investor Relations and the Group executive, Corporate Relations.

Rio Tinto makes immediate disclosure (unless an exemption applies requiring a delay) of any information to the markets and relevant listing authorities in accordance with their rules. All information released to the markets is posted on the Media section of our website.

In addition to statutory documents, Rio Tinto's website features information on corporate governance, and general investor information. Annual and half-year results, as well as any major presentations, are webcast and the materials are available on our website. Presentation material from investor seminars is also made available on our website.

## Annual general meetings

The AGMs present an opportunity to provide a summary business presentation; to inform shareholders of recent developments; and to give them the opportunity to ask questions. Generally, the chairs of all board committees will be available to answer questions raised by shareholders and all directors are expected to attend where possible. In 2017, all of the directors attended the AGMs, save for Ann Godbehere, Anne Lauvergeon and Robert Brown, who were unable to attend the Rio Tinto Limited AGM. Rio Tinto's external auditors, PwC, attend the AGMs and are available to answer questions about the conduct of the external audit and the preparation and content of the Independent auditors' report. Any questions received, and any answers provided ahead of the AGMs are made available to shareholders, who also have the opportunity to meet informally with the directors after the meetings.

The AGMs are webcast and transcripts of the chairman's and chief executive's speeches are made available on the website. Further, a summary of the proceedings at the meetings and the results of voting on resolutions are made available as soon as is practicable after the meetings.

At the 2017 Rio Tinto plc AGM, the resolution to dis-apply pre-emption rights on up to five per cent of the company's issued share capital was passed by a majority of 76.16 per cent, meaning that the vote against was in excess of 20 per cent. Companies who received a vote of more than 20 per cent against a shareholder resolution are now listed on a public register, maintained by the Investment Association. Rio Tinto plc adhered to best practice in relation to the disapplication of pre-emption rights. A number of institutional investors have internal policies to vote against a second five per cent resolution. It is believed that a number of institutional shareholders mistakenly applied this policy in this instance, perhaps believing that Rio Tinto was seeking a full ten per cent disapplication in one resolution.

Rio Tinto plc, via Group Secretariat and the Investor Relations teams, will be working ahead of its 2018 AGM to ensure there is appropriate engagement with relevant shareholders ahead of the voting at the meeting to improve understanding and address any concerns surrounding this resolution.

## Investor engagement

Rio Tinto provides shareholders with the option to receive communications from, and send communications to, the companies and the share registrars electronically. The contact details for the registrars are on page 258 and on our website.

The main channels of communication with the investment community are through the chairman, chief executive and chief financial officer, who have regular meetings with the companies' major shareholders. The senior independent director has a specific responsibility to be available to shareholders who have concerns, and where contact with the chairman, chief executive or chief financial officer has failed to resolve their concerns, or with whom such contact is inappropriate. The senior independent director also took the opportunity to discuss chairman succession planning with major shareholders during 2017.

The Remuneration Committee chairman also meets shareholders to discuss remuneration issues. The Remuneration Committee chairman met major investors in the UK and Australia in June and July 2017, and again in October and November 2017, to discuss and obtain feedback on the Group's remuneration policy, ahead of the renewal of that policy in 2018.

To ensure that members of the board have an understanding of the views of major shareholders, a number of processes and initiatives are in place. The chief financial officer reports to the board at each meeting and provides regular investor updates as part of this reporting. In addition, the head of Investor Relations reports regularly to the board, and an annual survey of major shareholders' opinions is presented to the board by the Group's investor relations advisers.

## Employment policies

### The way we work

Rio Tinto's commitment to integrity and compliance is set out in *The way we work*, our global code of conduct, which is available on our website. It sets out the behaviours the company expects of its people, consistent with Rio Tinto's values: safety, teamwork, respect, integrity and excellence.

It is supported by a number of Group policies and standards. These are adopted after wide consultation and, once adopted, are communicated globally to all the company's business units, together with related procedures, guidelines and resources to support implementation. Management is required to adhere to these policies and standards, and any mandated procedures, and to monitor their effectiveness. Rio Tinto policies and standards address a variety of important topics, which apply to all of our managed businesses. Where the Group does not have operating responsibility for a business, Rio Tinto's policies and standards are communicated to our business partners. The company makes every effort to ensure that the standards it espouses are respected at all times and to encourage non-managed businesses to adopt similar policies and standards of their own.

Rio Tinto employees are required to undertake training on the requirements of *The way we work* and various policies and standards.

### "Whistleblowing" programme

*Speak-OUT* is the Group's confidential and independently operated whistleblowing programme. It offers an avenue through which employees, contractors, suppliers and customers of Rio Tinto managed sites can report concerns, anonymously if they so choose, subject to local law. This can include any significant concerns about the business, or the behaviour of individuals, including suspicion of violations of financial reporting, safety or environmental procedures or business integrity issues in general. The programme features telephone and web submissions, a case management tool, and a reporting tool to allow for improved analysis of case statistics and reporting. Rio Tinto continuously considers ways to promote positive awareness of *Speak-OUT*. The Audit Committee receives a report on *Speak-OUT* activity, with the Sustainability Committee receiving an annual report on *Speak-OUT* relating to sustainable development issues.



# Remuneration Report: Annual statement by the Remuneration Committee chairman

## Dear shareholders,

On behalf of the board, I am pleased to introduce our 2017 directors' remuneration report (the Remuneration Report).

The Remuneration Report has been prepared in accordance with applicable legislation and corporate governance guidelines in the UK and Australia. Australian legislation requires disclosures in respect of "key management personnel", being those persons having authority and responsibility for planning, directing and controlling the activities of the Group. The key management personnel are, in addition to the directors, the members of the Executive Committee who are not directors. Throughout this Remuneration Report, the members of the Executive Committee are collectively referred to as "executives". They are listed on page 55, with details of the positions held during the year and dates of appointment to those roles.

In addition to this introduction, the Remuneration Report is divided into two parts: the statement of remuneration policy, which summarises our policies and practices (the Remuneration Policy); and the annual report on remuneration, which shows how the Remuneration Policy has been applied (the Implementation Report).

Under UK legislation, the Remuneration Policy is subject to a triennial binding vote, while the Implementation Report (including this introduction) is subject to an annual advisory vote. The Remuneration Policy was last approved by shareholders in 2015 and accordingly will be submitted for shareholder approval at our AGMs in 2018. Under Australian legislation, the Remuneration Report as a whole is subject to an advisory vote. All remuneration related resolutions will be voted on at the AGMs as Joint Decision Matters by Rio Tinto plc and Rio Tinto Limited shareholders.

### Remuneration Policy

As part of the triennial review of our Remuneration Policy, we consulted shareholders and other stakeholders in the UK and Australia.

While there was broad-based support for many of the changes and enhancements that we proposed, including an increased focus on fatalities in the safety component of the Short-Term Incentive Plan (STIP), our most significant proposal – to substitute Restricted Stock for the performance share awards (PSA) granted under the Long-Term Incentive Plan (LTIP) and significantly reduce the maximum quantum of the award – received a more mixed response.

The board and management remain of the view that Restricted Stock has considerable merits in a long-term cyclical industry such as mining. However, the new UK threshold, of an 80 per cent vote in favour for an "acceptable" outcome, represents a significant impediment for any company seeking to introduce an innovative remuneration scheme, particularly given the range of opinions that currently exist within the investor community. Following the shareholder consultation, we therefore decided to withdraw this proposal and to revert to a conventional LTIP structure. However, we are proposing to remove the performance measure relating to relative EBIT margin improvement for PSA granted under the LTIP, as it is complex, opaque and impossible to track during the performance period. As a result, vesting for PSA granted for 2018 will be subject to two equally weighted measures of relative total shareholder return (TSR) against the Euromoney Global Mining Index and the MSCI World Index. The combination of these two measures will align executives and shareholders by rewarding long-term, relative outperformance against the mining sector and the broader market. They also have the merit of being simple and transparent. We are also seeking shareholder approval for a new umbrella agreement – the Equity Incentive Plan (EIP) – that will govern all future long-term, share-based remuneration, including PSA and the deferred element of the STIP as well as restricted share awards granted to employees below Executive Committee level. The EIP is being introduced to simplify, consolidate and ensure consistency

between the provisions of various existing long-term incentive plans, notably with respect to malus and claw-back. Awards under the EIP will be granted in accordance with the prevailing Remuneration Policy. If approved, the 2018 PSA and deferred element of the STIP will be granted to executives under this Plan.

### 2018 decisions

Consistent with prior practice, annual salary increases for executives are in line with the base salary increases applying to the broader employee population. The maximum opportunity for executives under the STIP also remains the same as last year. The 2018 safety measures, weightings and targets are fully disclosed on page 91. We expect to disclose the 2018 financial and individual targets retrospectively in the 2018 Implementation Report.

The level of PSA to be granted to executives in May 2018, as a percentage of base salary, will be broadly equivalent to those made in 2017. Consistent with our practice since 1998, the awards made are calculated using the average share price over the previous calendar year. As such, the PSA awards granted in 2018 will be calculated using the 2017 average share prices of £34.10 and A\$65.23. Our decision to use average prices over the year, rather than spot prices, is intended to mitigate the impact of share price volatility. The performance conditions for the 2018 PSA are set out in the Implementation Report.

### 2017 performance and remuneration

The 2017 single total figure of remuneration for the chief executive, Jean-Sébastien Jacques, is higher than the previous year, mainly because 2017 was J-S's first full year as chief executive.

For the chief financial officer, Chris Lynch, the single total figure of remuneration is also higher than in 2016. This is mainly due to the higher value of share awards vesting in 2017, partly offset by a lower STIP award.

#### Short-Term Incentive Plan

On pages 82, 84 and 86 of this Report, we retrospectively disclose the financial and individual STIP targets, set by the board for 2017. While most of the 2017 targets were achieved, the overall 2017 STIP awards for both executive directors, expressed as a percentage of the maximum award, are lower than last year. Further details are given below.

#### Short-Term Incentive Plan – Safety

In October 2017, a colleague died at our Rio Tinto Kennecott operation in Utah and there was a health related death of a colleague undertaking field reconnaissance work in the Pilbara, Australia. As a result, we did not achieve our goal of zero fatalities during calendar year 2017.

Given that fatalities occurred in 2017, reductions were applied as required by the Policy, with the safety results for the chief executive and the chief financial officer being reduced from 49.5 per cent of maximum to 37 per cent and 42 per cent, respectively. These adjustments reflect the level of oversight they had for safety leadership during the year. Similarly, downward adjustments were made for certain other executives.

The combined performance against our all injury frequency rate (AIFR), lost time injury (LTI) and critical risk management (CRM) fatality prevention programme targets resulted in a STIP safety result for the Group broadly equal to "target", with one product group achieving an above "target" STIP safety result and three product groups achieving below "target" STIP safety results.

#### Short-Term Incentive Plan – Financial

The underlying "unflexed" earnings and STIP free cash flow achieved by the Group in 2017 were between "target" and "outstanding". The underlying "flexed" earnings and STIP free cash flow results were slightly below "target".

The Committee made adjustments to the targets in 2017 to take account of events outside management's control and to ensure a like-for-like comparison with the targets.

The most significant adjustment in 2017 related to the impact on iron ore shipments of unfavourable weather conditions across northern Western Australia in 2017 that significantly exceeded 2017 plan assumptions. Other significant adjustments related to the disposal of Coal & Allied in September 2017, the strike in the non-managed operations in Escondida, and the write-down of deferred tax assets in relation to the Grasberg operation.

The net impact of all adjustments, both positive and negative, increased the Group's result against the financial targets from 56 per cent of maximum to 67 per cent of maximum (2016: from 83.5 per cent to 83 per cent of the maximum). This was a larger net impact than in previous years, and therefore the Committee paid particular attention to all the proposed adjustments to ensure that they were in accordance with agreed principles.

### Long-Term Incentive Plan

The PSA granted under the LTIP in 2013 had three equally weighted performance metrics: TSR relative to the Euromoney Global Mining Index; TSR relative to the MSCI World Index; and improvement in EBIT margin relative to global mining comparators.

Rio Tinto outperformed against the Mining Index, but underperformed against the MSCI World Index, resulting in a 33.3 per cent award under these two components, out of a maximum of 66.7 per cent. This outcome reflects the design intention that executives should not unduly benefit from windfall gains when commodity prices are high, nor suffer when prices are low.

The estimated performance against the EBIT margin measure is that Rio Tinto ranked no.3 against a comparator group of 11, which would result in a vesting of 90.98 per cent for this measure (representing 30.33 per cent of the total award). We can only provide an estimate at this time as we do not have the reported data for all the comparator companies. As noted above, we propose to remove this measure from PSA granted under the LTIP from 2018.

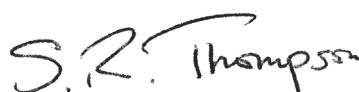
Overall, the estimated vesting for the award when the TSR and EBIT margin portions are combined is 63.66 per cent of maximum. The Committee gave consideration to the Group's overall performance

during the five-year performance period and concluded that vesting of awards was justified. As a consequence, the portion of the award relating to TSR vested on 19 February 2018. The Committee will make a final determination of the relative improvement in EBIT margin measure when the details of the margin performance of the comparator group companies become available in May 2018. If applicable, this portion of the award will vest on 31 May 2018.

### Gender pay

The Company continues to monitor both equal pay and the gender pay gap across the Group. While we have made good progress in ensuring equal pay for equal work, we need to focus on the relatively low level of gender diversity in senior management roles in order to continue to close the gender pay gap in all locations. Further details of both equal pay and the gender pay gap, together with the steps we are taking to address this issue, are provided on page 37 of the Report.

Yours sincerely,



Simon Thompson

Remuneration Committee chairman

# Remuneration Report: Remuneration Policy

## Remuneration Policy introduction

This Remuneration Policy applies to our executive and non-executive directors and to the chairman. In accordance with Australian law, it also sets out the broad policy principles that apply to members of the Executive Committee who are not directors.

Shareholders should note that this Remuneration Policy is binding only in so far as it relates to directors.

## Our remuneration policies, principles and practices

Our first priority is to spend remuneration resource wisely. We want our pay policies to be regarded as fair by shareholders and employees alike. Although we believe that our Remuneration Policy is fit for purpose, the Committee retains the discretion to override unforeseen and inappropriate mechanistic outcomes.

High-quality people, who are capable of managing and growing the business, are essential to generate superior returns for our shareholders. Rio Tinto operates in global and local markets where it competes for a limited pool of talented executives and our compensation strategy is therefore designed to attract and retain the people that we need. We recognise that remuneration represents just one of the factors that encourage the attraction and retention of talent. We also seek to engage our employees over the long term, to foster diversity, and to provide challenging work and development opportunities. Our people strategy is underpinned by our commitment to safety and our other core values of respect, integrity, excellence and teamwork.

### Competitive remuneration linked to performance and shareholder value creation

Remuneration is linked to performance targets over both the short and long term, to ensure that executive rewards are aligned to the delivery both of short-term priorities and long-term sustainable growth in shareholder value. In order to assess the competitiveness of the packages we offer, we benchmark ourselves against other companies in the FTSE30 (excluding financial services companies), which typically have similar global reach and complexity, and other international mining and natural resources companies. The outcomes of these benchmarking exercises form just part of our consideration of the appropriate level of remuneration packages, but we would not expect either base salaries or the expected outcome of our short- and long-term incentive plans to deviate markedly from the median of these comparator groups. The actual outcome will, of course, depend on business and individual performance.

We take salary increases in the broader employee population into account in determining any change to the base pay of executives and regularly consult with shareholders on the design of our short- and long-term incentive plans to ensure that they are aligned with shareholder interests and priorities. We do not formally consult with our employees on the Remuneration Policy, but approximately 40 per cent of the workforce are shareholders, through participation in our employee share plans and therefore have the right to vote on the Remuneration Report. Employees are also free to ask questions or express opinions through our normal employee communications channels.

Performance under the Short-Term Incentive Plan (STIP) is measured over one year based on a balanced scorecard including safety, financial and individual targets. Fifty per cent of the STIP for executives is delivered in deferred shares that vest after three years.

Performance for performance share awards (PSA) under the Long-Term Incentive Plan (LTIP) is measured over five years and awards are typically delivered in shares. From 2018, performance will be measured by reference to the total shareholder return (TSR) of Rio Tinto relative to the Euromoney Global Mining Index (50 per cent) and the MSCI World Index (50 per cent), reflecting the fact that the company competes for capital with both mining companies and other global companies. The relative EBIT margin improvement measure has been removed following consultation with major shareholders and feedback from employees, in order to achieve greater simplicity, transparency and alignment.

A new Equity Incentive Plan (EIP) will be put to shareholders for approval at the AGMs in 2018. This will allow both PSA and the deferred element of the STIP as described herein to be granted under a single plan with sufficient flexibility to reflect any future changes in the Group's Remuneration Policy. Participants below the Executive Committee level will also participate in LTIP awards under the EIP.

Options are no longer granted, but existing vested options may be exercised up to ten years after their grant. Our share ownership policy requires executives to build up and maintain a material shareholding in the company as described in the Implementation Report.

## Executive remuneration structure – policy table

The total remuneration package is designed to provide an appropriate balance between fixed and variable components, with an emphasis on long-term variable pay. The remuneration structure for executives, including the relationship between each element of remuneration and Group performance, is summarised below. Complementary remuneration structures are designed for other employees, drawing on these strategies and policies.

Further details on the key performance indicators (KPIs) used to assess Group performance are provided in the Strategic report.

Any commitment made before this Remuneration Policy takes effect or before an executive became or becomes a director will be honoured even if it is not consistent with this or any subsequent Remuneration Policy.

Remuneration arrangements – Fixed		Link to Group performance and strategy
<b>Base salary</b>	<ul style="list-style-type: none"> <li>Base salary provides the main fixed element of the remuneration package.</li> <li>Base salaries are reviewed annually, with a maximum individual increase of nine per cent, or inflation if higher, per annum. An individual increase may be higher than this for executives who are not directors in the circumstances described below.</li> <li>Any increase is generally aligned with the average base salary increases applying to the broader employee population unless there were significant changes to an individual's role and/or responsibilities during the year. Any increases are determined with reference to underlying Group and individual performance, global economic conditions, role responsibilities, an assessment against relevant comparator groups and internal relativities.</li> <li>An increase above the maximum noted above for executives who are not directors may be made in the event of internal promotion or increase in responsibility or where the executive's base salary is significantly below market positioning.</li> <li>Benchmarking is undertaken periodically but not annually, and our intention is to apply judgment in evaluating market data.</li> </ul>	<ul style="list-style-type: none"> <li>We pay competitive salaries to hire, motivate and retain highly competent people.</li> </ul>
<b>Pension or superannuation</b>	<ul style="list-style-type: none"> <li>Employment benefits typically include participation in a pension plan, superannuation fund, or a cash allowance to contribute to a personal pension or superannuation fund, which are aligned with the arrangements for the broader workforce of the country of residence.</li> <li>For appointments made from 1 June 2018, the maximum level of company contribution to an individual executive director's scheme annually is 25 per cent of base salary. For appointments prior to 1 June 2018 the maximum was 35 per cent.</li> </ul>	<ul style="list-style-type: none"> <li>We provide locally competitive post-employment benefits in a cost-efficient manner in order to hire and retain.</li> </ul>
<b>Other benefits</b>	<ul style="list-style-type: none"> <li>Other benefits may include, but are not limited to, private healthcare cover for the executive and their dependents, company car or allowance, car parking, life insurance, accident insurance, provision of company-provided transport/chauffeur, professional advice, participation in local flexible benefit programmes and certain other minor benefits (including modest retirement gifts in applicable circumstances, occasional spouse travel in support of the business and any Rio Tinto business expenses which are deemed to be taxable and where the company has paid the tax on their behalf).</li> <li>Secondment, relocation and localisation benefits (for example, housing, tax equalisation, cost of living allowance, the payment of school fees, periodic visits home for the executive and their family and where relevant, localisation payments) may also be made to and on behalf of executives living outside their home country. Examples of these types of payments are set out in the Implementation Report.</li> <li>Other benefits are paid at cost and, given the nature and variety of the items, there is no formal maximum level of company contribution.</li> </ul>	<ul style="list-style-type: none"> <li>We provide competitive other benefits in a cost-efficient manner in order to hire and retain.</li> </ul>

## Remuneration Report:

### Remuneration Policy continued

Remuneration arrangements – Performance-related (At risk)	Link to Group performance and strategy
<p><b>Short-Term Incentive Plan (STIP)</b></p> <ul style="list-style-type: none"> <li>– 25 per cent of maximum is awarded for threshold performance; 50 per cent for target; and 100 per cent for outstanding. Between threshold and target, and between target and outstanding, the award is pro-rated on a straight-line basis. In the case of executive directors, the percentage award is multiplied by 1.2. The maximum award is capped at 200 per cent of base salary for all executives. Any outcome from the formulaic STIP calculation is subject to the exercise of discretion by the Committee.</li> <li>– A scorecard based on the Group's five priorities is established for each executive at the commencement of the financial year. The measures and the relative weightings are selected by the Committee in order to drive business performance for the current year, including the achievement of financial, safety and other individual business outcomes that are priorities for the financial year in question. At least 50 per cent of the measures will relate to financial performance and a significant component will relate to safety performance.</li> <li>– The measures, weightings and targets are reviewed annually and are included either prospectively or retrospectively each year in the Implementation Report. The Committee retains flexibility to determine the measures, weightings and targets as appropriate, based on the outcomes of its annual review.</li> <li>– We expect to disclose the measures, weightings and targets for safety goals at the beginning of each year. In the area of financial and individual goals, we will, at the beginning of each year, disclose the measures and weightings only, because we regard the targets as commercially sensitive. However, we intend to disclose these targets and outcomes retrospectively. In the rare instances where this may not be prudent on grounds of commercial sensitivity, we will seek to explain why, and give an indication of when they will be disclosed.</li> <li>– Threshold, target and outstanding performance levels are established for all STIP measures to help drive high levels of business and individual performance.</li> <li>– The central or "base" plan delivers what the board considers to be target performance. Target performance is intended to be stretching. Probability factors are then applied, based upon a range of potential operating and cost scenarios, to establish the threshold and outstanding performance levels. These threshold (below target), target, and outstanding (above target) levels are determined by the Committee at the beginning of each performance year.</li> <li>– In making its year-end determination of STIP awards, the Committee seeks to ensure that actual performance is directly comparable to the targets set at the beginning of the year. This may result in adjustments to the targets or to the assessed results being made by the Committee (in particular to take account of events outside management's control), to ensure a like-for-like comparison. Both upward and downward adjustments can be made, with reference to principles agreed by the Committee, to ensure the outcomes are fair.</li> <li>– Safety KPIs comprise a significant portion of the STIP for executives, and any fatality will have a material impact on the STIP result for all executives.</li> </ul>	<ul style="list-style-type: none"> <li>– STIP focuses participants on achieving demanding annual performance goals, which are based on the Group's five priorities, in pursuit of the creation of sustainable shareholder value.</li> <li>– We demand that sustainable business practices are adhered to, particularly in the context of safety.</li> <li>– When reviewing the outcome of the awards under the STIP the Committee will, when evaluating overall safety, financial, Group and individual performance, consider the overall fairness against original expectations and shareholder experience.</li> <li>– Any discretionary adjustments for directors will be disclosed in the Implementation Report for the financial period.</li> </ul>
<p><b>Bonus Deferral</b></p> <ul style="list-style-type: none"> <li>– Fifty per cent of the STIP is delivered in bonus deferred shares under the EIP with the remainder of the STIP delivered in cash with no deferral. Prior to 2018, bonus deferred share awards were made under the Bonus Deferral Plan (BDP).</li> <li>– The bonus deferred shares vest in the December of the third year after the end of the STIP performance year to which it relates.</li> <li>– The number of shares that vest is increased by reference to the dividends paid in the deferral period.</li> <li>– Bonus deferred shares vest on a change of control.</li> <li>– Given the mandatory nature of the deferral and the absence of performance conditions, bonus deferred shares are treated as "owned" from the award date for the purposes of calculating an executive's shareholding level.</li> <li>– Malus, claw-back and suspension provisions that apply are set out later in the Remuneration Policy.</li> </ul>	<ul style="list-style-type: none"> <li>– Bonus Deferral ensures ongoing alignment between executives and shareholders through deferral of 50 per cent of STIP awards into Rio Tinto shares.</li> </ul>



Remuneration arrangements – Performance-related (At risk)	Link to Group performance and strategy
<p><b>Performance Share Awards (PSA) under the Long-Term Incentive Plan (LTIP)</b></p> <ul style="list-style-type: none"> <li>– PSA granted under the EIP will be conditional share awards that vest subject to the achievement of stretching performance conditions, comparing Rio Tinto's TSR relative to the Euromoney Global Mining Index (50 per cent) and to the MSCI World Index (50 per cent).</li> <li>– Full vesting is only achieved if Rio Tinto's relative TSR significantly outperforms the TSR of both indices. The outperformance required for full vesting is considered by the Committee to be very stretching.</li> <li>– The current level of outperformance required for full vesting is 6 per cent per annum over five years. However, for each award the Committee will determine the level of outperformance required against the indices on a per annum basis or on a compounded basis over the five-year period, in order for the whole of the award to vest.</li> <li>– Each component of the award will be assessed independently. Details of the TSR targets and vesting schedules for the year under review and for the following year will be set out in the Implementation Report each year.</li> <li>– Awards have a maximum face value of 438 per cent of base salary (ignoring dividend equivalents as described below).</li> <li>– The awards have been calculated independently by our consultants (Willis Towers Watson) to have an expected value of approximately 50 per cent of face value. Expected value is face value adjusted for the probability of the performance target being met.</li> <li>– Threshold performance, as explained in the Implementation Report, would result in the vesting of 22.5 per cent of the face value of an award.</li> <li>– The maximum expected value of PSA is 219 per cent of base salary (ie 438 per cent x 50 per cent). The maximum threshold value is 98.6 per cent of base salary (ie 438 per cent x 22.5 per cent).</li> <li>– Actual award levels may vary for each executive and are included in the Implementation Report.</li> <li>– If vesting is achieved, participants are entitled to receive a number of additional shares whose market value reflects the aggregate cash amount of dividends that would have been received had the shares which have vested at the end of the performance period been held throughout the performance period.</li> <li>– Where permitted by the plan rules, and where the Remuneration Committee so decides, awards may be made or satisfied in cash in lieu of shares.</li> <li>– Awards and performance conditions may be adjusted to take account of variations of capital and other transactions. Subject to this Policy, performance conditions may also be amended in other circumstances if the Committee considers that a changed performance condition would be a fairer measure of performance.</li> <li>– If there is a change of control, awards will vest to the extent performance conditions are then satisfied. Unless the Committee determines otherwise, if the change of control happens during the first 36 months from the date of grant of the award, the number of shares that can vest will be reduced pro rata to that 36-months period. The Committee may, alternatively, with agreement of an acquiring company, replace awards with equivalent new awards over shares in the acquiring company.</li> <li>– The Committee retains the discretion, where circumstances warrant, to amend performance conditions under the relevant plan rules. The Committee will seek to ensure that outcomes are fair and that they take account of the overall performance of the company during the performance period.</li> <li>– Malus, claw-back and suspension provisions that apply are set out later in the Remuneration Policy.</li> </ul>	<ul style="list-style-type: none"> <li>– PSA are designed to provide a simple and transparent mechanism for aligning executive reward with the execution of an effective business strategy that delivers superior long-term shareholder returns.</li> <li>– Award levels are set to incentivise long-term performance and to contribute towards the competitiveness of the overall remuneration package.</li> <li>– Relative TSR has been chosen as the most appropriate measure as it allows for an objective external assessment over a sustained period on a basis that is familiar to shareholders.</li> <li>– How performance is generated is as important as what level of performance is delivered. Before vesting, the Committee will satisfy itself that relative TSR is an appropriate measure of the underlying performance of the business, and may adjust vesting accordingly.</li> </ul>

#### Notes to the policy table

The major change to the Remuneration Policy in 2018 is the removal of the relative EBIT margin improvement measure from the PSA. For PSA granted from 2013 until 2017 (under the 2013 Performance Share Plan), conditional share awards vest subject to the achievement of stretching performance conditions, comparing Rio Tinto's performance against:

- One-third: TSR relative to the Euromoney Global Mining Index;
- One-third: TSR relative to the MSCI World Index; and
- One-third: improvement in EBIT margin relative to the global mining comparators which will be listed in the Implementation Report each year.

Each component of the award will be assessed independently. With respect to the EBIT margin measure, in order to ensure that outcomes are fair and that business performance has been appropriately taken into account, the Committee will consider, on a discretionary basis, any specific, significant, unusual, "below the line" items (eg impairments) reported by Rio Tinto or its peers during the performance period to ensure genuine comparability when determining any level of vesting indicated by third-party data (currently S&P Capital IQ). The application of any such discretion will be disclosed.

Long-term incentive awards made prior to 2018, which may vest should the relevant performance conditions be satisfied, are permitted under this Policy. Details of awards granted prior to 2018, which have yet to vest, including their respective performance conditions, are provided in the Implementation Report.

## Remuneration Report: Remuneration Policy continued

### Total remuneration opportunity

The following charts provide an indication of the minimum, target and maximum total remuneration opportunity, subject to shareholder approval of the Remuneration Policy for the executive directors, together with the proportion of the package delivered through fixed and variable remuneration. The STIP and PSA granted under the LTIP are both performance-related remuneration. UK legislation requires that these charts are given in relation to the first year in which the Remuneration Policy applies (ie 2018).

The following table provides the basis for the values included in the charts below:

Fixed (stated in £'000)	Base salary <sup>(a)</sup>	Pension	Benefits <sup>(b)</sup>	Total fixed
Jean-Sébastien Jacques	£1,110	£276	£58	£1,444
Chris Lynch	£856	£214	£97	£1,167

(a) Base salary is the latest known salary.

(b) The value of benefits is as per the 2017 benefits figure in the single total figure of remuneration tables, as set out in the Implementation Report.

### Performance-related (At risk)

Target STIP and LTIP performance	<ul style="list-style-type: none"> <li>A STIP award of 60% of the maximum award (ie 120% of base salary)</li> <li>Expected value of 2018 PSA of 50% of face value, calculated as 215% of base salary</li> </ul>
Maximum STIP and LTIP performance	<ul style="list-style-type: none"> <li>A maximum STIP award of 200% of base salary</li> <li>Full vesting of 2018 PSA, calculated as 430% of base salary</li> </ul>

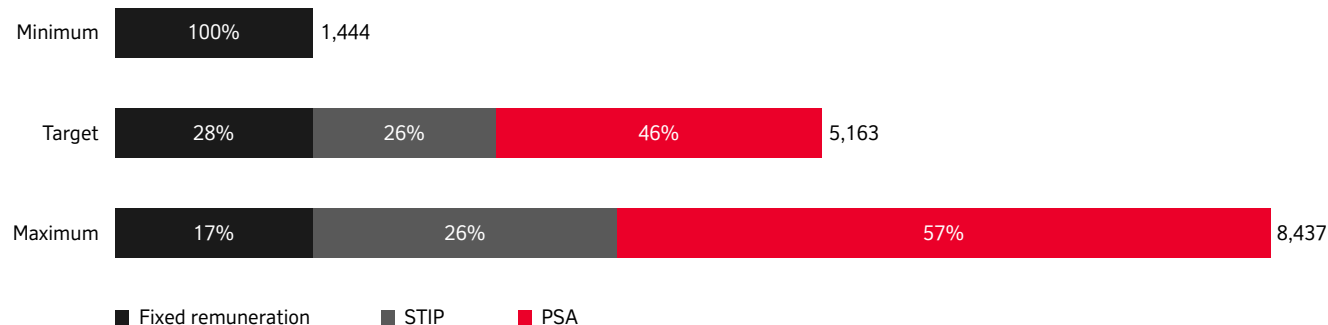
(a) PSA granted under the LTIP consist of share awards only, measured at 2018 face value. This does not constitute an estimate of the value of awards that may potentially vest with respect to year end 31 December 2022. No assumption has been made for changes in share price or payment of dividends.

(b) No PSA will be granted to the chief financial officer in 2018. However a face value of 430% of base salary, consistent with the award to be made to the chief executive, has been included in the above charts for illustrative purposes.

(c) Further details of the 2018 PSA are disclosed in the 2017 Implementation Report.

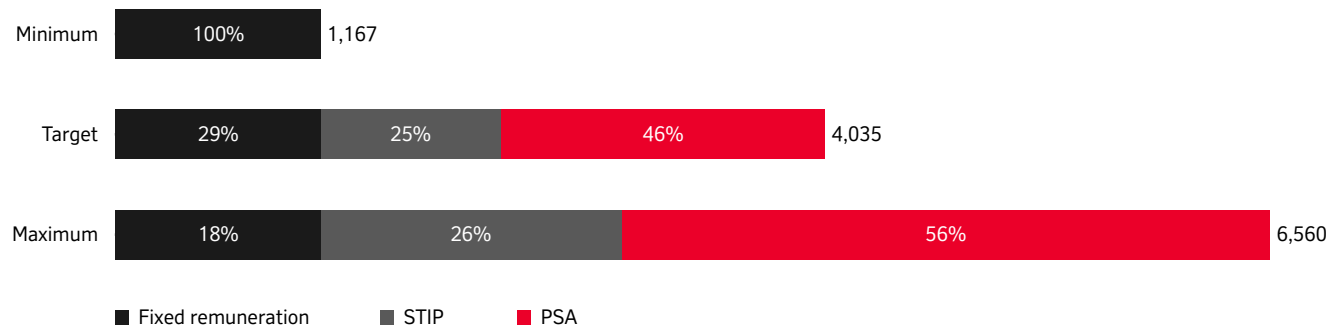
### Jean-Sébastien Jacques chief executive

#### Potential value of 2018 remuneration package £'000



### Chris Lynch chief financial officer

#### Potential value of 2018 remuneration package £'000



### Context for outstanding performance

Outstanding business and individual performance is required to achieve the maximum level of remuneration. This comprises:

- outstanding performance against all financial, health and safety, and individual STIP measures; and
- TSR outperformance against both the Euromoney Global Mining and MSCI World indices, currently 6 per cent per annum over five years.

The Committee believes that if these levels of reward are achieved by our executives, shareholders will benefit over time from superior share price performance.

### Discretions

The Committee recognises the importance of ensuring that the outcomes of the Group's executive pay arrangements described in this Remuneration Policy properly reflect the Group's overall performance.

The Committee therefore reserves the right to review all remuneration outcomes arising from mechanistic application of performance conditions and to exercise discretion where such outcomes do not properly reflect the experience of shareholders or other stakeholders.

The Committee may at its discretion adjust and/or set different performance measures if events occur (such as a change in strategy, a material acquisition or divestment, a catastrophic safety or environmental incident, a change in control or other unexpected event) which cause the Committee to determine that the measures are no longer appropriate or in the best interests of shareholders or other stakeholders, and that amendment is required so that the measures achieve their original purpose. Such discretion will be exercised judiciously and clearly disclosed and explained in the Implementation Report.

### Malus, claw-back and suspension

Subject to approval by shareholders at the 2018 AGMs, "malus", "claw-back" and "suspension" provisions will apply to LTIP awards, including awards granted in connection with deferred bonuses under the EIP.

Under both the "malus" and "claw-back" provisions, where the Committee determines that an exceptional circumstance has occurred, the Committee may, at its discretion, reduce the number of shares to be received on vesting of an award, or, for a period of two years after the vesting of an award, the Committee can claw-back value from a participant.

The circumstances under which the Committee exercises such discretion may include, inter alia:

- any fraud or misconduct by a participant or an exceptional event which has had, or may have, a material effect on the value or reputation of any member of the Group (excluding an exceptional event or events which have a material adverse effect on global macroeconomic conditions);
- an error in the Group's financial statements which requires a material downward restatement or is otherwise material or where information has emerged since the award date which would have affected the size of award granted or vested;
- where the Committee determines that the personal performance of a participant, of their product group or of the Group does not justify vesting or where the participant's conduct or performance has been in breach of their employment contract, any laws, rules or codes of conduct applicable to them or the standards reasonably expected of a person in their position;
- the performance of the company, business or undertaking in which a participant worked or works or for which he or she was or is directly or indirectly responsible is found to have been misstated or based upon any material misrepresentation and which resulted in the award being granted and/or vesting over a greater number of shares than would otherwise have been the case;
- where any team, business area, member of the Group or profit centre in which the participant works or worked has been found guilty in connection with any regulatory investigation or has been in breach of any laws, rules or codes of conduct applicable to it or the standards reasonably expected of it; or
- a catastrophic safety or environmental event or events occurring in any part of the Rio Tinto Group.

Under the suspension provisions, the Committee may suspend the vesting of an award (for up to five years) until the outcome of any internal or external investigation is concluded and may then reduce or lapse the participant's award based on the outcome of that investigation. Note that where suspension applies, the 24-month claw-back period will not extend beyond the period commencing from the original vesting date.

### Recruitment remuneration

For both internal and external recruitment, we aim to position base salary at an appropriate level, taking into consideration a range of factors including the executive's current remuneration and experience, internal relativities, an assessment against the relevant comparator groups and cost.

Other elements of remuneration will be established in line with this Remuneration Policy.

In the case of internal appointments, existing commitments will be honoured.

If the Committee concludes that it is necessary and appropriate to secure an appointment, relocation-related support and international mobility benefits may be provided depending on the circumstances. Any relocation arrangements will be set out in the Implementation Report.

Any compensation provided to an executive recruited from outside the Group for the forfeiture of awards under variable remuneration arrangements entered into with a previous employer is considered separately to the establishment of forward-looking annual remuneration arrangements. Our policy with respect to such "buy-outs" is to determine a reasonable level of award, on a like-for-like basis, consisting primarily of equity-based awards, but also potentially cash or restricted stock, taking into consideration the quantum of forfeited awards, their performance conditions and vesting schedules. The Committee will obtain an independent external assessment of the value of awards proposed to be bought out and retains discretion, subject to the considerations noted above, to make such compensation as it deems necessary and appropriate to secure the relevant executive's employment. The Committee's intention is that buy-out compensation should include, where appropriate, performance conditions.

No form of "golden hello" will be provided upon recruitment.

## Remuneration Report: Remuneration Policy continued

### Executives' service contracts and termination

Under normal circumstances, executive directors will be offered service contracts which can be terminated by either party with up to 12 months' notice in writing, or immediately by paying the base salary only in lieu of any unexpired notice. In exceptional circumstances, an initial notice period of up to 24 months during the first two years of employment, reducing to up to 12 months thereafter, may be necessary to secure an external appointment. In some circumstances, it may also be appropriate to use fixed-term contracts for executive directors. For new appointments, if the company terminates by making a payment in lieu of notice, the Committee will for executive directors (to the extent permitted by relevant law) have regard to the executive director's ability to mitigate his or her loss in assessing the payment to be made.

The letters of appointment are available for inspection at Rio Tinto plc's registered office, and at its AGM.

Other executives are offered service contracts which can be terminated by the company with up to 12-months' notice in writing, and by the employee with six-months' notice in writing, or immediately by the company by paying the base salary only in lieu of any unexpired notice. For the chief executive and for executives appointed from 1 January 2018, notice may be paid progressively in instalments over the notice period.

The current contract terms of both directors and the other executives are included in the Implementation Report.

Executives may be required to undertake "garden leave" during all or part of their notice period and may receive their base salary, STIP and other benefits during the notice period (or the cash equivalent). Where applicable, tax equalisation and other expatriate benefits will continue in accordance with the executive's prevailing terms and conditions.

In the case of dismissal for cause, the company can terminate employment without notice and without payment of any salary or compensation in lieu of notice. Outstanding awards under any of the Group's long-term incentive plans may be forfeited in these circumstances.

Accrued but untaken annual leave and any long service leave will be paid out on termination, in accordance with the relevant country legislation and applicable practice applying to all employees. For eligible leavers (as defined below) in Australia, the value of the leave is calculated on the basis of base salary, target STIP and car allowance. No STIP is included where the executive is not an eligible leaver.

If termination is a result of redundancy, the terms of the relevant local policy will apply in the same way as for other local employees.

On termination, the company will pay relocation or expatriation benefits as agreed at the time of the original expatriation and/or in accordance with applicable policies on travel and relocation.

On termination other than for cause, the company may make a payment in consideration for entry by the departing executive director into appropriate restrictive covenants to protect Rio Tinto and its shareholders. The amount of such payment will be determined by the Committee based on the content and duration of the covenant.

Following termination, executive directors may be eligible to receive long-term incentive awards under the conditions described in the sections following. They and their dependents may also be eligible for post-retirement benefits such as medical and life insurance. The company may also agree to continue certain other benefits for a period following termination where the arrangements are provided under term contracts or in accordance with the terms of the service contract, for example, payment for financial advice, tax advice and preparation of tax returns for a tax year. In some cases, they may receive a modest retirement gift.

Subject to the approval of the Committee the company may pay such amount as it determines is reasonable to settle any claims that an executive director may have in connection with the termination of his or her employment. The company may also pay reasonable legal and other professional fees (including outplacement support) to or in

respect of a director in connection with the termination of his or her employment. These may include legal fees incurred in negotiating a settlement agreement with Rio Tinto. In assessing what is reasonable, the company will take account of prevailing rates for such advice and support and determine an appropriate level of contribution based on the complexity of the issues.

### Treatment of STIP and LTIP on termination

The STIP and LTIP rules govern the entitlements that executive participants may have under those plans upon termination of employment.

The concept of an "eligible leaver" is defined in the relevant plan rules. In general terms, an eligible leaver is an executive who leaves the Group by reason of ill-health, injury, disability (as determined by the executive's employer); retirement; redundancy; transfer of the undertaking in which the executive works; change of control of the executive's employing company; or death. Usually there is discretion for the Committee to treat an executive as an eligible leaver.

#### STIP

If an eligible leaver leaves the Group during a performance year, the Committee may determine in its absolute discretion to award a pro rata portion of the STIP based on the amount of the year served and based on actual assessment of performance against targets. Any cash payment will be made at the normal STIP payment date and no portion of the award will be deferred into shares.

If an executive provides the company notice of their resignation during the performance year, but does not leave the Group until after the end of the performance year, the Committee may determine in its absolute discretion to make an award under the STIP. In these circumstances, the executive will only be eligible to receive the cash portion of the award and will forfeit the deferred shares portion. Any cash payment will be made at the normal STIP payment date.

No STIP award will be made where an executive who is not an eligible leaver leaves the Group, resigns or is terminated for cause prior to the end of the performance year.

#### Bonus deferred shares under the EIP and grants under the BDP (2013-2017)

For grants made to executives, awards will normally vest on the scheduled vesting date. There will be no pro rata reduction of awards and any dividend equivalent shares will be calculated on the vested shares.

If the executive resigns or is dismissed for misconduct, or for any other reason that the Committee decides, the awards will lapse.

#### Performance Share Awards under the EIP and Performance Share Plan (2013-2017)

For grants made to executives from and including 2013, awards will normally be retained, and vest at the scheduled vesting date. Unvested awards remain subject to the satisfaction of the performance conditions. Any dividend equivalent shares will be calculated on the vested shares at vesting.

If the executive leaves the Group during the first 36 months from the date of grant of the award, the number of shares that can vest will be reduced pro rata over that 36-month period.

Awards will vest immediately on death, but if an executive dies during the first 36 months from the date of grant of the award, the number of shares that vest will be reduced pro rata over that 36-month period.

If the executive resigns or is dismissed for misconduct, or for any other reason that the Committee decides, the awards will lapse.

Where permitted by the plan rules, and where the Remuneration Committee so decides, awards may be made or satisfied in cash in lieu of shares.

#### Management Share Awards under the EIP and grants under the Management Share Plan (MSP) (prior to 2018)

Awards are only made to executives prior to their appointment as an Executive Committee member, except under the circumstances described in the "Recruitment remuneration" section above. All retained awards will be reduced pro rata to reflect the proportion of the period between the date of grant of the award and the normal vesting date which has not elapsed at the time employment ceased. Any dividend equivalent shares will be calculated on the vested shares. Awards vest on death, subject to the pro rata reduction described above, unless the Committee decides otherwise.

For grants made to executives, awards will normally be retained, and vest, at the Committee's discretion, at the scheduled vesting date (although awards for US taxpayers may vest on leaving).

If the executive resigns or is dismissed for misconduct, or for any other reason that the Committee decides, the awards will lapse.

#### **All employee share plans**

For grants made to executives, awards will normally vest on or shortly after leaving. There will be no pro rata reduction of awards and any dividend equivalent shares will be calculated on the vested shares.

If the executive resigns or is dismissed for misconduct, or for any other reason that the Committee decides, the awards will lapse.

### **Chairman and non-executive directors' remuneration**

#### **Chairman**

It is Rio Tinto's policy that the chairman should be remunerated on a competitive basis and at a level which reflects his or her contribution to the Group, as assessed by the board.

The Committee (excluding the chairman, if he or she is a member) determines the terms of service and remuneration of the chairman. The chairman's fees are set by the Committee.

The chairman receives a fixed annual fee and does not receive any additional fee or allowance either for committee membership or chairmanship, or for travel. The chairman does not participate in the Group's incentive plans.

The chairman may be provided with a car and driver. Any use for transport between home and the office and other personal travel is a taxable benefit to the chairman, and the Company pays any tax arising on the chairman's behalf. The chairman pays a fixed annual fee to the Company for the personal travel element.

Relocation and localisation benefits in accordance with the policy for executive directors (for example, housing, tax equalisation, cost of living allowance, the payment of school fees, periodic visits home for the executive and their family and where relevant, localisation payments) may be made to and on behalf of a chairman working outside their home country. Any instances of these types of payments will be set out in the Implementation Report.

Other benefits include private healthcare cover, accident insurance (note this is neither contractual nor a taxable benefit), other minor benefits (including modest retirement gifts in applicable circumstances), occasional spouse travel in support of the business and any Rio Tinto business-related expenses which are deemed to be taxable where the company has paid the tax on his or her behalf. Rio Tinto does not pay retirement or post-employment benefits to the chairman.

#### **Non-executive directors**

Fees paid to non-executive directors reflect their respective duties and responsibilities and the time required to be spent by them so as to make a meaningful and effective contribution to the affairs of Rio Tinto.

The non-executive directors' fees and other terms are set by the board upon the recommendation of the Chairman's Committee (which comprises the chairman, chief executive and chief financial officer).

Non-executive directors receive a fixed annual fee comprising a base fee, committee membership or committee chairmanship fee or senior independent director fee, as applicable, and allowances for attending meetings which involve medium or long-distance air travel. They do not participate in any of the Group's incentive plans.

Where the payment of statutory minimum superannuation contributions for Australian non-executive directors is required by Australian superannuation law, these contributions are deducted from the director's overall fee entitlements.

Non-executive directors may on occasion receive reimbursement for costs incurred in relation to the provision of professional advice. These payments, if made, are taxable benefits to the non-executive directors and the tax arising is paid by the company on the director's behalf.

Other benefits provided include accident insurance (note this is neither contractual nor a taxable benefit), other minor benefits (including modest retirement gifts in applicable circumstances), occasional spouse travel in support of the business and any Rio Tinto business expenses which are deemed to be taxable where the company has paid the tax on their behalf. Rio Tinto does not pay retirement or post-employment benefits to non-executive directors.

#### **Appointment**

The appointment of non-executive directors (including the chairman) is handled through the Nominations Committee and board processes. The current fee levels are set out in the Implementation Report.

The chairman's letter of appointment from the company stipulates his or her duties as chairman of the Group and appointment may be terminated without liability on the part of Rio Tinto in accordance with the Group's constitutional documents dealing with retirement, disqualification from office or other vacation from office. Otherwise, his or her appointment may be terminated by giving 12 months' notice. Accrued fees will be paid up to the termination date with the exception of dismissal for cause. The Committee has the discretion to make a payment in lieu of notice if the chairman is not required to serve his or her full 12-months' notice. If the appointment as chairman is terminated by reason of their removal as a director pursuant to a resolution of shareholders in general meeting, the company shall be liable to pay any fees accrued to the date of any such removal.

The non-executive directors' letters of appointment from the company stipulate their duties and responsibilities as directors. Each non-executive director is appointed subject to their election and annual re-election by shareholders. Non-executive directors' appointments may be terminated by giving three-months' notice. There are no provisions for compensation payable on termination of their appointment. The letters of appointment are available for inspection at Rio Tinto plc's registered office, and at its AGM.

In accordance with the provisions of the Group's constitutional documents, the maximum aggregate fees payable to the non-executive directors (including the chairman) in respect of any year, including fees received by the non-executive directors for serving on any committee of the boards, and any travel allowances received by the non-executive directors for attending meetings, will not exceed £3,000,000. Non-monetary benefits are not included in this limit.



# Remuneration Report: Implementation Report

## Implementation Report introduction

This Implementation Report is presented to shareholders for approval at the AGMs. It outlines how our Remuneration Policy was implemented in 2017 and how we intend to operate it in 2018.

Remuneration for executives, set out in the single total figure of remuneration tables, is shown gross of tax and in the relevant currency of award or payment. The information reported for executives in table 1a on page 97 is reported in accordance with Australian statutory disclosure requirements and is shown gross of tax and in US dollars. The remuneration details set out in table 1a include theoretical accounting values relating to various parts of the remuneration package, most notably Performance Share Awards (PSA) granted under the Group's Long-Term Incentive Plan (LTIP) arrangements, and require a different methodology for calculating the pension value. Accordingly, the figures in the single total figure of remuneration tables are not directly comparable with those in table 1a. Where applicable, amounts have been converted using the relevant average exchange rates included in the notes to table 1a<sup>(a)</sup>.

In addition to executive remuneration, this report covers, in table 1b on page 99, the remuneration of the chairman and the non-executive directors. All figures are shown gross of tax and in US dollars. Certain information contained within the Remuneration Report is audited. Specific information regarding the audited information is outlined on page 110.

## Remuneration Committee responsibilities

The Committee's responsibilities are set out in its terms of reference which are available in the corporate governance section of the Rio Tinto website. The Committee reviews its responsibilities and terms of reference annually. These currently include:

- determining the Group's remuneration structure and policies, and assessing their cost, including pension and superannuation arrangements for executives;
- determining the mix and use of short- and long-term incentive plans for executives;
- overseeing the operation of the Group's short- and long-term incentive plans as they relate to executives, including the approval of awards, the setting of performance criteria, where applicable, and the determination of any vesting;
- determining contractual notice periods and termination commitments and setting any retention and termination arrangements for executives;
- determining awards under the Group's all-employee share plan;
- monitoring gender pay; and
- determining the terms of service upon appointment and any subsequent changes for the chairman and executives.

The Committee takes account of the level of pay and conditions throughout the Group when determining executive remuneration.

The membership of the Committee and meeting attendances are detailed in the Corporate Governance section on page 57.

The Committee is supported by executives and members of senior management who attend meetings to provide information as requested by the Committee. These included Jean-Sébastien Jacques (chief executive), Vera Kirikova (Group executive, Human Resources), John Beadle (head of Performance & Reward), Victoria Hames (acting Group company secretary from 20 August 2016 until 9 January 2017) and Steve Allen (Group company secretary from 9 January 2017). None of the attendees mentioned above was present when matters associated with their own remuneration were considered by the Committee. The Committee will normally hold private sessions at committee meetings where no executives or managers are present.

(a) UK and Australian remuneration figures are generally not comparable due to the different methodologies required to calculate various parts of the remuneration packages, most notably LTIP arrangements and the value of pension or superannuation.

## Independent advisers

The independent advisers engaged by the Committee during 2017 were Willis Towers Watson. Willis Towers Watson reports to the Committee and not to management.

To ensure that "remuneration recommendations" (being advice relating to the elements of remuneration for key management personnel, as defined under the Australian Corporations Act) were made free from undue influence by key management personnel to whom they may relate, the Committee established a protocol for the engagement of, and interaction with, remuneration consultants and has monitored compliance with its requirements throughout 2017. Declarations were given by Willis Towers Watson to the effect that its remuneration recommendations were made free from undue influence by key management personnel to whom they related. The board has received assurance from the Committee and is satisfied that the remuneration recommendations received from Willis Towers Watson were made free from undue influence.

Willis Towers Watson is a member of the Remuneration Consultants' Group and, as such, voluntarily operates under its Code of Conduct (the Code) in relation to executive remuneration consulting in the UK. The Code is based upon principles of transparency, integrity, objectivity, competence, due care and confidentiality. Willis Towers Watson has confirmed that it adhered to the Code throughout 2017 for all remuneration services provided to Rio Tinto. The Code is available online at [remunerationconsultantsgroup.com](http://remunerationconsultantsgroup.com).

Willis Towers Watson is the only remuneration consultant which provided remuneration recommendations to the Committee during 2017. The Committee is content that Willis Towers Watson, in providing remuneration advice to the Committee, did not have any connections with Rio Tinto that impaired its independence.

During 2017, as part of its engagement, Willis Towers Watson provided remuneration recommendations to the Committee. Its services included Committee meeting attendance and advice in relation to management proposals. Willis Towers Watson was paid US\$374,434 (2016: US\$234,967) for these services.

Willis Towers Watson provided general and technical executive remuneration services. These services included the giving of advice about remuneration of employees other than key management personnel across the Group, and advice in relation to preparation of the 2017 Remuneration Report. Other services and publications relating to remuneration data were received from a range of sources.

## How the Committee spent its time in 2017

During 2017, the Committee met nine times. It fulfilled its responsibilities as set out in its terms of reference.

In particular, its work in 2017 and in the early part of 2018 has included:

- reviewing and determining any base salary adjustments for executives;
- reviewing and determining "threshold", "target" and "outstanding" targets for the safety and financial components of the 2017 Short-Term Incentive Plan (STIP);
- reviewing actual performance against the targets for the 2017 STIP and assessing applicable adjustments;
- reviewing and determining the total shareholder return (TSR) outcome and the estimated EBIT margin outcome for PSA with a performance period ending 31 December 2017;
- reviewing and determining LTIP grants for the executives in 2018;
- reviewing the terms of retirement for the chief financial officer (Chris Lynch);
- determining the terms of appointment for the new Group executive, Legal (Philip Richards) and the new chief commercial officer (Simon Trott);
- considering the terms of the deferral agreement for Sam Walsh;
- reviewing the proposed Remuneration Policy;
- reviewing the rules of the proposed 2018 Equity Incentive Plan;

- reviewing the strategy and annual reports on the Group's global benefit plans;
- reviewing progress towards compliance with the Group's share ownership requirements;
- determining the 2018 STIP targets; and
- preparing the Remuneration Report (including this Implementation Report).

The performance targets for PSA granted under the LTIP and the company's approach to establishing the performance targets under the STIP are detailed in the executive remuneration structure table on pages 73 to 75. The Committee's approach to the commercial sensitivity of certain targets is discussed below.

### Performance review process for executives

Rio Tinto conducts an annual performance review process for all of its executives. In the case of members of the Executive Committee, the chief executive conducts the review. In the case of the chief executive, his performance is assessed by the chairman of the board.

The key objectives of the performance review process are to:

- improve organisational effectiveness by creating alignment between the executive's objectives and Rio Tinto's strategy; and
- provide a consistent, transparent and balanced approach to measure, recognise and reward executive performance.

All such reviews took place in 2017 or early 2018.

### Share ownership policy for executives

The Group recognises the importance of aligning executives' interests with those of shareholders and they are therefore expected to build up and maintain a material shareholding. The Committee intends that executives should aim to reach a share ownership (defined below) in Rio Tinto shares equivalent in value to:

	Share ownership requirement
Chief executive	4 x base salary
Other executives	3 x base salary

The Committee expects that this shareholding will be built up over a five-year period by holding shares that vest under the LTIPs. For new hires, longer periods may be accepted, given the five-year vesting periods for the PSP.

Shares will be treated as "owned" if they are not subject to restriction, and as such include shares directly held by the executive and any shares where there is a beneficial interest. A beneficial interest includes any shares where the executive receives the benefit of ownership (such as a right to receive dividends) without directly owning the shares. Given its mandatory nature and the absence of performance conditions, a value for unvested bonus deferred shares is included with a 50 per cent discount for the likely effects of taxation. A value for vested, but unexercised, share options is also included, with a 50 per cent discount for the likely effects of taxation, on the basis that executives with unexercised vested options have a strong financial alignment with the share price and therefore with shareholder interests.

Shareholding requirements also exist for senior management below the Executive Committee.

Details of executives' beneficial interests in Rio Tinto shares are set out in table 2 on page 100 and the details of awards of shares and options under long-term incentive plans are set out in table 3 on pages 101 to 105.

### Executives' external and other appointments

Executives may be invited to become non-executive directors of other companies. It is Rio Tinto's policy that such appointments can broaden the experience and knowledge of executives, to the benefit of the Group. This policy limits each executive's external appointment to one FTSE100 company directorship or equivalent. Consequently, where there is no likelihood that such an appointment will give rise to a conflict of interest, the board will normally provide consent to the appointment. The executive is typically permitted to retain any fees earned.

Details of all executives' external appointments can be found on page 55. Note that neither of the executive directors currently has an external directorship.

### Performance and impact on 2017 STIP

Group financial and safety measures are included in the STIP for executive directors and Group executives. The STIP measures for the product group chief executive officers (PGCEOs) include product group financial and safety measures in addition to the Group financial measures.

Safety measures for all executives in 2017 were split between all injury frequency rate (AIFR) (30 per cent), lost time injuries (LTIs) (30 per cent) and measures relating to the implementation of critical risk management (CRM) (40 per cent). Our goal is zero harm, including, above all, the elimination of workplace fatalities.

The Committee selected the current financial measures of underlying earnings and STIP free cash flow because they are based on KPIs used in managing the business.

Underlying earnings gives insight to cost management, production growth and performance efficiency on a like-for-like basis. We are focused on reducing operating costs, increasing productivity and generating maximum revenue from each of our assets. A reconciliation of net earnings/(losses) to underlying earnings is provided in note 2 (Operating segments) on page 133.

STIP free cash flow is also an important measure to the business, demonstrating how we convert underlying earnings to cash. It provides additional insight into how we are managing costs, increasing efficiency and productivity across the business. STIP free cash flow comprises net cash generated from operating activities less purchases of property, plant and equipment and intangible assets, plus sales of property, plant and equipment and intangible assets, adjusted to exclude dividends paid to holders of non-controlling interests in subsidiaries and development capital expenditure.

In measuring financial performance against the annual plan, half is measured against the original plan, and half is "flexed" to exclude the impact of fluctuations in exchange rates, quoted metal and other prices during the year, which are outside management's control. "Flexed" financial targets are typically higher than the "unflexed" targets set by the board when commodity prices rise, as was the case of 2017, and lower when commodity prices fall. Actual underlying earnings and STIP free cash flow results are compared against equally weighted "flexed" and "unflexed" targets.

### Safety performance

Two people lost their lives while working at Rio Tinto managed operations in 2017, which meant we did not achieve our goal of zero fatalities.

The Remuneration Committee sought guidance from the Sustainability Committee on safety performance for 2017, as per our normal procedures. Injury performance improved by 5 per cent with an AIFR of 0.42 for 2017, against a rate of 0.44 in 2016. This was against a target AIFR of 0.40 placing the result between "threshold" and "target".

There were 199 lost time injuries in 2017 compared with 206 in 2016. This was against a target of 187, placing the result between "threshold" and "target".

It was the second year for inclusion of the CRM fatality prevention programme in the safety STIP metrics. Good progress was made during 2017. All businesses were on track with implementation and leadership participation was well above target. Performance against the CRM measures was assessed by the Sustainability Committee to be between "target" and "outstanding". See page 68 of the Report from the Sustainability Committee.

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The combined performance against our AIFR, LTI and CRM targets meant that the Group achieved a STIP safety result equal to “target”. One of the four product groups also achieved above “target” STIP safety results and three product groups achieved below “target” STIP safety results. The total STIP safety result for the Group was 49.5 per cent of maximum.

However, reductions were applied as required for executives where a fatality has occurred. Thus the safety results for the chief executive and the chief financial officer were reduced from 49.5 per cent of maximum to 37.0 per cent and 42.0 per cent of maximum respectively for the impact of the fatalities in 2017. These adjustments reflect the level of oversight they had for safety leadership during the year. Similarly there were downward adjustments made for certain other executives.

### Group financial performance

Highlights of our 2017 performance can be found on page 1 of this Annual report. The table below provides details of performance against our “unflexed” and “flexed” underlying earnings and STIP free cash flow financial targets for 2017.

Group measures	Unflexed target US\$	Flexed target US\$	Actual result US\$
<b>Underlying earnings</b>			
Threshold	6.9b	8.2b	
Target	7.7b	9.2b	8.6b
Outstanding	9.7b	11.8b	
<b>STIP free cash flow</b>			
Threshold	9.9b	10.9b	
Target	11.2b	12.6b	12.4b
Outstanding	14.4b	16.7b	

The underlying “unflexed” earnings and STIP free cash flow results for the Group exceeded the targets set by the board and were between “target” and “outstanding”. The underlying “flexed” earnings and the STIP free cash flow results were slightly below “target”. These outcomes are reflected in the financial component of the STIP awards, both at the Group and product group level.

These outcomes translate into a Group performance against the financial targets of 56 per cent of maximum.

In making its year-end determination of STIP awards, the Committee seeks to ensure that actual performance is directly comparable to the targets set at the beginning of the year. This results in the Committee making adjustments to the targets to take account of events outside management’s control and to ensure a like-for-like comparison. Both upward and downward adjustments were made to the targets by reference to principles agreed by the Committee, which have been consistently applied over several years, to ensure the outcomes are fair.

The most significant adjustment in 2017 related to the impact on iron ore shipments of unfavourable weather conditions across northern Western Australia in 2017 that significantly exceeded 2017 plan assumptions. Other significant adjustments related to the disposal of Coal & Allied in September 2017, the strike in the non-managed operations in Escondida and a write-down of deferred tax assets in relation to the Grasberg operation.

This process increased the Group’s result against the financial targets from 56 per cent to 67 per cent of maximum (2016: from 83.5 per cent to 83 per cent of maximum).

### Aggregate results

The aggregate results for Group safety and financial measures are set out in the table below. The outcomes for the executive directors, with commentary on key highlights on performance against individual objectives, are provided on pages 84 and 86. Additional details for other executives are provided on page 89.

Group measures	Weight (%)	Result (% of maximum)	Weighted result
Group safety <sup>(a)</sup>	20.0	49.5	9.9
Underlying earnings	12.5	87.0	10.9
Underlying earnings – flexed	12.5	48.0	6.0
STIP free cash flow	12.5	78.5	9.8
STIP free cash flow – flexed	12.5	54.5	6.8
Group financial	50.0	67.0	33.5
<b>Safety and financial measures<sup>(b)</sup></b>	<b>70.0</b>	<b>62.0</b>	<b>43.4</b>
Individual measures <sup>(c)</sup>	30.0	–	–
<b>Total<sup>(c)</sup></b>	<b>100.0</b>	<b>–</b>	<b>–</b>

(a) This excludes the impact of adjustments for the fatalities in 2017 which vary by executive.

(b) The weighted result represents the total Group safety and financial measures result (as a percentage of maximum) weighted based on the total STIP opportunity of 70 per cent allocated to the safety and financial measures. This excludes the impact of adjustments for the fatalities in 2017 which vary by executive.

(c) The outcomes against individual measures and the total result for executives are included in the following pages.

### STIP individual measures for 2017

The individual measures which were set by the chairman for the chief executive and by the chief executive for other executives were based on our five priorities: safety, people, cash, partnership and growth.

Details of the outcomes against the individual measures are provided in the detailed sections relating to each executive director, and the Executive Committee.

### Performance and impact on LTIP vesting outcome for the period ended 31 December 2017

As part of the transition from a four-year to a five-year performance period under the 2013 Performance Share Plan approved by shareholders in 2013, half of the award granted on 27 May 2013 had a performance period ending after five years on 31 December 2017. The other half of the award had a performance period of four years which ended on 31 December 2016. The conditional share awards vest subject to the achievement of performance conditions, comparing Rio Tinto’s performance against:

- One-third – TSR relative to the Euromoney Global Mining Index;
- One-third – TSR relative to the MSCI World Index; and
- One-third – improvement in EBIT margin relative to global mining comparators.

Performance against the TSR measures has been calculated by Willis Towers Watson. Rio Tinto outperformed the Euromoney Global Mining Index by 34.0 per cent for the five-year performance period starting 1 January 2013 and ending on 31 December 2017. This equated to an outperformance of 6.0 per cent per annum which is the level of outperformance required for full vesting against this index. The vesting outcome against this index was therefore 100.0 per cent (33.33 per cent of the total award). The level of vesting against the MSCI World Index is nil as Rio Tinto underperformed this index.

The Committee considered the Group's overall performance in the context of the PSA with a performance period ending on 31 December 2017 and concluded that the vesting of awards, based upon performance against the achievement of the TSR measures was justified and, as a consequence, this portion of the award vested on 19 February 2018.

Performance against the improvement in EBIT margin measure cannot be finalised until May 2018 due to the reporting timeframes for companies in the EBIT margin comparator group and the time taken for the external source (currently S&P Capital IQ) to report the relevant data. The estimated performance against the EBIT margin measure is that Rio Tinto ranked no.3 against the comparator group of 11, which would result in a vesting of 90.98 per cent for this measure (or 30.33 per cent of the total award). The figures used are adjusted compared to the headline figures disclosed by Rio Tinto and the comparators to remove the impact of impairments. S&P Capital IQ provides figures with these adjustments already made and the Committee has not made any additional adjustments. Accordingly, there is no benefit afforded to Rio Tinto's margin performance from the impairments reported for the 2012 baseline year.

The estimated overall vesting of the PSA granted in 2013 with a performance period ending 31 December 2017 is therefore 63.66 per cent of face value. The vesting of the EBIT margin portion of the award will be determined after the EBIT margin assessment has been completed and any EBIT margin portion of the award will therefore vest on 31 May 2018.

The value of PSA vesting included in the 2017 single total figure of remuneration tables is therefore an estimate based on:

- the TSR portion of the award (with estimated associated dividend equivalent shares) which vested on 19 February 2018 based on the five- year performance period to 31 December 2017;
- an estimate of the vesting of the EBIT margin portion of the award (with estimated associated dividend equivalent shares) based on the latest available EBIT margin ranking as at the date of this report; and
- the average share prices for Rio Tinto plc and Rio Tinto Limited over the last quarter of 2017 of £36.27 and A\$71.11 respectively, as the market price of shares at the date on which all shares vest is not ascertainable by the date on which the Remuneration Report was approved by the directors.

The actual values associated with the vesting of PSA will be recalculated following the vesting of the EBIT margin portion of the award at the end of May 2018 based on the actual share prices on the date of vesting. The estimated LTIP values will be restated, if applicable, in the 2018 Annual report.

Further details of the performance outcome for PSA for the period ended 31 December 2017 and in prior years, including a chart on TSR performance against both the Euromoney Global Mining Index and the MSCI World Index, are provided on page 94.

## Jean-Sébastien Jacques (chief executive)

### Single total figure of remuneration

The table below provides a summary of actual remuneration in respect of 2017 and prior years in accordance with UK legislation, stated in pounds sterling, the currency of Jean-Sébastien's arrangements.

(stated in £'000)	2017	2016	2015
Base salary paid	<b>1,080</b>	887	546
STIP payment – cash	<b>792</b>	732	465
STIP payment – deferred shares <sup>(b)</sup>	<b>793</b>	732	465
Total short-term pay	<b>2,665</b>	2,351	1,476
Value of LTIP awards vesting <sup>(c)</sup>	<b>694</b>	497	58
Pension <sup>(d)</sup>	<b>269</b>	225	130
Other benefits <sup>(e)</sup>	<b>58</b>	43	31
Single total figure of remuneration	<b>3,686</b>	3,116	1,695
Percentage change in total remuneration (2017 versus 2016; 2016 versus 2015)	<b>18.3%</b>	83.8%	
Percentage of total remuneration provided as performance-related pay (STIP and LTIP)	<b>61.8%</b>	62.9%	58.3%
Percentage of total remuneration provided as non-performance-related pay (base salary, pension and other benefits)	<b>38.2%</b>	37.1%	41.7%
Percentage of maximum STIP awarded <sup>(f)</sup>	<b>73.4%</b>	82.4%	84.0%
Percentage of maximum STIP forfeited	<b>26.6%</b>	17.6%	16.0%
Percentage of target STIP awarded	<b>122.3%</b>	139.9%	168.1%
Percentage of PSA vesting <sup>(g)</sup>	<b>63.7%</b>	50.5%	65.4%
Percentage SOP award vesting <sup>(g)</sup>	–	–	–

The increase in the single total figure of remuneration is due mainly to the higher base salary paid and the higher STIP award in 2017 compared with 2016 due to 2017 being Jean-Sébastien's first full year as chief executive. The value of LTIP awards vesting was also higher in 2017.

(a) Salary paid in the financial year to 31 December. Salaries are generally reviewed with effect from 1 March. However, in 2016 Jean-Sébastien's base salary was increased from £553,300 to £800,000 on appointment as deputy chief executive with effect from 17 March 2016 and increased to £1,080,000 on appointment as chief executive with effect from 2 July 2016. The salary and single figure of remuneration for 2015 relates to his positions as chief executive, Copper & Coal for the period 1 March 2015 to 31 December 2015 and as chief executive, Copper for the period 1 January 2015 to 28 February 2015.

(b) Value of STIP deferred, the vesting of which is subject to the Plan rules.

(c) Based on the estimated value of the PSA, including dividend shares where applicable, which vested on 19 February 2018 (TSR portion) and which are anticipated to vest at the end of May 2018 (EBIT margin portion) for the performance period that ended 31 December 2017 and the PSA which vested for the performance periods that ended 31 December 2016 and 31 December 2015. A total of 25,683 shares were granted under the 2013 PSP which had a performance period which ended on 31 December 2017. It is estimated that a total of 19,126 shares, inclusive of an estimated 2,777 dividend shares will vest. The Rio Tinto plc share price used to calculate the estimated value of the award vesting with respect to 2017 is the average share price over the last quarter of 2017 of £36.27. The performance conditions for awards vesting for the period ending 31 December 2017 are detailed in the notes to table 3 on page 104.

The estimated value of LTIP awards for 2016 included in the 2016 Annual report was £501,000 compared with the restated actual value of £497,000. This was calculated based on an estimate of the vesting of the EBIT margin portion of the award of 100 per cent resulting in a total estimated vesting of 58.0 per cent. The lower actual vesting of the EBIT margin portion of the award of 77.5 per cent, based on a rank of no.3 against the comparator group of 11, resulted in a total actual vesting of 50.5 per cent. The impact of the lower vesting level was offset by higher share prices at the time of vesting (£36.18 for the TSR portion which vested on 20 February 2017 and £31.08 for the EBIT margin portion which vested on 31 May 2017) compared with the average share price over the last quarter of 2016 of £29.30 which was used to calculate the estimated value.

(d) Pension reflects the value of the pension contribution and payment in lieu of pension paid during the year.

(e) Includes healthcare, allowance for professional tax services and car allowance.

(f) The maximum potential STIP award is 200 per cent of base salary.

(g) Jean-Sébastien has received no awards under the Share Option Plan (SOP).



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### Base salary

The Committee increased Jean-Sébastien's base salary by 2.8 per cent with effect from 1 March 2018, consistent with the salary budget for other UK contracted employees in the Group.

	2018	2017 <sup>(a)</sup>	% change
Base salary (stated in £'000)	1,110	1,080	2.8

(a) Base salary on appointment as chief executive, effective 2 July 2016. No increase was awarded effective 1 March 2017.

### STIP individual objectives for 2017

Jean-Sébastien's performance against his individual objectives is summarised below:

Category	Performance
<b>Safety</b>	<ul style="list-style-type: none"> <li>– Demonstrated strong leadership and commitment to the safety agenda.</li> <li>– Fully embedded the CRM process across all operations, with a clear focus on verification quality.</li> </ul>
<b>People</b>	<ul style="list-style-type: none"> <li>– Upgraded the Group's people capability, with a specific focus on commercial and technical talent.</li> <li>– Improved employee gender diversity and employee engagement, supported by initiatives such as the global minimum parental leave policy.</li> <li>– Improved the senior executive succession pool and leadership development.</li> <li>– Rolled out a refreshed purpose and values statement to all employees and relaunched <i>The way we work</i>.</li> </ul>
<b>Cash</b>	<ul style="list-style-type: none"> <li>– Embedded the "mine to market" productivity agenda.</li> <li>– Delivered US\$2 billion cash cost savings over 2016-17, as per previous commitments.</li> <li>– Net debt reduced by almost US\$6 billion from 2016.</li> <li>– Continued to optimise the Group's portfolio, with a primary focus on Tier 1 assets.</li> <li>– Released cash from non-core assets where appropriate (eg thermal coal).</li> </ul>
<b>Partnership</b>	<ul style="list-style-type: none"> <li>– Protected and improved the licence to operate, despite challenges in all key markets.</li> <li>– Developed clear country strategies for all key Tier 1 countries.</li> <li>– Improved the Group's reputation in key geographies.</li> <li>– Continued to develop strong relationships with governments and other stakeholders, including the relationship with China.</li> <li>– On track to meet 24 per cent reduction in total GHG emissions intensity between 2008 and 2020.</li> </ul>
<b>Growth</b>	<ul style="list-style-type: none"> <li>– Safely delivered key projects (eg Silvergrass and AutoHaul™).</li> <li>– Continued to refine the pathway for the long-term development of the Pilbara.</li> <li>– Further work continued on the growth pipeline, with a clear focus on Tier 1 potential projects.</li> </ul>

The Committee, with input from the chairman of the board, assessed Jean-Sébastien's performance against his individual objectives as 67.5 per cent of maximum for his individual contribution to the business during the year.

### STIP outcomes for 2017

The following table summarises the STIP outcomes for 2017.

Measures	Weight (%)	Result (out of maximum)	Weighted result
Group safety <sup>(a)</sup>	20.0	37.0	7.4
Group financial <sup>(a)</sup>	50.0	67.0	33.5
Safety and financial	70.0	58.4	40.9
Individual	30.0	67.5	20.3
<b>Total</b>	<b>100.0</b>	<b>–</b>	<b>61.2</b>
STIP award (% of maximum award) <sup>(b)</sup>			73.4
<b>Total STIP award (% of base salary)</b>			<b>146.8</b>

(a) Refer to pages 81 and 82 for further details of Group safety and financial performance. The Group safety result of 49.5 per cent of maximum has been reduced by 25 per cent to 37.0 per cent of maximum for the impact of the fatalities in 2017.

(b) Weighted result multiplied by 1.2x for executive directors. Award levels are subject to an overriding maximum of 200 per cent of base salary.

As a result, Jean-Sébastien received a STIP award of £1,585,008 (2016: £1,464,146), which is 73.4 per cent of maximum (2016: 82.4 per cent), and equivalent to 146.8 per cent of his base salary (2016: 164.7 per cent), half to be delivered in cash in March 2018, and the remainder to be delivered in deferred shares, vesting in December 2020.

### STIP measures for 2018

The 2018 STIP measures and weightings are described on page 91 of this report.

### LTIP outcome for the period ended 31 December 2017

Jean-Sébastien will receive an estimated 19,126 shares (2016: 14,829 shares) in Rio Tinto plc in 2018 from the vesting of the PSA granted in 2013. The shares vesting is inclusive of an estimated 2,777 shares which is equal to the aggregate net dividends that would have been paid on the shares that vest had he owned them during that five-year period. No dividends shares will be granted in respect of the share awards that lapse. The total estimated value of the PSA vesting for the performance period ending 31 December 2017, inclusive of the estimated dividend shares on the PSA granted in 2013, was therefore £694,000 (2016: £497,000).

### LTIP award granted in 2017

The details of Jean-Sébastien's 2017 LTIP award, which were previewed in the 2016 Remuneration Report, are summarised in the following table.

Type of award	Grant date	Face value of award (% of base salary)	Face value of award (£'000) <sup>(a)</sup>	% vesting at threshold performance	End of the performance period over which the performance conditions have to be fulfilled <sup>(b)(c)</sup>
PSA	9 March 2017	400%	4,320	22.5%	31 Dec 2021

(a) The face value represents the maximum value of the award of 400 per cent of Jean-Sébastien's base salary of £1,080,000 and resulted in a total award of 184,994 conditional shares based on the average share price over 2016 of £23.352. The expected value of the award is 50 per cent of the face value or £2,160,000.

(b) The 2017 PSA may vest after five years in 2022.

(c) The full performance conditions for the award are set out in detail in notes to table 3 on page 104.

### LTIP award for 2018

Jean-Sébastien's LTIP award in 2018 (to be granted as a PSA) will have a face value of 430 per cent of base salary and an expected value of 215 per cent of base salary. The award may vest after five years in 2023, subject to the Group's relative TSR performance. The full performance conditions are set out in detail on page 90.

The number of conditional shares awarded as a PSA is calculated using the average share price over the previous calendar year and, as such, 139,995 shares will be awarded in 2018 calculated using the 2017 average share price of £34.10.



## Shareholding

Jean-Sébastien's shareholding for the purposes of the share ownership policy, calculated using the market price of Rio Tinto shares on the latest practicable date each year before the date of publication of this report was:

	31 December 2017	31 December 2016	Increase in shareholding
Holding of ordinary shares	38,541	21,087	82.8%
Multiple of base salary	2.3	0.7	1.6

The holding as at 31 December 2017 includes the value of unvested Bonus Deferral Plan (BDP) awards. Jean-Sébastien holds no options over Rio Tinto shares. He has until 2021 to build up his ownership in shares to four times his salary as chief executive.

## Pension

Jean-Sébastien is employed in the UK and is provided with pension benefits on a defined contribution basis on terms equivalent to other UK employees as follows:

- A pension contribution to a funded UK company pension arrangement of 25 per cent of £135,000, being the current maximum salary on which pension contributions are based under that arrangement.
- A cash supplement equal to 25 per cent of the amount by which his base salary exceeded £135,000, less any applicable withholdings.

Two changes were made to Jean-Sébastien's pension provision during the year:

1. In line with other UK employees, Jean-Sébastien was permitted to reduce the company's pension contribution to a minimum of £10,000 a year and to take the balance as a taxable cash allowance. The gross cash allowance was reduced by the company's National Insurance contribution payable on that cash allowance.
2. Under Australian Superannuation Guarantee legislation the company is required to pay superannuation contributions to an Australian superannuation fund in respect of Jean-Sébastien's working days in Australia. The sterling equivalent of these superannuation contributions is offset against the UK cash supplement paid to Jean-Sébastien.

Jean-Sébastien's pension provision in 2017 was:

- A UK pension contribution of £24,063 (2016: £30,375).
- A gross cash allowance of £8,514 (2016: Nil).
- A superannuation contribution to an Australian superannuation fund of A\$9,916 (2016: Nil) in the period 1 July to 31 December 2017. The sterling equivalent of £5,831 (2016: Nil) was offset against the cash supplement.
- A cash supplement of £236,250 (2016: £194,144), reduced to £230,419 after the offset of the Australian superannuation contributions.

Jean-Sébastien's total pension provision for 2017 was £268,827 (2016: £224,519).

## Fees from external appointments

Jean-Sébastien received no fees from external appointments in 2017 or 2016.

## Service contract

Positions held and date of appointment to position	
Positions held during 2017	Date of appointment to position
Chief executive	2 July 2016

Jean-Sébastien's contract can be terminated by either party with 12 months' notice in writing, or immediately by paying the base salary only in lieu of any unexpired notice.

## Other

Jean-Sébastien is not currently eligible for tax equalisation on his remuneration, cost of living or any other ongoing assignment benefits such as a housing allowance.

## Chief executive's pay and employee pay

The table below compares the changes from 2016 to 2017, in salary, benefits and annual incentives paid for the chief executive and the

Australian workforce. We have chosen a comparison to the Australian workforce because we employ more people in Australia than in any other country (approximately 40 per cent of the total workforce). The rationale for the changes to the chief executive's base salary, benefits and annual incentive are reported in the single total figure of remuneration table.

	Percentage change in salary paid	Percentage change in other benefits paid	Percentage change in annual incentive paid <sup>(d)</sup>
Chief executive <sup>(c)</sup>	21.8%	34.9%	57.4%
Australian workforce	2.6%	3.5%	(8.7%)

(a) The percentage change in each element of remuneration for the workforce is calculated on a per capita basis using average employee numbers.

(b) The percentage change in annual incentive compares amounts paid in 2017 with respect to the 2016 performance year, to amounts paid in 2016 with respect to the 2015 performance year. Annual incentives for the workforce comprise a number of different short-term incentive arrangements.

(c) The increase in salary paid, other benefits paid and the annual incentive paid to the chief executive was primarily due to Jean-Sébastien's higher base salary on appointment as chief executive in 2016. The higher annual incentive paid was also due to the higher target STIP opportunity in 2016 compared with 2015 as a result of his appointment as chief executive which was partly offset by a lower STIP result in 2016 of 164.7% of his pro-rated base salary (2015: 168.1%) due mainly to a lower safety outcome in 2016 compared with 2015.

(d) The lower average annual incentive paid to the Australian workforce was due mainly to lower average business performance outcomes in 2016 compared with 2015.

## Chris Lynch (chief financial officer)

### Single total figure of remuneration

The table below provides a summary of actual remuneration in respect of 2017 and prior years in accordance with UK legislation, stated in pounds sterling, the currency of Chris's arrangements.

(stated in £'000)	2017	2016	2015
Base salary paid <sup>(a)</sup>	853	836	834
STIP payment – cash	615	717	690
STIP payment – deferred shares <sup>(b)</sup>	616	718	690
Total short-term pay	2,084	2,271	2,214
Value of LTIP awards vesting <sup>(c)</sup>	1,407	1,008	0
Pension <sup>(d)</sup>	221	209	208
Other benefits <sup>(e)</sup>	97	144	151
Single total figure of remuneration	3,809	3,632	2,573
Percentage change in total remuneration (2017 versus 2016; 2016 versus 2015)	4.9%	41.2%	
Percentage of total remuneration provided as performance-related pay (STIP and LTIP)	69.3%	67.3%	53.6%
Percentage of total remuneration provided as non-performance-related pay (base salary, pension and other benefits)	30.7%	32.7%	46.4%
Percentage of maximum STIP awarded <sup>(f)</sup>	71.9%	85.8%	82.5%
Percentage of maximum STIP forfeited	28.1%	14.2%	17.5%
Percentage of target STIP awarded	119.8%	143.0%	137.5%
Percentage of PSA vesting <sup>(g)</sup>	63.7%	50.5%	–
Percentage SOP award vesting <sup>(g)</sup>	–	–	–

## Remuneration Report: Implementation Report continued

The increase in the single total figure of remuneration is due mainly to the higher value of LTIP awards vesting in 2017 compared with 2016, partly offset by the lower STIP award in 2017 compared with 2016.

(a) Salary paid in the financial year to 31 December. Salaries are generally reviewed with effect from 1 March. Chris received a 2.4 per cent salary increase effective 1 March 2017.

(b) Value of STIP deferred, the vesting of which is subject to the Plan rules.

(c) Based on the estimated value of the PSA, including dividend shares, which vested on 19 February 2018 (TSR portion) and which are anticipated to vest at 31 May 2018 (EBIT margin portion) for the performance period that ended 31 December 2017 and PSA which vested for the performance periods that ended 31 December 2016 and 31 December 2015. A total of 52,085 shares were granted under the 2013 PSP which had a performance period which ended on 31 December 2017. It is estimated that a total of 38,790 shares, inclusive of an estimated 5,633 dividend shares will vest. The Rio Tinto plc share price used to calculate the estimated value of the award vesting with respect to 2017 is the average share price over the last quarter of 2017 of £36.27. The performance conditions for awards vesting for the period ending 31 December 2017 are detailed in the notes to table 3 on page 104.

The estimated value of the LTIP awards for 2016 included in the 2016 Annual report was £1,016,000 compared with the restated actual value of £1,008,000. This was calculated based on an estimate of the vesting of the EBIT margin portion of the award of 100 per cent resulting in a total estimated vesting of 58.0 per cent. The lower actual vesting of the EBIT margin portion of the award of 77.5 per cent, based on a ranking of no.3 against the comparator group of 11, resulted in a total actual vesting of 50.5 per cent. The impact of the lower vesting level was offset by higher share prices at the time of vesting (£36.18 for the TSR portion which vested on 20 February 2017 and £31.08 for the EBIT margin portion which vested on 31 May 2017) compared with the average share price over the last quarter of 2016 of £29.30 which was used to calculate the estimated value.

(d) Pension reflects the value of the pension contribution and payment in lieu of pension paid during the year.

(e) Includes healthcare, allowance for professional tax services and car allowance.

(f) The maximum potential STIP award is 200 per cent of base salary.

(g) Chris had no LTIP awards vest in respect of the performance periods that ended prior to 31 December 2016 as he received no LTIP awards prior to the award made in 2013. He has received no awards under the SOP.

### Base salary

Chris's base salary will remain unchanged in 2018.

	2018	2017	% change
Base salary (stated in £'000)	856	856	–

### STIP individual objectives for 2017

Chris's performance against his individual objectives is summarised below:

Category	Performance
<b>Safety</b>	– Supported progress in our safety agenda.
<b>People</b>	– Contributed to improved employee diversity (both gender and nationality). – Actively sponsored our high potential talent conference. – Engagement in roll out of purpose and values statements and support to Audit and Compliance committees.
<b>Cash</b>	– Liability management and rating agency engagement. – Released cash from non-core assets where appropriate (eg thermal coal). – Helped embed the “mine to market” productivity agenda. – Delivered US\$2 billion cash cost savings over 2016-17, as per previous commitments. – Net debt reduced by almost US\$6 billion from 2016.
<b>Partnership</b>	– Completed the implementation of the new shareholder return policy. – Continued to strengthen relationships with investors.
<b>Growth</b>	– Support provided to stock re-rating. – Further work on the growth pipeline, with a clear focus on Tier 1 potential projects.

The Committee, with input from the chief executive, assessed Chris's performance against his individual objectives as 60 per cent of maximum for his individual contribution to the business during the year.

### STIP outcomes for 2017

The following table summarises the STIP outcomes for 2017.

Measures	Weight (%)	Result (out of maximum)	Weighted result
Safety <sup>(a)</sup>	20	42.0	8.4
Group financial <sup>(a)</sup>	50	67.0	33.5
Safety and financial	70	59.9	41.9
Individual	30	60.0	18.0
<b>Total</b>	<b>100</b>	<b>–</b>	<b>59.9</b>
STIP award (% of maximum award) <sup>(b)</sup>			71.9
<b>Total STIP award (% of base salary)</b>			<b>143.8</b>

(a) Refer to pages 81 and 82 for further details of Group safety and financial performance. The Group safety result of 49.5 per cent of maximum has been reduced by 15 per cent to 42.0 per cent of maximum for the impact of the fatalities in 2017.

(b) Weighted result multiplied by 1.2x for executive directors. Award levels are subject to an overriding maximum of 200 per cent of base salary.

As a result, Chris received a STIP award of £1,231,304 (2016: £1,435,262), which is 71.9 per cent of maximum (2016: 85.8 per cent), and equivalent to 143.8 per cent of base salary (2016: 171.6 per cent), half to be delivered in cash in March 2018, and the remainder to be delivered in deferred shares, vesting in December 2020.

### STIP measures for 2018

The 2018 STIP measures and weightings are described on page 91 of this report.

### LTIP outcome for the period ended 31 December 2017

Chris will receive an estimated 38,790 shares (2016: 30,074 shares) in Rio Tinto plc in 2018 from the vesting of the PSA granted in 2013. The shares vesting is inclusive of an estimated 5,633 shares which is equal to the aggregate net dividends that would have been paid on the shares that vest had he owned them during that five-year period. No dividend shares will be granted in respect of the share awards that lapse. The total estimated value of the PSA vesting for the performance period ending 31 December 2017, inclusive of the estimated dividend shares on the PSA granted in 2013, was therefore £1,407,000 (2016: £1,008,000).

### LTIP award granted in 2017

The details of Chris's 2017 LTIP award, which were previewed in the 2016 Remuneration Report, are summarised in the following table.

Type of award	Grant date	Face value of award (% of base salary)	Face value of award (£'000) <sup>(a)</sup>	% vesting at threshold performance	End of the performance period over which the performance conditions have to be fulfilled <sup>(b)(c)</sup>
PSA	9 March 2017	400%	3,426	22.5%	31 Dec 2021

(a) The face value represents the maximum value of the award and resulted in an award of 146,711 conditional shares based on the average share price over 2016 of £23.352. The expected value of the award is 50 per cent of the face value or £1,713,000.

(b) The 2017 PSA may vest after five years in 2022.

(c) The full performance conditions for the award are set out in detail in notes to table 3 on page 104.

### LTIP award for 2018

On the basis that Chris will retire by the end of September 2018, he will not receive an LTIP award in 2018.

## Shareholding

Chris's shareholding for the purposes of the share ownership policy, calculated using the market price of Rio Tinto shares on the latest practicable date each year before the date of publication of this report was:

	31 December 2017	31 December 2016	Increase in shareholding
Holding of ordinary shares	49,643	17,620	181.7%
Multiple of base salary	3.7	0.8	2.9

The holding as at 31 December 2017 includes the value of unvested BDP awards. Chris holds no options over Rio Tinto shares.

## Pension

Chris is employed in the UK and is provided with pension benefits on a defined contribution basis on terms equivalent to other UK employees as follows:

- A pension contribution to a funded UK company pension arrangement of 25 per cent of £135,000, being the current maximum salary on which pension contributions are based under that arrangement.
- A cash supplement equal to 25 per cent of the amount by which his base salary exceeded £135,000, less any applicable withholdings.

Two changes were made to Chris's pension provision during the year:

1. In line with other UK employees, Chris was permitted to reduce the company's pension contribution to a minimum of £10,000 a year and to take the balance as a taxable cash allowance. The gross cash allowance was reduced by the company's National Insurance contribution payable on that cash allowance.
2. Under Australian Superannuation Guarantee legislation the company is required to pay superannuation contributions to an Australian superannuation fund in respect of Chris's working days in Australia, backdated to 2013. The sterling equivalent of these superannuation contributions is offset against the UK cash supplement paid to Chris.

Chris's pension provision in 2017 was:

- A UK pension contribution of £26,015 (2016: £33,750).
- A cash allowance of £6,795 (2016: Nil).
- A superannuation contribution to an Australian superannuation fund of A\$5,012 in the period 1 July to 31 December 2017. The sterling equivalent of £2,933 was offset against the cash supplement.
- A superannuation contribution to an Australian superannuation fund of A\$60,656 for the period 1 March 2013 to 30 June 2017. The sterling equivalent of £37,281 was offset against the cash supplement. Interest penalties and fees totalling A\$14,274 (£8,492) were also paid; these amounts were not offset against the cash supplement.
- A cash supplement of £179,538 (2016: £175,350), reduced to £139,324 after the offset of the Australian superannuation contributions.

Chris's total pension provision for 2017 was £220,840 (2016: £209,100).

## Fees from external appointments

Chris received no fees from external appointments in 2017 or 2016.

## Service contract

Positions held and date of appointment to position	
Position held during 2017	Date of appointment to position
Chief financial officer	18 April 2013

Chris's contract can be terminated by either party with 12 months' notice in writing, or immediately by paying the base salary only in lieu of any unexpired notice.

## Other

Chris is not eligible for tax equalisation on his remuneration, cost of living or any other ongoing assignment benefits such as a housing allowance. He is eligible for repatriation support to Australia at the end of his employment as per his service contract.

## Retirement

As previously announced, Chris will retire and leave the Group by the end of September 2018. Details of his retirement arrangements will be provided in the 2018 Report.

## Past-director payments

As explained in the 2016 Annual report, a deed of deferral has been entered into between the former chief executive, Sam Walsh and the company. The parties have agreed to the deferral of Sam's entitlements in good faith as the investigations concerning the Simandou project are at an early stage. The principal provision of this deed is that the payment of the 2016 STIP award and of any outstanding LTIP awards (including BDP and PSP awards) which would have vested up to 2021 will be subject to a staged deferral.

Under this agreement, on 31 December 2018, Sam will receive 50 per cent of the 2016 STIP award and 50 per cent of the LTIP awards which would otherwise have vested on or before 31 December 2018. On 31 December 2020, Sam will receive the remaining 50 per cent of the 2016 STIP award and the remaining 50 per cent of the LTIP awards which would have otherwise vested by 31 December 2018, and any other LTIP awards which would have vested by 31 December 2020. The payment of any of these awards is contingent on there being no information in connection with the Simandou matter which would justify the Remuneration Committee making a determination to cancel, defer or reduce these awards.

Sam was reimbursed for legal advisory services related to the agreement explained above. In addition, he received personal tax compliance and other services in accordance with his contract of employment. The total gross cost of these services in 2017 was £119,225.

As explained in the 2015 Annual report, during 2015, the UK tax authorities completed a review of their interpretation of the UK/USA Double Tax Treaty. In this context, they reviewed the UK tax returns of a number of Rio Tinto employees, including the former chief executive, Tom Albanese, in connection with foreign tax credits. The periods under review related to Tom's service when he was on a tax equalised assignment to the UK, which was prior to his appointment as chief executive.

The outcome of this review resulted in an assessment of additional UK tax for the 2004/05, 2005/06 and 2006/07 tax years. It is noted that all tax returns were prepared and submitted in good faith, in line with best practice at the time and that neither the company nor Tom has failed in meeting their compliance obligations.

The final settlement for the additional UK tax and related professional fees (to date) for this matter, the payment of which on behalf of Tom is in accordance with our policies, was £221,377. The company received a foreign tax refund from Tom in relation to this matter in October 2017 in the amount of US\$265,000 (£200,000).

## Remuneration Report: Implementation Report continued

### What we paid our chairman and non-executive directors

#### Positions held

Details of the non-executive directors who held office during 2017 are set out below. Each non-executive director held office for the whole of 2017 unless otherwise indicated. Years of appointment for each non-executive director are included in the section headed board of directors on pages 52 to 54.

Name	Title
Jan du Plessis	Chairman
Robert Brown	Non-executive director to 4 May 2017
Megan Clark	Non-executive director
David Constable	Non-executive director from 10 February 2017
Ann Godbehere	Non-executive director
Simon Henry	Non-executive director from 1 April 2017
Sam Laidlaw	Non-executive director from 10 February 2017
Anne Lauvergeon	Non-executive director to 4 May 2017
Michael L'Estrange	Non-executive director
Paul Tellier	Non-executive director
Simon Thompson	Non-executive director
John Varley	Non-executive director to 20 June 2017

On 15 February 2018, the board announced the appointment of Moya Greene as an independent non-executive director. Moya will join Rio Tinto during the second half of 2018 and her start date will be announced in due course.

#### Annual fees payable

The table below sets out the annual fees paid in 2017 and 2016 and the annual fees payable in 2018 to the chairman and the non-executive directors.

	2018	2017	2016
<b>Director fees</b>			
Chairman's fee	<b>£730,000</b>	£730,000	£730,000
Non-executive director base fee	<b>£95,000</b>	£95,000	£90,000
Non-executive director base fee for Australian residents	<b>£105,000</b>	£105,000	£90,000
Senior independent director	<b>£45,000</b>	£40,000	£40,000
<b>Committee fees</b>			
Audit Committee chairman	<b>£40,000</b>	£40,000	£35,000
Audit Committee member	<b>£25,000</b>	£20,000	£20,000
Remuneration Committee chairman	<b>£35,000</b>	£35,000	£30,000
Remuneration Committee member	<b>£20,000</b>	£15,000	£15,000
Sustainability Committee chairman	<b>£35,000</b>	£35,000	£30,000
Sustainability Committee member	<b>£20,000</b>	£15,000	£15,000
Nominations Committee member	<b>£7,500</b>	£7,500	£7,500
<b>Meeting allowances</b>			
Long distance (flights over 10 hours per journey)	<b>£10,000</b>	£10,000	£10,000
Medium distance (flights of 5-10 hours per journey)	<b>£5,000</b>	£5,000	£5,000

The chairman's fee is determined by the Remuneration Committee. This fee remains unchanged, having last been increased on 1 July 2013. All other fees are subject to review by the board on the recommendation of the Chairman's Committee.

A review of non-executive fees was conducted in November 2017. Following this review, it was determined that the senior independent director fee and the fees for the members of each of the Audit, Remuneration and Sustainability Committees should be increased with effect from 1 January 2018, as set out in the table above. The fees that have been increased have been unchanged since 1 January 2012. The other fees and travel allowances remain unchanged.

The additional £10,000 allowance for Australian directors is to compensate them for the additional payments they are required to make regarding UK National Insurance contributions which, unlike directors based in other jurisdictions, they are not able to offset against their local tax payments.

Details of each element of remuneration and the single total figure of remuneration paid to the chairman and non-executive directors during 2017 and 2016 are set out in US dollars in table 1b on page 99. No post-employment, termination payments or share-based payments were made. Where the payment of statutory minimum superannuation contributions for non-executive directors is required by Australian superannuation law, these contributions are deducted from the director's overall fee entitlements.

The total fee and allowances payments made to the chairman and non-executive directors in 2017 are within the maximum aggregate annual amount of £3 million set out in the Group's constitutional documents approved by shareholders at the 2009 AGMs.

#### Terms of appointment of the incoming chairman

Simon Thompson, on his appointment to chairman on 5 March 2018, will receive the same base fee as his predecessor, Jan du Plessis.

#### Share ownership policy for non-executive directors

The board adopted a policy in 2006 whereby non-executive directors are encouraged to build up a shareholding within three years of their appointment equal in value to one year's base fee. Details of non-executive directors' share interests in the Group, including total holdings, are set out in table 2 on page 100.

#### Non-executive directors' share ownership

The non-executive directors' shareholdings, calculated using the market price of Rio Tinto shares on the latest practicable date before the date of publication of this report were:

Director	Share ownership level at 31 December 2017 as a multiple of base fee	Share ownership level at 31 December 2016 as a multiple of base fee
Jan du Plessis	1.7	1.5
Megan Clark	1.9	1.4
David Constable	0.5	–
Ann Godbehere	1.3	1.3
Simon Henry	0.0	–
Sam Laidlaw	3.2	–
Michael L'Estrange	1.2	0.9
Paul Tellier	11.0	10.3
Simon Thompson	3.2	3.0

In some cases, the value of the shares and the multiple of base fee as at 31 December 2017 is higher than the multiple reported as at 31 December 2016 due to the higher share prices.

### What we paid our other Executive Committee members and why

#### Base salary

The Committee has reviewed the base salary levels for the Executive Committee and has made adjustments in line with the base salary budgets applying to the broader employee population.

Stated in '000	2018	2017	% change
Bold Baatar	<b>£524</b>	£510	2.8
Alfredo Barrios	<b>C\$1,004</b>	C\$986	1.8
Joanne Farrell	<b>A\$846</b>	A\$825	2.5
Vera Kirikova	<b>£411</b>	£400	2.8
Stephen McIntosh	<b>A\$1,010</b>	A\$985	2.5
Simone Niven	<b>£411</b>	£400	2.8
Philip Richards	<b>£463</b>	£450 <sup>(a)</sup>	2.8
Chris Salisbury	<b>A\$1,010</b>	A\$985	2.5
Arnaud Soirat	<b>£524</b>	£510	2.8
Simon Trott	<b>S\$925<sup>(b)</sup></b>	–	–

(a) Base salary on appointment to the Executive Committee, effective 2 April 2017.

(b) Base salary on appointment to the Executive Committee, effective 1 January 2018.



## STIP objectives and outcomes for 2017

### Overview of STIP weightings and measures for 2017

The following table provides an overview of the measures and weightings used to determine STIP awards for members of the Executive Committee in 2017:

	Weighting for executive directors and Group executives	Weighting for PGCEOs
Safety – split between AIFR, LTIs and CRM implementation adjusted for fatalities	20%	20%
Financial measures split equally between underlying earnings and STIP free cash flow for the Group	50%	20%
Financial measures split equally between underlying earnings and STIP free cash flow for the relevant product group	0%	30%
Individual measures based on key strategic initiatives of each role and contribution to overall company performance	30%	30%

The Group safety result was 49.5 per cent of maximum and the average performance against safety goals for individual Executive Committee members, excluding the impact of adjustments for the fatalities in 2017, was below “target”.

Average performance against the individual product group financial goals was above “target”.

The individual performance of Executive Committee members who are not executive directors was reviewed by the Committee against these measures and, on average, was considered above “target”. This reflected, among other things, achievement of the cost reduction and working capital targets set for 2017 and the progress against our asset portfolio, growth, people and partnership agendas.

The 2017 STIP awards are detailed in the table below.

	2017 STIP award (% of salary) <sup>(a)</sup>	2017 STIP award (000's)
Bold Baatar	107.3%	£547
Alfredo Barrios	135.4%	C\$1,335
Joanne Farrell	119.3%	A\$984
Vera Kirikova	116.8%	£467
Stephen McIntosh	116.8%	A\$1,150
Simone Niven	124.3%	£497
Philip Richards <sup>(a)</sup>	116.8%	£395
Chris Salisbury	131.5%	A\$1,295
Arnaud Soirat	91.9%	£469

(a) STIP award for the period 2 April 2017 to 31 December 2017.

(b) Results out of 200% have been rounded to one decimal place in the above table and STIP awards have been rounded to the nearest thousand units. As the actual STIP awards do not use rounding conventions, small rounding variances may occur.

Detailed commentary on the performance of each product group is provided in the Annual report on pages 38 to 47. The average overall performance of Executive Committee members who are not executive directors was adjudged by the Committee to be above target.

### LTIP outcomes for the period ended 31 December 2017

Executives will receive shares in Rio Tinto plc or Rio Tinto Limited as applicable in 2018 from the vesting of PSA granted in 2013. All executives who were granted these awards will also receive additional shares equal to the aggregate net dividends that would have been paid on the PSA shares that vested had they owned them during the five-year performance period. No dividends will be paid in respect of the share awards that lapse.

An estimate of the total value of PSA that will vest is included in the single total figure of remuneration. The actual PSA values will be recalculated following the vesting of the EBIT margin portion of the award at the end of May 2018 based on the actual share prices on the date of vesting (31 May 2018). The estimated PSA values will be restated, if applicable, in the 2018 Annual report.

Further details of the performance outcome for PSA with a performance period that ended on 31 December 2017 are provided on page 94 and pages 101 to 105.

### LTIP awards granted in 2017

The maximum potential value of PSA granted in 2017 was 438 per cent of base salary. The Committee decided that the PSA granted in 2017 would have a face value of awards as shown in the table below. The eventual value of the award will depend on the Group's relative TSR and relative EBIT margin performance during the years 2017-2021. The 2017 PSA may vest after five years in 2022, subject to the Group's performance against the relative TSR and relative EBIT margin measures. The performance conditions for the awards granted in 2017 are set out below.

The performance conditions for PSA granted between 2013 and 2017 are the same. The expected value of the awards made from 2013 is equal to 50 per cent of the face value. The percentage vesting at “threshold” performance is 22.5 per cent. The 2017 award will vest after five years in 2022, subject to the Group's performance against the relative TSR and relative EBIT margin measures.

For the TSR component (constituting two-thirds of the award), where TSR performance is measured against both the Euromoney Global Mining Index and the broader market of large global companies as measured through the MSCI World Index, the award will vest as follows:

Outperformance of the index by 6 per cent per annum	1.0 x award vests
Performance between equal to the index and 6 per cent outperformance	Proportionate vesting between 0.225 x and 1.0 x vesting
Performance equal to the index	0.225 x award vests
Performance less than the index	Nil vesting

For the EBIT margin measure, change in the EBIT margin of Rio Tinto and each of the comparator companies (measured on a “point-to-point” basis using the last financial year in the performance period and the financial year prior to the start of the performance period) will be calculated using independent third-party data. Vesting will be subject to Rio Tinto's interpolated ranking position using the following schedule:

Equal to or greater than 2 <sup>nd</sup> ranked company	1.0 x award vests
Between the 5 <sup>th</sup> and 2 <sup>nd</sup> ranked companies	Proportionate vesting between 0.225 x and 1.0 x vesting
Above the 6 <sup>th</sup> ranked company	0.225 x award vests
Equal to the 6 <sup>th</sup> ranked company or below	Nil vesting

The 2017 comparator group (unchanged from 2016) for the EBIT margin measure is: Alcoa\*, Antofagasta, Anglo American, Barrick Gold, BHP Billiton, Freeport McMoRan, Fortescue, Glencore, Teck Resources and Vale.

\* Alcoa Corporation remains a logical comparator for Rio Tinto following the demerger of Alcoa Inc. into Alcoa Corporation and Arconic. The data sourced from S&P Capital IQ for the 2012 baseline year is based on the historical Alcoa Inc. results as the 2012 baseline data for Alcoa Corporation and Arconic are not available in the S&P Capital IQ database. Accordingly, Alcoa Inc. could not be substituted with Alcoa Corporation. The Alcoa Inc. 2012 baseline and an aggregate of the Alcoa Corporation and Arconic results have been used for the EBIT margin comparator group for the 2013 PSP. For the 2014 to 2017 PSP awards, the Alcoa EBIT margin will be based on Alcoa Corporation. This affords no benefit to participants as a result of the Alcoa Inc. demerger.



## Remuneration Report: Implementation Report continued

### LTIP awards for 2018

The Committee has determined that LTIP awards for 2018 (to be granted as PSA) will have a face value as shown in the table below. The award levels have been set to incentivise executives to meet the long-term strategic goals of the Group, to provide retention and to contribute towards the competitiveness of the overall remuneration package.

Consistent with our practice since 1998, the awards made are calculated using the average share price over the previous calendar year, in order to mitigate the impact of short-term volatility in the share price. As such, the awards granted in 2018 will be calculated using the 2017 average share prices for Rio Tinto plc and Rio Tinto Limited of £34.10 and A\$65.23 respectively.

The average face value of awards to be made to Executive Committee members in 2018, excluding the executive directors, is 386 per cent of base salary (2017: 391 per cent of salary).

Maximum value (Percentage of 1 March base salary)	2018	2017
Bold Baatar	410	390
Alfredo Barrios	375	390
Joanne Farrell	375	390
Vera Kirikova	375	390
Stephen McIntosh	375	390
Simone Niven	410	390
Philip Richards <sup>(a)</sup>	375	400
Chris Salisbury	410	390
Arnaud Soirat	375	390
Simon Trott	375	–
Average	386	391

(a) The actual award for 2017 was calculated on a pro rata basis to reflect Philip's Group start date of 2 April 2017 resulting in a pro-rated award of 300% face value.

The performance conditions for the PSA to be granted under the EIP from 2018, which will be considered by shareholders at the 2018 AGMs, are set out below. The expected value of the awards made from 2018 is equal to 50 per cent of the face value. The percentage vesting at "threshold" performance is 22.5 per cent. The 2018 award will vest after five years in 2023, subject to the Group's performance against the relative TSR measures.

TSR performance is measured equally against the Euromoney Global Mining Index and the MSCI World Index and the award will vest as follows:

Outperformance of the index by 6 per cent per annum	1.0 x award vests
Performance between equal to the index and 6 per cent outperformance	Proportionate vesting between 0.225 x and 1.0 x vesting
Performance equal to the index	0.225 x award vests
Performance less than the index	Nil vesting

### Share ownership

The following table illustrates the executive share ownership level for current members of the Executive Committee in office at 31 December 2017 as a multiple of salary as at the same date.

	Share ownership level at 31 December 2017 as a multiple of base pay
Bold Baatar	1.1
Alfredo Barrios	1.7
Joanne Farrell	4.2
Vera Kirikova	0.4
Stephen McIntosh	2.0
Simone Niven	0.5
Philip Richards	0.0
Chris Salisbury	2.3
Arnaud Soirat	1.7

The share ownership level is calculated using the market price of Rio Tinto shares on the latest practicable date each year before the date of publication of this report. The definition of share ownership is set out on page 81. The recent vesting of the 2013 PSP has increased the multiples noted above for several executives.

All current executives who were employed as at 31 December 2016 have increased their holding of ordinary shares during 2017, and are making progress towards their ownership requirements. The value of the shares, and options if applicable, has also increased due to the higher share prices.

### Post-employment benefits

Executives may participate in pension, superannuation and post-employment medical and life insurance benefits, which are typically offered to the broader employee population in similar locations.

### Service contracts

All other executives have service contracts which can be terminated by the company with 12-months' notice in writing, and by the employee with six-months' notice in writing, or immediately by the company by paying the base salary only in lieu of any unexpired notice.

### Positions held and date of appointment to position

Name	Position(s) held during 2017	Date of appointment to position
<b>Other executives</b>		
Bold Baatar	Chief executive, Energy & Minerals	1 December 2016
Alfredo Barrios	Chief executive, Aluminium	1 June 2014
Joanne Farrell	Group executive, Health, Safety & Environment	2 July 2016
Vera Kirikova	Group executive, Human Resources	1 January 2017
Stephen McIntosh	Group executive, Growth & Innovation	2 July 2016
Simone Niven	Group executive, Corporate Relations	1 January 2017
Philip Richards	Group executive, Legal	2 April 2017
Chris Salisbury	Chief executive, Iron Ore	2 July 2016
Arnaud Soirat	Chief executive, Copper & Diamonds	2 July 2016

## STIP measures, weightings and targets for 2018

As in 2017, the STIP measures and weightings for executive directors and executives will be 50 per cent for financial, 30 per cent for individual and 20 per cent for safety measures. The individual targets include objectives relating to safety, people, cash, partnership and growth.

The financial and individual targets which have been set for 2018 are regarded by the board to be commercially sensitive. As such, the specific targets for these measures, and the performance against them, are expected to be described retrospectively in the 2018 Implementation Report. The Group financial targets relate to underlying earnings and STIP free cash flow.

The safety measures, weightings and targets for 2018 are outlined below.

### 2018 safety measures, weightings and targets

Following consultation with shareholders, the safety measures for all executives for 2018 will be amended to include a standalone binary fatality measure (40 per cent), with the remainder split between AIFR (30 per cent) and measures relating to CRM (30 per cent). The 2018 safety element of the STIP therefore has a much greater overall focus on fatality elimination.

The standalone measure for fatality will be assessed as follows:

- If a fatality occurs, there is no payment made in relation to this measure;
- An outcome of outstanding is paid if no fatality occurs; and
- The metric will apply equally across all executives, regardless of the location of any fatality.

For the AIFR measure, “target” performance for the Group has been set at a 10.5 per cent improvement compared with the actual outcome for 2017 which is the “threshold” number for calculation purposes. “Outstanding” performance has been set at twice the “target” improvement.

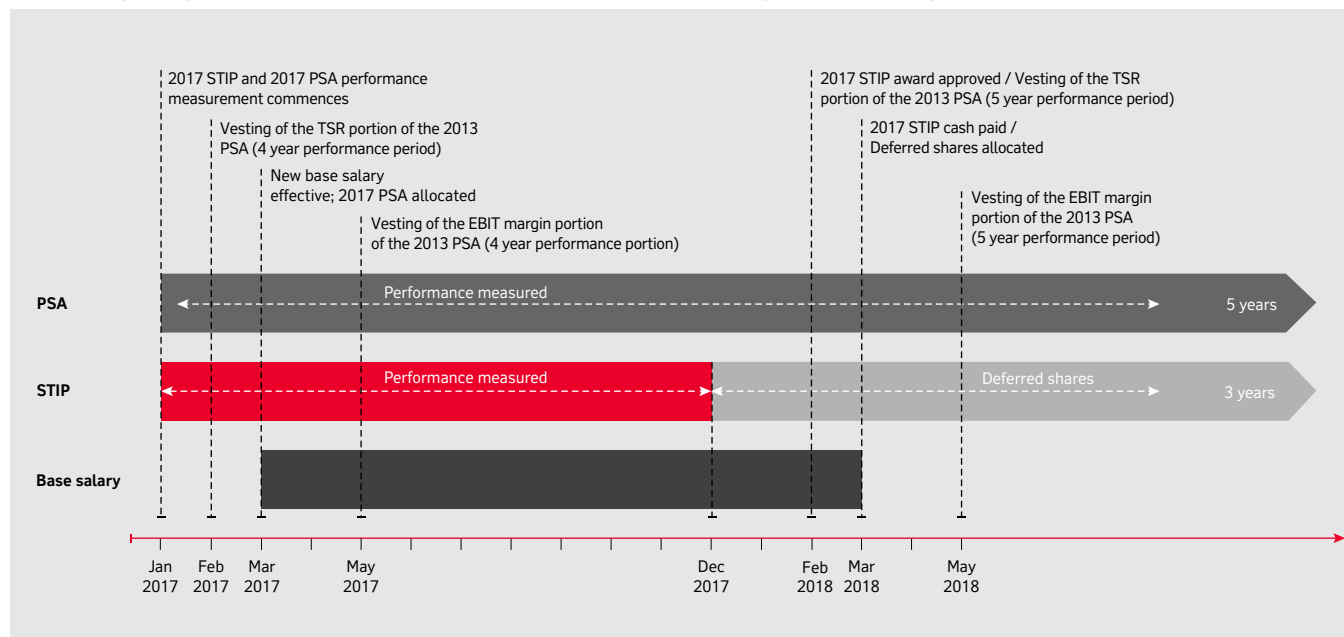
The Group-wide deployment of CRM was completed in 2017 and the metrics for CRM will focus on implementation maturity and leadership participation, with equal weighting to each. Implementation maturity will be assessed using the same approach as in 2017. Each site will be assessed using an evaluation tool which contains 15 individual elements, over three categories: systems, people, and processes. The criteria for the elements use a combination of quantitative and qualitative dimensions. A core element of the success of CRM is for all leaders on an ongoing basis to verify that controls are correct, in place and effective.

The 2017 CRM metrics have driven a strong focus on this through setting targets for the number of critical control verifications being conducted. For 2018, we will continue with the leadership participation metric as a base, and change the focus from quantity of verification to quality, using identification of non-compliances as the metric.

## Remuneration Report: Implementation Report continued

### When remuneration is delivered

The following chart provides a timeline of when total remuneration is delivered, using 2017 as an example.



### Single total figure of remuneration

The table below provides a summary of actual remuneration in respect of 2017 and 2016, stated in the currency of payment. While not required under UK or Australian legislation, the information is presented for consistency with the disclosures for executive directors on pages 83 and 85.

	Bold Baatar <sup>(a)</sup>		Alfredo Barrios		Joanne Farrell <sup>(b)</sup>	
(stated in '000)	2017	2016	2017	2016	2017	2016
Base salary paid <sup>(a)</sup>	£510	£43	C\$982	C\$964	A\$825	A\$411
STIP payment – cash	£273	£30	C\$667	C\$772	A\$492	A\$281
STIP payment – deferred shares <sup>(b)</sup>	£274	£30	C\$668	C\$772	A\$492	A\$281
<b>Total short-term pay</b>	<b>£1,057</b>	<b>£103</b>	<b>C\$2,317</b>	<b>C\$2,508</b>	<b>A\$1,809</b>	<b>A\$973</b>
Value of LTIP awards vesting <sup>(c)</sup>	£200	£3	C\$0	C\$0	A\$404	A\$46
Pension or superannuation <sup>(d)</sup>	£102	£8	C\$341	C\$326	A\$102	A\$1,626
Other benefits <sup>(e)</sup>	£252	£382	C\$226	C\$138	A\$547	A\$59
<b>Single total figure of remuneration</b>	<b>£1,611</b>	<b>£496</b>	<b>C\$2,884</b>	<b>C\$2,972</b>	<b>A\$2,862</b>	<b>A\$2,704</b>
Percentage change in total remuneration (2017 versus 2016)	224.8%		(3.0%)		5.8%	
Percentage of total remuneration provided as performance-related pay (STIP and LTIP)	46.4%	12.7%	46.3%	52.0%	48.5%	22.5%
Percentage of total remuneration provided as non-performance-related pay (base salary, pension and other benefits)	53.6%	87.3%	53.7%	48.0%	51.5%	77.5%
Percentage of maximum STIP awarded <sup>(f)</sup>	53.7%	69.1%	67.7%	80.1%	59.7%	68.2%
Percentage of maximum STIP forfeited	46.3%	30.9%	33.3%	19.9%	40.3%	31.8%
Percentage of target STIP awarded	107.3%	138.1%	135.4%	160.2%	119.3%	136.3%

	Vera Kirikova		Stephen McIntosh <sup>(i)</sup>		Simone Niven	
(stated in '000)	2017	2016	2017	2016	2017	2016
Base salary paid <sup>(a)</sup>	£400	–	A\$985	A\$549	£400	–
STIP payment – cash	£233	–	A\$575	A\$358	£248	–
STIP payment – deferred shares <sup>(b)</sup>	£234	–	A\$575	A\$358	£249	–
<b>Total short-term pay</b>	<b>£867</b>	<b>–</b>	<b>A\$2,135</b>	<b>A\$1,265</b>	<b>£897</b>	<b>–</b>
Value of LTIP awards vesting <sup>(c)</sup>	£59	–	A\$574	A\$127	£57	–
Pension or superannuation <sup>(d)</sup>	£88	–	A\$240	A\$119	£89	–
Other benefits <sup>(e)</sup>	£24	–	A\$141	A\$438	£18	–
<b>Single total figure of remuneration</b>	<b>£1,038</b>	<b>–</b>	<b>A\$3,090</b>	<b>A\$1,949</b>	<b>£1,061</b>	<b>–</b>
Percentage change in total remuneration (2017 versus 2016)	–	–	58.5%	–	–	–
Percentage of total remuneration provided as performance-related pay (STIP and LTIP)	50.7%	–	55.8%	43.3%	52.2%	–
Percentage of total remuneration provided as non-performance-related pay (base salary, pension and other benefits)	49.3%	–	44.2%	56.7%	47.8%	–
Percentage of maximum STIP awarded <sup>(f)</sup>	58.4%	–	58.4%	67.1%	62.2%	–
Percentage of maximum STIP forfeited	41.6%	–	41.6%	32.9%	37.8%	–
Percentage of target STIP awarded	116.8%	–	116.8%	134.5%	124.3%	–

	Philip Richards <sup>(j)</sup>		Chris Salisbury <sup>(k)</sup>		Arnaud Soirat <sup>(l)</sup>	
(stated in '000)	2017	2016	2017	2016	2017	2016
Base salary paid <sup>(a)</sup>	£338	–	A\$985	A\$662	£510	£253
STIP payment – cash	£197	–	A\$647	A\$424	£234	£141
STIP payment – deferred shares <sup>(b)</sup>	£198	–	A\$648	A\$424	£235	£142
<b>Total short-term pay</b>	<b>£733</b>	<b>–</b>	<b>A\$2,280</b>	<b>A\$1,510</b>	<b>£979</b>	<b>£536</b>
Value of LTIP awards vesting <sup>(c)</sup>	£0	–	A\$499	A\$116	£295	£38
Pension or superannuation <sup>(d)</sup>	£59	–	A\$240	A\$135	£109	£45
Other benefits <sup>(e)</sup>	£25	–	A\$88	A\$501	£105	£341
<b>Single total figure of remuneration</b>	<b>£817</b>	<b>–</b>	<b>A\$3,107</b>	<b>A\$2,262</b>	<b>£1,488</b>	<b>£960</b>
Percentage change in total remuneration (2017 versus 2016)	–	–	37.4%	–	55.0%	–
Percentage of total remuneration provided as performance-related pay (STIP and LTIP)	48.3%	–	57.7%	42.6%	51.3%	33.4%
Percentage of total remuneration provided as non-performance-related pay (base salary, pension and other benefits)	51.7%	–	42.3%	57.4%	48.7%	66.6%
Percentage of maximum STIP awarded <sup>(f)</sup>	58.4%	–	65.8%	69.1%	46.0%	55.6%
Percentage of maximum STIP forfeited	41.6%	–	34.2%	30.9%	54.0%	44.4%
Percentage of target STIP awarded	116.8%	–	131.5%	137.2%	91.9%	111.1%

(a) Salary paid in the financial year to 31 December. Salaries are generally reviewed with effect from 1 March.

(b) Value of STIP deferred, the vesting of which is subject to the plan rules.

(c) Based on the estimated value of PSA which vested on 19 February 2018 (TSR portion) and which are anticipated to vest at 31 May 2018 (EBIT margin portion) for the performance period that ended 31 December 2017, for the 2017 disclosure, and the PSA which vested for the performance period that ended 31 December 2016, for the 2016 disclosure. The Rio Tinto plc and Rio Tinto Limited share prices used to calculate the estimated value of the awards vesting are the average share prices over the last quarter of 2017 which were £36.27 and A\$71.11 respectively. All executives who were granted the PSA in 2013 will also receive additional shares equal to the aggregate net dividends that would have been paid on the PSA shares that vest had they owned them during the five-year performance period. No dividend payments will be made in respect of the shares that lapse.

The estimated value of the LTIP awards for 2016 included in the 2016 Annual report was calculated based on an estimate of the vesting of the EBIT margin portion of the award of 100 per cent resulting in a total estimated vesting of 58.0 per cent. The lower actual vesting of the EBIT margin portion of the award of 77.5 per cent, based on a rank of no.3 against the comparator group of 11, resulted in a total actual vesting of 50.5 per cent. The impact of the lower vesting level was offset by higher share prices at the time of vesting (£36.18 and A\$67.55 for the TSR portion which vested on 20 February 2017 and £31.08 and A\$62.45 for the EBIT margin portion which vested on 31 May 2017) compared with the average share prices over the last quarter of 2016 of £29.30 and A\$56.51 which were used to calculate the estimated value.

Where applicable, the value of LTIP awards vesting includes the value of Management Share Awards granted prior to appointment as an executive.

(d) For defined benefit plans, pension or superannuation reflects the value of the pension or superannuation accrued during the year assuming that it was to come into payment immediately. For defined contribution plans and cash paid in lieu of pension contributions it is the amount contributed in the year by the company. This differs from the value reported in table 1a which is calculated using an IAS19 methodology and assumptions on rates of investment return, inflation and salary increases.

(e) Includes healthcare, other post-employment benefits, allowance for professional tax compliance services and car and fuel allowances or car benefit value. Includes active or legacy expatriate-related benefits, as relevant and for 2016, includes one-time gross lump-sum payments for certain executives in lieu of ongoing relocation related benefits in accordance with the Rio Tinto Permanent International Transfer Standard. Joanne Farrell is an active member of a defined benefit superannuation plan. The pension or superannuation value for 2016 reflects the increase in benefit due to her base salary increase on appointment to the Executive Committee. In addition, the Company met a UK tax charge in relation to the portion of the increase that relates to her UK workdays under the terms of her UK Commuter arrangement.

(f) The maximum potential STIP award is 200 per cent of base salary.

(g) Remuneration details for 2016 reflect remuneration received for the period 1 December 2016 to 31 December 2016. Bold Baatar received a one-time international transfer allowance of £343,000 (gross) related to his relocation from Singapore to London. This lump-sum payment, included in the section "Other benefits" for 2016, is offered as compensation for all costs, losses or other disadvantages that may be sustained as a result of the International Transfer.

(h) Remuneration details for 2016 reflect remuneration received for the period 2 July 2016 to 31 December 2016.

(i) Remuneration details for 2016 reflect remuneration received for the period 24 May 2016 to 31 December 2016. Stephen McIntosh received a one-time domestic transfer allowance of A\$335,000 (gross) related to his relocation from Melbourne to Brisbane. This lump-sum payment, included in the section "Other benefits" for 2016, is in lieu of any ongoing relocation related costs and benefits.

(j) Remuneration details for 2017 reflect remuneration received for the period 2 April 2017 to 31 December 2017.

(k) Remuneration details for 2016 reflect remuneration received for the period 17 March 2016 to 31 December 2016. Chris Salisbury received a one-time domestic transfer allowance of A\$335,000 (gross) related to his relocation from Brisbane to Perth. This lump-sum payment, included in the section "Other benefits" for 2016, is in lieu of any ongoing relocation related costs and benefits.

(l) Remuneration details for 2016 reflect remuneration received for the period 2 July 2016 to 31 December 2016. Arnaud Soirat received a one-time international transfer allowance of £280,000 (gross) related to his relocation from Montreal to London. This lump-sum payment, included in the section "Other benefits" for 2016, is offered as compensation for all costs, losses or other disadvantages that may be sustained as a result of the International Transfer.

## Remuneration Report: Implementation Report continued

### Long-term incentives – vesting outcomes for the period ended 31 December 2017

The table below summarises the outcomes for PSA granted on 27 May 2013 which had a five year performance period which commenced on 1 January 2013 and ended on 31 December 2017.

#### 2013 PSA

Performance period (5 years)	1 January 2013 – 31 December 2017
Rio Tinto TSR	5.8%

	Euromoney Global Mining	MSCI World Index
<b>Comparator index</b>		
Index TSR	(28.1%)	72.7%
Outperformance per annum	6.0%	(19.8%)
Vesting against index	100.0%	0%
Contribution to overall vesting	33.33%	0%

Vesting date for TSR portion of award: 19 February 2018

#### EBIT margin

Rank against the comparator group (estimate)	3 <sup>rd</sup>
Vesting against EBIT Margin measure (estimate)	90.98%
Contribution to overall vesting (estimate)	30.33%

Anticipated vesting date for EBIT margin portion of award: 31 May 2018

#### Overall vesting

% of shares vesting (estimate)	63.66%
% of shares forfeited (estimate)	36.34%

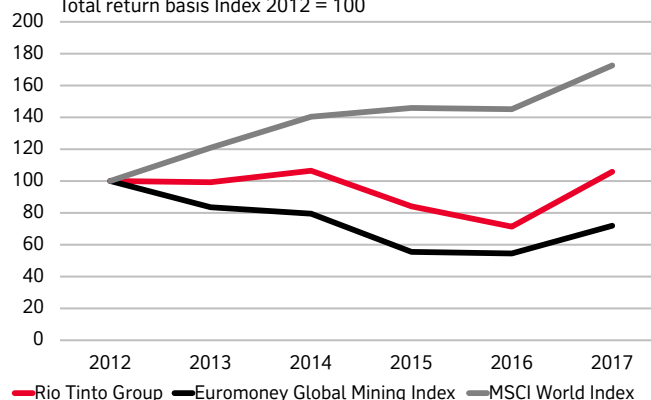
The EBIT margin data provided by S&P Capital IQ is based on forecast full year 2017 comparator company performance as at January 2018. S&P Capital IQ applies a consistent approach across all companies, including the treatment of determining unusual transactions, which can lead to a variation between the S&P Capital IQ data when compared with published results for Rio Tinto and comparator companies.

The performance conditions for PSA are included in the notes to table 3 on page 104.

The graph to the right shows Rio Tinto's TSR performance for awards granted under the under the 2013 Performance Share Plan. The methodology used for this graph is consistent with the methodology used to calculate the vesting for the PSA granted in 2013 with a performance period that ended on 31 December 2017.

#### TSR (US\$) - Rio Tinto Group vs Euromoney Global Mining and MSCI World Indices

Total return basis Index 2012 = 100



The methodology used to calculate the starting share prices for TSR comparison purposes, for Rio Tinto and the index, was the 12-month average prior to the commencement of the performance period.

The period used in the methodology to calculate the ending share prices for TSR comparison purposes, for Rio Tinto and the index, was the last 12 months of the performance period. The usual conventions were also applied to set the number of shares awarded, based upon the prior-year average share price.

The table below summarises the average vesting of performance shares for executive directors since 2014. The estimated outcome for the 2013-2016 performance period reported in the 2016 Annual report of 58.0 per cent has been restated with the actual outcome of 50.5 per cent. The overall vesting level for the 2013-2017 performance period is an estimate based on the estimated EBIT margin outcome.

Performance period	Vesting year	% of shares vested	% of maximum shares vested
2010-2013	2014	75.0	50.0
2011-2014	2015	73.5	49.0
2012-2015	2016	65.4	43.6
2013-2016	2017	50.5	50.5
2013-2017	2018	63.7	63.7
Average vesting	–	65.6	51.4

The Share Option Plan (SOP) ceased operation for new awards from 2013. No awards of share options have been made since 2012.

### Management Share Plan awards

Although executives are not eligible to receive Management Share Awards (MSA) under the Management Share Plan (MSP) after their appointment as executives, Bold Baatar, Joanne Farrell, Vera Kirikova, Stephen McIntosh, Simone Niven, Chris Salisbury and Arnaud Soirat received grants prior to their appointments as executives.

Plan period	Plan period that ended 20 February 2017
Vesting period	17 March 2014 – 20 February 2017
% of shares vested	100%
% of shares forfeited	–



## TSR

Relative TSR against the Euromoney Global Mining Index and the MSCI World Index represents two-thirds of the performance measures used to determine the vesting of awards made under the 2013 Performance Share Plan. The remaining third is based on the improvement in EBIT margin relative to the comparator group. Rio Tinto's TSR relative to the relevant index over the performance period has a direct impact on the levels of shares that vest.

The effect of this performance on the value of shareholdings, as measured by TSR delivered over the past five years, based on the sum of dividend paid and share price movements during each calendar year, is detailed in the table.

	Dividends paid during the year	Share price – Rio Tinto plc pence	Share price – Rio Tinto Limited A\$	Total shareholder return (TSR)
Year	US cents per share	1 Jan 31 Dec	1 Jan 31 Dec	Group%
2017	235.0	3,159 3,942	59.90 75.81	<b>43.8</b>
2016	152.5	1,980 3,159	44.71 59.90	<b>41.3</b>
2015	226.5	3,000 1,980	58.00 44.71	<b>(32.6)</b>
2014	204.5	3,409 3,000	68.18 58.00	<b>(15.6)</b>
2013	178.0	3,512 3,409	66.01 68.18	<b>(0.8)</b>

The data presented in this table accounts for the dual corporate structure of Rio Tinto. The approach used to weight the two Rio Tinto listings, and produce a Group TSR figure is consistent with the methodology used for the 2013 Performance Share Plan.

The graph to the right illustrates the TSR performance of the Group against the Euromoney Global Mining Index and the MSCI World Index over the past nine years to the end of 2017. These two indices are used to assess Rio Tinto's relative TSR performance for PSA granted in 2013.

## Chief executive's remuneration summary

Year	Chief executive <sup>(a)</sup>	Single total figure of remuneration ('000)	Annual STIP award against maximum opportunity	Long-term incentive vesting against maximum opportunity (SOP) <sup>(b)(c)</sup>	Long-term incentive vesting against maximum opportunity (PSA) <sup>(c)</sup>
2009	Tom Albanese	£3,516	54.1%	0.0%	26.4%
2010	Tom Albanese	£4,512	87.8%	0.0%	24.3%
2011	Tom Albanese	£4,256	0.0%	100.0%	0.0%
2012	Tom Albanese	£4,040	0.0%	100.0%	61.7%
2013	Tom Albanese	£53	0.0%	–	–
	Sam Walsh <sup>(d)</sup>	A\$9,993	72.1%	–	50.0%
2014	Sam Walsh <sup>(d)</sup>	A\$10,476	88.4%	–	49.0%
2015	Sam Walsh <sup>(d)</sup>	A\$9,141	81.9%	–	43.6%
2016	Sam Walsh	A\$1,657	–	–	–
	Jean-Sébastien Jacques <sup>(e)</sup>	£3,116	82.4%	–	50.5%
2017	Jean-Sébastien Jacques	£3,686	73.4%	–	63.7%

(a) Tom Albanese held the role of chief executive until 17 January 2013, and left the Group on 16 July 2013. The single total figure of remuneration for Tom Albanese for 2013 is for the period up until 17 January 2013. Sam Walsh took over as chief executive from 17 January 2013, having previously been the chief executive, Iron Ore and Australia. The single total figure of remuneration for Sam Walsh for 2016 is for the period up until 1 July 2016. Jean-Sébastien Jacques took over as chief executive on 2 July 2016, having previously been the chief executive, Copper & Coal.

(b) In 2011 and 2012, Sam Walsh elected to receive his full LTIP awards under the PSP and as a result he has no options under the SOP that were granted in 2011 or 2012 and which had performance periods that ended on 31 December 2013 and 31 December 2014 respectively. The SOP ceased operation from 2013 and LTIP awards from 2013 have been made under the PSP.

(c) All outstanding but unvested LTIP awards earned in previous years lapsed and were forfeited when Tom Albanese left the Group.

(d) As explained in the superannuation section for Sam Walsh in the 2016 Annual report, a correction was made to the superannuation values included in the single total figure of remuneration from 2012 and the single total figure of remuneration values have been restated accordingly in this summary. The previous single total figure of remuneration values were: 2013: A\$10,070; 2014: A\$10,414 and 2015: A\$9,125.

(e) The 2016 single total figure of remuneration for Jean-Sébastien Jacques reported in the 2016 Annual report was £3,120 based on the estimated vesting of the 2013 PSA of 58.0 per cent. The restated 2016 single total figure of remuneration is £3,116 based on the actual vesting of the 2013 PSA of 50.5 per cent.

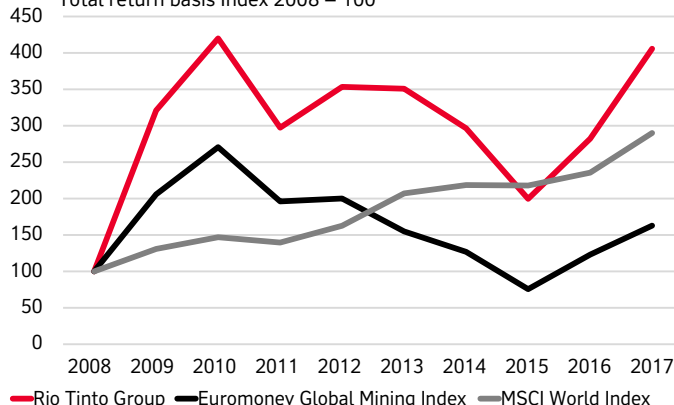
The graph has been prepared in accordance with the requirements of Schedule 8 of the UK Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended) and is not an indication of the likely vesting of awards granted under the 2013 Performance Share Plan.

Five years of TSR performance were presented when this report was first prepared in accordance with Schedule 8 and this will progressively increase to ten years of TSR performance in the fifth year of this report being prepared in accordance with Schedule 8.

The executive remuneration structure policy table on pages 73 to 75 provides further details of the performance conditions for PSA to be granted from 2018. The performance conditions for PSA granted between 2013 and 2017 are provided in the notes to table 3 on page 104.

### TSR (US\$) - Rio Tinto Group vs Euromoney Global Mining and MSCI World Indices

Total return basis Index 2008 = 100



## Remuneration Report: Implementation Report continued

### Employee share plans

#### Management Share Plan (MSP)

The primary focus of the MSP is to support the Group's ability to attract and retain key staff below executive level in an increasingly tight and competitive labour market. Executives are not eligible to participate in the MSP.

Retention of key individuals is also important given the long-term nature of the delivery of the business strategy. MSP awards are conditional awards not subject to a performance condition as they vest subject to continued employment, at the end of three years, and thus act as an effective retention tool. Shares to satisfy the awards are purchased in the market and no new shares are issued.

#### All employee share plans

Executives may participate in broad-based share and share option plans which are available to Group employees generally and for which performance conditions do not apply. These plans form part of standard remuneration practice whereby employees are offered participation in plans to encourage alignment with the long-term performance of the Group.

#### Global Employee Share Plan

The Committee believes that all employees should be given the opportunity to become shareholders in our business. A global employee share purchase plan is normally offered to all eligible employees across the world save for any local jurisdictional restrictions and excluding contractors. Under the plan, employees may acquire shares up to the value of US\$5,000 (or equivalent in other currencies) per year, capped at ten per cent of base salary. Each share purchased will be matched by the company providing the participant holds the shares, and remains employed, at the end of the three-year vesting period. The Committee believes this plan will serve to engage, retain and motivate employees over the long term.

Over 15,500 (approximately 40 per cent) of our employees are shareholders as a result of participating in this plan.

#### Dilution

Awards under the SOP, the 2013 Performance Share Plan, the 2018 EIP and all employee plans (other than the MSP) may be satisfied by, in the case of Rio Tinto plc, treasury shares or the issue of new shares or the purchase of shares in the market and in the case of Rio Tinto Limited by the issue of new shares or the purchase of shares in the market.

In the UK, the Investment Association has issued corporate governance guidelines in relation to the amount of new shares which may be issued having regard to the total issued share capital. These guidelines provide that the rules of a scheme must provide that commitments to issue new shares or reissue treasury shares, when aggregated with awards under all of a company's other schemes, must not exceed ten per cent of the issued ordinary share capital (adjusted for share issuance and cancellation) in any rolling ten-year period. Furthermore, commitments to issue new shares or reissue treasury shares under executive (discretionary) schemes should not exceed five per cent of the issued ordinary share capital of a company (adjusted for share issuance and cancellation) in any rolling ten-year period. This may be exceeded where vesting is dependent on the achievement of significantly more stretching performance criteria. Rio Tinto plc is in compliance with these guidelines. As at 31 December 2017 these limits had not been exceeded.

In Australia, as a condition of relief from prospectus requirements, the Australian Securities and Investments Commission has imposed a cap on the issue of shares to employees of five per cent of issued capital during a three-year period. As Rio Tinto Limited satisfies

awards by market purchase, this cap does not currently apply. However, Rio Tinto would be in compliance with this guideline.

All other share awards are satisfied by the use of shares which are purchased in the market. Further information in respect of the share plan arrangements and outstanding balances under each plan can be found in note 43 to the financial statements.

### Shareholder voting

The table below sets out the results of the remuneration-related resolutions approved at the Group's 2017 AGMs. Our meetings with shareholders in 2017 were well attended and provided an opportunity for the Remuneration Committee chairman to discuss remuneration related topics with shareholders, particularly matters relating to the refreshed Remuneration Policy. It also includes the results from the last vote on the Approval of the Remuneration Policy Report in 2015.

Resolution	Total votes cast	Votes for	Votes against	Votes withheld <sup>(a)</sup>
Approval of the Directors' Report on Remuneration and Remuneration Committee chairman's letter	1,222,899,687	1,129,958,024	92,941,663	35,076,929
		92.4%	7.6%	
Approval of the Remuneration Report	1,233,532,899	1,132,204,096	101,328,803	24,441,482
		91.8%	8.2%	
Approval of potential termination benefits	1,255,730,952	1,226,592,667	29,138,285	2,245,979
		97.7%	2.3%	
Approval of Remuneration Policy Report (2015)	1,252,724,326	1,186,605,279	43,739,074	22,379,973
		96.4%	3.6%	

(a) A vote "withheld" is not a vote in law, and is not counted in the calculation of the proportion of votes for and against the resolution.

### Relative spend on remuneration

The table below sets out the details of total remuneration paid; distributions to shareholders; purchase of property, plant and equipment and intangible assets, and tax paid during the financial year. The items in addition to remuneration paid were chosen by the directors as they represent other significant disbursements of the company's funds.

Stated in US\$m	2017	2016	Difference in spend
Remuneration paid <sup>(a)</sup>	4,765	4,881	(116)
Distributions to shareholders <sup>(b)</sup>	6,333	2,725	3,608
Purchase of property, plant and equipment and intangible assets <sup>(c)</sup>	4,482	3,012	1,470
Corporate income tax paid <sup>(c)</sup>	2,307	1,521	786

(a) Total employment costs for the financial year as per note 5 to the financial statements.

(b) Distributions to shareholders include equity dividends paid to owners of Rio Tinto and own shares purchased from owners of Rio Tinto as per the Group cash flow statement.

(c) Purchase of property, plant and equipment and intangible assets, and corporate income tax paid during the financial year are as per the Group cash flow statement and are calculated as per note 1 to the financial statements.

### Gender pay

The company's statement on pay equity, in the context of our overall approach to diversity and inclusion, is set out on page 37 of the Annual report and on the company's website. An additional voluntary disclosure on UK gender pay reporting is set out on the company's website.

Table 1a – Executives' remuneration

		Short-term benefits					
				Other cash based benefits <sup>(c)</sup>	Non-monetary benefits <sup>(d)(e)</sup>	Total short-term benefits	Other Long-term benefits
Stated in US\$'000 <sup>(a)</sup>							
<b>Executive directors</b>							
Jean-Sébastien Jacques	2017	1,391	1,066	327	55	2,839	—
	2016	1,203	896	283	38	2,420	—
Chris Lynch	2017	1,099	828	207	106	2,240	—
	2016	1,134	878	259	175	2,446	—
<b>Other key management personnel</b>							
Bold Baatar	2017	657	368	128	315	1,468	—
	2016	58	36	473	52	619	—
Alfredo Barrios	2017	757	530	243	176	1,706	—
	2016	728	572	227	106	1,633	—
Joanne Farrell	2017	632	383	27	392	1,434	—
	2016	306	203	13	30	552	—
Vera Kirikova	2017	515	314	119	14	962	—
Stephen McIntosh	2017	755	448	196	80	1,479	—
	2016	409	259	272	56	996	—
Simone Niven	2017	515	334	96	6	951	—
Philip Richards	2017	435	265	89	20	809	—
Chris Salisbury	2017	755	505	163	54	1,477	—
	2016	493	306	352	92	1,243	—
Arnaud Soirat	2017	657	315	142	117	1,231	—
	2016	343	173	440	74	1,030	—

Notes to Table 1a – Executives' remuneration

- (a) "Table 1a – Executives' remuneration" is reported in US\$ using A\$1 = 0.76639 US\$; £1 = 1.28829 US\$; C\$1 = 0.77084 US\$ year to date average rates, except for cash bonuses which use A\$1 = 0.77921 US\$; £1 = 1.34499 US\$; C\$1 = 0.79444 US\$ year-end rates.
- (b) "Cash bonus" relates to the cash portion of the 2017 STIP award to be paid in March 2018.
- (c) "Other cash based benefits" typically include cash in lieu of a car and fuel and, where applicable cash in lieu of company pension or superannuation contributions. For 2016, this includes one-time gross lump-sum payments to Bold Baatar (£343,000 : US\$465,000); Arnaud Soirat (£280,000 : US\$380,000); Stephen McIntosh (A\$335,000 : US\$249,000) and Chris Salisbury (A\$335,000 : US\$249,000) related to their respective relocations on appointment to the Executive Committee in 2016. These payments were made as compensation for all costs, losses or other disadvantages that may be sustained as a result of the permanent international transfer or domestic relocation.
- (d) "Non-monetary benefits" for executives include healthcare coverage, provision of a car, professional tax compliance services/advice and flexible perquisites. For executive directors, it also includes the value of company provided transport. For 2017, this includes a benefit to Joanne Farrell (A\$445,000 : US\$341,000) from the company covering tax costs in relation to her increased defined benefit following her appointment to the Executive Committee in 2016.
- (e) "Non-monetary benefits" for executives living outside their home country include international assignment benefits comprising, where applicable, housing, education, relocation expenses, tax equalisation and related compliance services, assignee and family home leave trips and international assignment payments made to and on their behalf.
- (f) The value of share based awards has been determined in accordance with the recognition and measurement requirements of IFRS2 "Share-based Payment". The fair value of awards granted under the Share Option Plan (SOP), the Management Share Plan (MSP), the Bonus Deferral Plan (BDP), the 2013 Performance Share Plan (PSP) and the Share Savings Plan (SSP) have been calculated at their dates of grant using valuation models provided by external consultants, Lane Clark and Peacock LLP, including an independent lattice-based option valuation model and a Monte Carlo valuation model which take into account the constraints on vesting and exercise attached to these awards. Further details of the valuation methods and assumptions used for these awards are included in note 43 (Share based payments) in the financial statements. The fair value of other share-based awards is measured at the purchase cost of the shares from the market. The non-executive directors do not participate in the long-term incentive share schemes.

## Remuneration Report: Implementation Report continued

**Table 1a – Executives' remuneration** continued

Stated in US\$'000(a)		Long-term benefits					Post-employment benefits <sup>(i)</sup>			Total remuneration <sup>(j)</sup>	Currency of actual payment
		Value of share-based awards <sup>(i)</sup>					Pension and superannuation	Other post-employment benefits	Termination benefits		
		BDP	PSP	MSP	SOP	Others <sup>(h)</sup>					
<b>Executive directors</b>											
Jean-Sébastien Jacques	2017	750	815	–	–	9	39	–	–	4,452	£
	2016	612	1,316	–	–	9	41	–	–	4,398	£
Chris Lynch	2017	881	555	–	–	5	96	–	–	3,777	£
	2016	874	2,013	–	–	5	46	–	–	5,384	£
<b>Other key management personnel</b>											
Bold Baatar	2017	183	284	99	–	1	20	–	–	2,055	£
	2016	13	14	12	–	–	3	–	–	661	£
Alfredo Barrios	2017	466	326	–	–	3	20	–	–	2,521	C\$
	2016	340	736	–	–	2	20	–	–	2,731	C\$
Joanne Farrell	2017	210	241	123	–	4	127	–	–	2,139	A\$
	2016	84	70	79	–	2	73	–	–	860	A\$
Vera Kirikova	2017	95	223	34	–	6	11	–	–	1,331	£
Stephen McIntosh	2017	240	307	125	–	4	15	–	–	2,170	A\$
	2016	107	131	99	–	3	88	–	–	1,424	A\$
Simone Niven	2017	118	218	40	–	5	35	–	–	1,367	£
Philip Richards	2017	59	66	–	–	–	–	–	–	934	£
Chris Salisbury	2017	258	301	132	–	–	23	–	–	2,191	A\$
	2016	132	176	134	–	–	19	–	–	1,704	A\$
Arnaud Soirat	2017	220	278	143	–	2	14	–	–	1,888	£
	2016	90	146	91	–	–	9	–	–	1,366	£

(g) "BDP" represents the portion of the 2014 – 2017 STIP awards deferred into Rio Tinto shares under the Bonus Deferral Plan.

(h) "Others" includes the Global Employee Share Plan (myShare), Share Savings Plan, Share Ownership Plan and Global Employee Share Plan as described in the Implementation Report.

(i) The costs shown for defined benefit pension plans and post-retirement medical benefits are the service costs attributable to the individual, calculated in accordance with IAS19. The cost for defined contribution plans is the amount contributed in the year by the company.

(j) "Total remuneration" represents the disclosure of total emoluments and compensation required under the Australian Corporations Act 2001 and applicable accounting standards.

(k) Further details in relation to aggregate compensation for executives, including directors, are included in note 38 (Directors' and key management remuneration).

**Table 1b – Non-executive directors' remuneration**

Stated in US\$'000 <sup>(a)</sup>		Fees and allowances <sup>(b)</sup>	Non-monetary benefits <sup>(c)(d)</sup>	Single total figure of remuneration <sup>(e)</sup>	Currency of actual payment
<b>Chairman</b>					
Jan du Plessis	2017	940	68	1,008	£
	2016	990	88	1,078	£
<b>Non-executive directors</b>					
Robert Brown <sup>(f)</sup>	2017	74	28	102	£
	2016	186	46	232	£
Megan Clark	2017	281	20	301	A\$
	2016	286	28	314	A\$
David Constable <sup>(g)</sup>	2017	229	25	254	£
Ann Godbehere	2017	265	9	274	£
	2016	221	9	230	£
Simon Henry <sup>(h)</sup>	2017	150	2	152	£
Sam Laidlaw <sup>(i)</sup>	2017	177	7	184	£
Anne Lauvergeon <sup>(j)</sup>	2017	53	5	58	£
	2016	173	13	186	£
Michael L'Estrange	2017	215	19	234	A\$
	2016	237	25	262	A\$
Paul Tellier	2017	248	50	298	£
	2016	207	52	259	£
Simon Thompson	2017	232	3	235	£
	2016	196	8	204	£
John Varley <sup>(k)</sup>	2017	152	7	159	£
	2016	295	5	300	£

Notes to Table 1b – Non-executive directors' remuneration

- (a) The remuneration is reported in US dollars. The amounts have been converted using the relevant 2017 average exchange rates of £1 = 1.28829 US\$ and A\$1 = 0.76639 US\$ (1 January to 31 December 2017 average).
- (b) "Fees and allowances" comprise the total fees for the chairman and all non-executive directors and travel allowances for the non-executive directors (other than the chairman). The payment of statutory minimum superannuation contributions for Australian non-executive directors is required by Australian superannuation law. These contributions are included in the Fees and allowances amount disclosed for Australian non-executive directors.
- (c) "Non-monetary benefits" include, as in previous year, amounts which are deemed by the UK tax authorities to be benefits in kind relating largely to the costs of non-executive directors' expenses in attending board meetings held at the company's UK registered office (including associated hotel and subsistence expenses) and professional tax compliance services/advice. Given these expenses are incurred by directors in the fulfilment of their duties, the company pays the tax on them.
- (d) In 2017, the following additional amounts are included as noted for the relevant director. For Jan du Plessis the value of company provided transport and medical insurance premiums. Mr du Plessis is provided with a car and driver in his capacity as chairman of Rio Tinto. For the year ended 31 December 2017, the amount was £24,346.
- (e) Represents disclosure of the single total figure of remuneration under Schedule 8 of the Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended) and total remuneration under the Australian Corporations Act 2001 and applicable accounting standards.
- (f) The amounts reported for Robert Brown reflect the period when he was an active member of the board from 1 January to 4 May 2017.
- (g) The amounts reported for David Constable reflect the period when he was an active member of the board from 10 February to 31 December 2017.
- (h) The amounts reported for Simon Henry reflect the period when he was an active member of the board from 1 April to 31 December 2017.
- (i) The amounts reported for Sam Laidlaw reflect the period when he was an active member of the board from 10 February to 31 December 2017.
- (j) The amounts reported for Anne Lauvergeon reflect the period when she was an active member of the board from 1 January to 4 May 2017.
- (k) The amounts reported for John Varley reflect the period when he was an active member of the board from 1 January to 20 June 2017.
- (l) Further details in relation to aggregate compensation for executives, including directors, are included in note 38 (Directors' and key management remuneration).



## Remuneration Report: Implementation Report continued

**Table 2 – Directors' and executives' beneficial interests in Rio Tinto shares**

	Rio Tinto plc <sup>(a)</sup>			Rio Tinto Limited			Movements		
	1 Jan	31 Dec	16 Feb	1 Jan	31 Dec	16 Feb	Exercise of		
	2017 <sup>(b)</sup>	2017 <sup>(c)</sup>	2018	2017 <sup>(b)</sup>	2017 <sup>(c)</sup>	2018	options <sup>(d)</sup>	Compensation <sup>(e)</sup>	Other <sup>(f)</sup>
<b>Directors</b>									
Robert Brown <sup>(g)</sup>	4,200	8,700	–	–	–	–	–	–	4,500
Megan Clark	–	–	–	3,215	4,085	4,715	–	–	1,500
David Constable <sup>(g)</sup>	–	1,167	1,167	–	–	–	–	–	1,167
Jan du Plessis	30,000	30,000	30,000	–	–	–	–	–	–
Ann Godbehere	3,100	3,100	3,100	–	–	–	–	–	–
Jean-Sébastien Jacques	21,087	38,541	38,577	–	–	–	–	30,342	(12,852)
Sam Laidlaw <sup>(g)</sup>	–	7,500	7,500	–	–	–	–	–	7,500
Anne Lauvergeon <sup>(g)</sup>	3,539	3,539	–	–	–	–	–	–	–
Michael L'Estrange	–	–	–	2,003	2,603	2,603	–	–	600
Chris Lynch	10,730	42,753	42,780	6,890	6,890	6,890	–	58,953	(26,903)
Paul Tellier	25,371	25,371	25,371	–	–	–	–	–	–
Simon Thompson	7,458	7,458	7,458	–	–	–	–	–	–
John Varley <sup>(g)</sup>	9,685	9,685	–	–	–	–	–	–	–
<b>Executives</b>									
Bold Baatar	2,746	9,617	9,635	–	–	–	–	7,653	(764)
Alfredo Barrios	3,110	7,893	7,927	–	–	–	–	9,976	(5,159)
Joanne Farrell	2,839	2,995	2,995	29,220	34,536	34,568	–	7,833	(2,329)
Vera Kirikova <sup>(g)</sup>	774	2,178	2,207	–	–	–	–	1,968	(535)
Stephen McIntosh	7,538	8,385	8,385	5,626	10,878	10,925	808	9,794	(4,457)
Simone Niven <sup>(g)</sup>	1,711	3,347	3,347	–	–	–	–	2,862	(1,225)
Philip Richards <sup>(g)</sup>	–	–	–	–	–	–	–	–	–
Chris Salisbury	–	–	–	16,387	20,779	20,779	–	8,459	(4,066)
Arnaud Soirat <sup>(g)</sup>	–	59	59	6,383	12,759	12,759	–	10,107	(3,731)
Simon Trott <sup>(g)(h)</sup>	–	–	–	–	–	5,113	–	46	–

Notes to table 2

(a) Rio Tinto plc ordinary shares or American Depositary Shares.

(b) Or date of appointment, if later.

(c) Or date of retirement / date stepped down from the Executive Committee, if earlier.

(d) Shares obtained through the exercise of options under the Rio Tinto Share Savings Plan or the Share Option Plan. The number of shares retained may differ from the number of options exercised.

(e) Shares obtained through the Rio Tinto Share Ownership Plan and/or vesting of awards under PSP, MSP and BDP.

(f) Share movements due to the sale or purchase of shares, shares received under dividend reinvestment plans, shares purchased/sold through the non-executive directors' Share Purchase Plan.

(g) David Constable, Sam Laidlaw and Simon Henry were appointed as directors with effect from 10 February 2017, 10 February 2017 and 1 April 2017 respectively. Robert Brown, Anne Lauvergeon and John Varley retired as directors on 4 May 2017, 4 May 2017 and 20 June 2017 respectively. Vera Kirikova, Simone Niven, Philip Richards and Simon Trott joined the Executive Committee on 1 January 2017, 1 January 2017, 2 April 2017 and 1 January 2018 respectively.

(h) Simon Trott acquired 17 and 28 Rio Tinto Limited ordinary shares on 17 and 24 January 2018 respectively.

Interests in outstanding awards under LTIPs and option plans are set out in table 3.

Table 3 – Plan interests (awards of shares and options under long-term incentive plans)

Name	Award/grant date	Market price at award <sup>(a), (b)</sup>	1 January 2017	Awarded	Lapsed/ cancelled	Dividend units	Vested	31 December 2017	15 February 2018	Performance period concludes <sup>(c)</sup>	Date of vest/trade	Market price at vest/trade	Monetary value of award at vest/trade US\$ <sup>(d)</sup>
<b>Bonus Deferral Plan</b> (not subject to performance conditions)													
Bold Baatar	23 Mar 2015	£29.43	2,136	–	–	215	2,351	–	–	1 Dec 2017	1 Dec 2017	£34.90	105,704
	11 Mar 2016	£20.00	3,165	–	–	–	–	3,165	3,165	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	5,703	–	–	–	5,703	5,703	1 Dec 2019	–	–	–
Alfredo Barrios	23 Mar 2015	£29.43	8,931	–	–	901	9,832	–	–	1 Dec 2017	1 Dec 2017	£34.90	442,060
	11 Mar 2016	£20.00	16,957	–	–	–	–	16,957	16,957	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	14,230	–	–	–	14,230	14,230	1 Dec 2019	–	–	–
Joanne Farrell	23 Mar 2015	A\$58.21	1,946	–	–	178	2,124	–	–	1 Dec 2017	1 Dec 2017	A\$70.96	115,510
	11 Mar 2016	A\$44.57	2,583	–	–	–	–	2,583	2,583	1 Dec 2018	–	–	–
	9 Mar 2017	A\$60.14	–	6,511	–	–	–	6,511	6,511	1 Dec 2019	–	–	–
Jean-Sébastien Jacques	23 Mar 2015	£29.43	13,781	–	–	1,390	15,171	–	–	1 Dec 2017	1 Dec 2017	£34.90	682,108
	11 Mar 2016	£20.00	22,394	–	–	–	–	22,394	22,394	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	22,163	–	–	–	22,163	22,163	1 Dec 2019	–	–	–
Vera Kirikova	11 Mar 2016	£20.00	944	–	–	–	–	944	944	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	1,811	–	–	–	1,811	1,811	1 Dec 2019	–	–	–
Chris Lynch	23 Mar 2015	£29.43	26,066	–	–	2,630	28,696	–	–	1 Dec 2017	1 Dec 2017	£34.90	1,290,210
	11 Mar 2016	£20.00	33,238	–	–	–	–	33,238	33,238	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	21,725	–	–	–	21,725	21,725	1 Dec 2019	–	–	–
Stephen McIntosh	23 Mar 2015	A\$58.21	2,017	–	–	184	2,201	–	–	1 Dec 2017	1 Dec 2017	A\$70.96	119,697
	11 Mar 2016	A\$44.57	2,965	–	–	–	–	2,965	2,965	1 Dec 2018	–	–	–
	9 Mar 2017	A\$60.14	–	7,526	–	–	–	7,526	7,526	1 Dec 2019	–	–	–
Simone Niven	23 Mar 2015	£29.43	1,114	–	–	112	1,226	–	–	1 Dec 2017	1 Dec 2017	£34.90	55,123
	11 Mar 2016	£20.00	2,278	–	–	–	–	2,278	2,278	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	1,704	–	–	–	1,704	1,704	1 Dec 2019	–	–	–
Chris Salisbury	23 Mar 2015	A\$58.21	1,705	–	–	156	1,861	–	–	1 Dec 2017	1 Dec 2017	A\$70.96	101,207
	11 Mar 2016	A\$44.57	3,542	–	–	–	–	3,542	3,542	1 Dec 2018	–	–	–
	9 Mar 2017	A\$60.14	–	7,772	–	–	–	7,772	7,772	1 Dec 2019	–	–	–
Arnaud Soirat	23 Mar 2015	A\$58.21	3,292	–	–	301	3,593	–	–	1 Dec 2017	4 Dec 2017	A\$72.36	199,253
	11 Mar 2016	A\$44.57	3,050	–	–	–	–	3,050	3,050	1 Dec 2018	–	–	–
	9 Mar 2017	£32.03	–	8,051	–	–	–	8,051	8,051	1 Dec 2019	–	–	–

## Remuneration Report: Implementation Report continued

Table 3 – Plan interests (awards of shares and options under long-term incentive plans) continued

Name	Award/grant date	Market price at award <sup>(a)</sup> , <sup>(b)</sup>	1 January 2017	Awarded	Lapsed/ cancelled	Dividend units	Vested	31 December 2017	15 February 2018	Performance period concludes <sup>(c)</sup>	Date of vest/trade	Market price at vest/trade	Monetary value of award at vest/trade US\$ <sup>(d)</sup>
<b>Management Share Plan</b> (not subject to performance conditions)													
Bold Baatar	17 Mar 2014	£31.80	3,882	–	–	332	4,214	–	–	20 Feb 2017	20 Feb 2017	£36.18	196,416
	23 Mar 2015	£29.43	3,738	–	–	–	–	3,738	3,738	19 Feb 2018	–	–	–
	11 Mar 2016	£20.00	4,317	–	–	–	–	4,317	4,317	18 Feb 2019	–	–	–
Joanne Farrell	17 Mar 2014	A\$61.28	3,724	–	–	332	4,056	–	–	20 Feb 2017	20 Feb 2017	A\$67.55	209,978
	23 Mar 2015	A\$58.21	3,769	–	–	–	–	3,769	3,769	19 Feb 2018	–	–	–
	11 Mar 2016	A\$44.57	4,318	–	–	–	–	4,318	4,318	18 Feb 2019	–	–	–
Vera Kirikova	14 Sep 2015	£23.98	1,670	–	–	53	1,723	–	–	1 Mar 2017	1 Mar 2017	£33.99	75,448
	14 Sep 2015	£23.98	879	–	–	–	–	879	879	19 Feb 2018	–	–	–
	11 Mar 2016	£20.00	1,878	–	–	–	–	1,878	1,878	18 Feb 2019	–	–	–
Stephen McIntosh	17 Mar 2014	A\$61.28	3,789	–	–	338	4,127	–	–	20 Feb 2017	20 Feb 2017	A\$67.55	213,653
	23 Mar 2015	A\$58.21	3,809	–	–	–	–	3,809	3,809	19 Feb 2018	–	–	–
	11 Mar 2016	A\$44.57	4,364	–	–	–	–	4,364	4,364	18 Feb 2019	–	–	–
Simone Niven	17 Mar 2014	£31.80	1,220	–	–	104	1,324	–	–	20 Feb 2017	20 Feb 2017	£36.18	61,712
	23 Mar 2015	£29.43	1,261	–	–	–	–	1,261	1,261	19 Feb 2018	–	–	–
	11 Mar 2016	£20.00	2,277	–	–	–	–	2,277	2,277	18 Feb 2019	–	–	–
Chris Salisbury	17 Mar 2014	A\$61.28	3,997	–	–	357	4,354	–	–	20 Feb 2017	20 Feb 2017	A\$67.55	225,405
	23 Mar 2015	A\$58.21	4,043	–	–	–	–	4,043	4,043	19 Feb 2018	–	–	–
	11 Mar 2016	A\$44.57	4,632	–	–	–	–	4,632	4,632	18 Feb 2019	–	–	–
Arnaud Soirat	17 Mar 2014	A\$61.28	4,081	–	–	364	4,445	–	–	20 Feb 2017	22 Feb 2017	A\$69.04	235,192
	23 Mar 2015	A\$58.21	4,414	–	–	–	–	4,414	4,414	19 Feb 2018	–	–	–
	11 Mar 2016	A\$44.57	5,057	–	–	–	–	5,057	5,057	18 Feb 2019	–	–	–

Table 3 – Plan interests (awards of shares and options under long-term incentive plans) continued

Name	Award/grant date	Market price at award <sup>(a), (b)</sup>	1 January 2017	Awarded	Lapsed/ cancelled	Dividend units	Vested	31 December 2017	15 February 2018	Performance period concludes <sup>(c)</sup>	Date of vest/trade	Market price at vest/trade	Monetary value of award at vest/trade US\$ <sup>(d)</sup>
<b>Performance Share Plan<sup>(e)</sup> (subject to performance conditions)</b>													
Bold Baatar	16 Sep 2013	£31.83	1,750	–	(868)	111	993	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	£36.18 / £31.08	22,139/ 20,741
	16 Sep 2013	£31.83	1,751	–	–	–	–	1,751	1,751	31 Dec 2017	–	–	–
	17 Mar 2014	£31.80	7,765	–	–	–	–	7,765	7,765	31 Dec 2018	–	–	–
	23 Mar 2015	£29.43	14,954	–	–	–	–	14,954	14,954	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	17,270	–	–	–	–	17,270	17,270	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	85,174	–	–	–	85,174	85,174	31 Dec 2021	–	–	–
Alfredo Barrios	15 Sep 2014	£32.35	43,568	–	–	–	–	43,568	43,568	31 Dec 2018	–	–	–
	23 Mar 2015	£29.43	66,390	–	–	–	–	66,390	66,390	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	73,140	–	–	–	–	73,140	73,140	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	91,721	–	–	–	91,721	91,721	31 Dec 2021	–	–	–
Joanne Farrell	27 May 2013	A\$53.11	2,477	–	(1,227)	172	1,422	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	A\$67.55 / A\$62.45	35,410/ 35,321
	27 May 2013	A\$53.11	2,477	–	–	–	–	2,477	2,477	31 Dec 2017	–	–	–
	17 Mar 2014	A\$61.28	7,448	–	–	–	–	7,448	7,448	31 Dec 2018	–	–	–
	23 Mar 2015	A\$58.21	7,539	–	–	–	–	7,539	7,539	31 Dec 2019	–	–	–
	11 Mar 2016	A\$44.57	8,637	–	–	–	–	8,637	8,637	31 Dec 2020	–	–	–
	9 Mar 2017	A\$60.14	–	66,295	–	–	–	66,295	66,295	31 Dec 2021	–	–	–
Jean-Sébastien Jacques	27 May 2013	£28.67	25,682	–	(12,713)	1,860	14,829	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	£36.18 / £31.08	330,223/ 310,072
	27 May 2013	£28.67	25,683	–	–	–	–	25,683	25,683	31 Dec 2017	–	–	–
	17 Mar 2014	£31.80	70,057	–	–	–	–	70,057	70,057	31 Dec 2018	–	–	–
	23 Mar 2015	£29.43	72,768	–	–	–	–	72,768	72,768	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	84,005	–	–	–	–	84,005	84,005	31 Dec 2020	–	–	–
	12 Sep 2016	£22.95	79,966	–	–	–	–	79,966	79,966	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	184,994	–	–	–	184,994	184,994	31 Dec 2021	–	–	–
Vera Kirikova	14 Sep 2015	£23.98	1,758	–	–	–	–	1,758	1,758	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	5,636	–	–	–	–	5,636	5,636	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	66,803	–	–	–	66,803	66,803	31 Dec 2021	–	–	–
Chris Lynch	27 May 2013	£28.67	52,084	–	(25,783)	3,773	30,074	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	£36.18 / £31.08	669,721/ 628,833
	27 May 2013	£28.67	52,085	–	–	–	–	52,085	52,085	31 Dec 2017	–	–	–
	17 Mar 2014	£31.80	104,312	–	–	–	–	104,312	104,312	31 Dec 2018	–	–	–
	23 Mar 2015	£29.43	112,620	–	–	–	–	112,620	112,620	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	126,987	–	–	–	–	126,987	126,987	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	146,711	–	–	–	146,711	146,711	31 Dec 2021	–	–	–
Stephen McIntosh	27 May 2013	A\$53.11	5,632	–	(2,789)	392	3,235	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	A\$67.55 / A\$62.45	80,554/ 80,359
	27 May 2013	A\$53.11	5,633	–	–	–	–	5,633	5,633	31 Dec 2017	–	–	–
	17 Mar 2014	A\$61.28	7,578	–	–	–	–	7,578	7,578	31 Dec 2018	–	–	–
	23 Mar 2015	A\$58.21	11,429	–	–	–	–	11,429	11,429	31 Dec 2019	–	–	–
	11 Mar 2016	A\$44.57	13,093	–	–	–	–	13,093	13,093	31 Dec 2020	–	–	–
	9 Mar 2017	A\$60.14	–	79,152	–	–	–	79,152	79,152	31 Dec 2021	–	–	–
Simone Niven	27 May 2013	£28.67	343	–	(171)	23	195	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	£36.18 / £31.08	4,335/ 4,084
	27 May 2013	£28.67	343	–	–	–	–	343	343	31 Dec 2017	–	–	–
	17 Mar 2014	£31.80	3,660	–	–	–	–	3,660	3,660	31 Dec 2018	–	–	–
	23 Mar 2015	£29.43	5,041	–	–	–	–	5,041	5,041	31 Dec 2019	–	–	–
	11 Mar 2016	£20.00	9,109	–	–	–	–	9,109	9,109	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	66,803	–	–	–	66,803	66,803	31 Dec 2021	–	–	–
Philip Richards	11 Sep 2017	£36.78	–	57,810	–	–	–	57,810	57,810	31 Dec 2021	–	–	–
Chris Salisbury	27 May 2013	A\$53.11	3,907	–	(1,935)	272	2,244	–	–	31 Dec 2016	20 Feb 2017/ 31 May 2017	A\$67.55 / A\$62.45	55,859/ 55,758
	27 May 2013	A\$53.11	3,907	–	–	–	–	3,907	3,907	31 Dec 2017	–	–	–
	17 Mar 2014	A\$61.28	7,994	–	–	–	–	7,994	7,994	31 Dec 2018	–	–	–
	23 Mar 2015	A\$58.21	16,175	–	–	–	–	16,175	16,175	31 Dec 2019	–	–	–
	11 Mar 2016	A\$44.57	13,898	–	–	–	–	13,898	13,898	31 Dec 2020	–	–	–
	9 Mar 2017	A\$60.14	–	79,152	–	–	–	79,152	79,152	31 Dec 2021	–	–	–
Arnaud Soirat	27 May 2013	A\$53.11	3,601	–	(1,783)	251	2,069	–	–	31 Dec 2016	22 Feb 2017/ 2 Jun 2017	A\$69.04 / A\$62.64	52,647/ 51,559
	27 May 2013	A\$53.11	3,601	–	–	–	–	3,601	3,601	31 Dec 2017	–	–	–
	17 Mar 2014	A\$61.28	16,326	–	–	–	–	16,326	16,326	31 Dec 2018	–	–	–
	23 Mar 2015	A\$58.21	17,658	–	–	–	–	17,658	17,658	31 Dec 2019	–	–	–
	11 Mar 2016	A\$44.57	20,230	–	–	–	–	20,230	20,230	31 Dec 2020	–	–	–
	9 Mar 2017	£32.03	–	85,174	–	–	–	85,174	85,174	31 Dec 2021	–	–	–

## Remuneration Report: Implementation Report continued

**Table 3 – Plan interests (awards of shares and options under long-term incentive plans) continued**

Name	Date of grant	1 January 2017 <sup>(a)</sup>	Vested during 2017	Exercised	Lapsed/ cancelled	Vested and exercisable on 31 December 2017
<b>Stock Option Plan<sup>(f)</sup></b> (not subject to performance conditions)						
Stephen McIntosh	17 Mar 2009	2,951	–	2,951	–	–
Chris Salisbury	17 Mar 2009	3,335	–	–	–	3,335

(a) Awards and options denominated in pounds sterling were for Rio Tinto plc ordinary shares of 10 pence each and awards denominated in Australian dollars were for Rio Tinto Limited shares. All options are granted over ordinary shares. Each option is granted over one share at no cost to participants. Where an exercise price is stated, it represents the amount payable per share on the exercise of each option by participants.

(b) The weighted fair value per share of conditional awards granted in 2017 under the BDP was £32.61 for Rio Tinto plc and A\$61.39 for Rio Tinto Limited and for PSP was £19.31 for Rio Tinto plc and A\$35.81 for Rio Tinto Limited. Conditional awards are awarded at no cost to the recipient and no amount remains unpaid on any shares awarded. The market price at award is the closing price on the award date.

(c) Details of the performance conditions for the 2013 Performance Share Plan are provided below.

For awards granted from 2013, for the TSR component (constituting two-thirds of the award), where TSR performance is measured against both the Euromoney Global Mining Index and the MSCI World Index, the award will vest as follows:

Outperformance of the index by 6 per cent per annum	1.0x award vests
Performance between equal to the index and 6 per cent outperformance	Proportionate vesting between 0.225x and 1.0x vesting
Performance equal to index	0.225x award vests
Performance less than index	Nil vesting

For the EBIT margin measure (constituting one-third of the award), change in the EBIT margin of Rio Tinto and each of the comparator companies (measured on a "point-to-point" basis using the last financial year in the performance period and the financial year prior to the start of the performance period) will be calculated using independent third-party data. Vesting will be subject to Rio Tinto's interpolated ranking position using the following schedule.

Equal to or greater than 2nd ranked company	1.0x award vests
Between the 5th and 2nd ranked companies	Proportionate vesting between 0.225x and 1.0x vesting
Above the 6th ranked company	0.225x award vests
Equal to the 6th ranked company or below	Nil vesting

For awards granted from 2013, if vesting is achieved, participants will be entitled to receive a number of additional shares whose market value reflects the aggregate cash amount of dividends that would have been received had the number of shares which have vested at the end of the performance period been held throughout the period.



**Table 3 – Plan interests (awards of shares and options under long-term incentive plans) continued**

Name	31 December 2017	Vested and exercisable on 15 February 2018	15 February 2018	Exercise price	Value of options exercised during 2017	Market price on date of exercise	Date from which first exercisable	Expiry date
<b>Stock Option Plan<sup>(f)</sup></b>								
Stephen McIntosh	–			£16.53	£109,718	<b>£37.18</b>	17 Mar 2012	<b>17 Mar 2019</b>
Chris Salisbury	3,335			A\$33.45	–	–	17 Mar 2012	<b>17 Mar 2019</b>

(d) The amount in US dollars has been converted at the rate of US\$1.28829=£1 and US\$0.76639=A\$1, being the average exchange rates for 2017.

(e) For the 2013 PSP awards granted on 27 May 2013 with a performance period that concluded on 31 December 2017, 33.33 per cent of the award vested in relation to the TSR portion of the award. The remaining performance condition of relative EBIT margin will be assessed later in 2018.

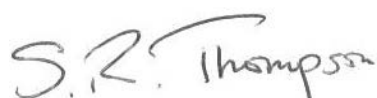
(f) No options have been granted to executives since 19 March 2012.

The closing price at 31 December 2017 was £39.42 for Rio Tinto plc ordinary shares and was A\$75.81 for Rio Tinto Limited ordinary shares. The high and low prices during 2017 of Rio Tinto plc and Rio Tinto Limited shares were £39.495 and £28.825 and A\$76.03 and A\$56.72 respectively.

As of 15 February 2018, members of the Executive Committee held 2,432,672 shares awarded and not vested under long-term incentive plans and 3,335 options to acquire Rio Tinto plc and Rio Tinto Limited shares. This includes the balances for executives appointed from 1 January 2018.

### Directors' approval statement

This Directors' Remuneration Report is delivered in accordance with a resolution of the board, and has been signed on behalf of the board by:



**Simon Thompson**

**Chairman of the Remuneration Committee**

28 February 2018

# Directors' report

The directors present their report and audited consolidated financial statements for the year ended 31 December 2017.

## Scope of this report

For the purposes of UK company law:

- the reports under the heading “Governance report” on pages 50 to 69 and the additional disclosures under the heading “Shareholder information” on pages 250 to 258 are hereby incorporated by reference into, and form part of, this Directors' report;
- certain items that would ordinarily need to be included in this Directors' report have, as permitted, (including an indication of likely future developments in the business of the company and the Group), instead been discussed in the Strategic report on pages 1 to 48, while details of the Group's policy on addressing financial risks and details about financial instruments are shown in note 30 to the Group financial statements; and
- taken together, the Strategic report and this Directors' report are intended to provide a fair, balanced and understandable assessment of the development and performance of the Group's business during the year and its position at the end of the year, its strategy, likely developments and any principal risks and uncertainties associated with the Group's business.

For the purposes of compliance with DTR 4.1.5R(2) and DTR 4.1.8R, the required content of the “Management Report” can be found in the Strategic report or this Directors' report, including the material incorporated by reference.

A full report on director and executive remuneration and shareholdings can be found in the Remuneration Report on pages 70 to 105 which for the purposes of the Australian Corporations Act, forms part of this Directors' report.

## Dual listed structure and constitutional documents

An explanation of the dual listed companies (DLC) structure of Rio Tinto plc and Rio Tinto Limited, and aspects of the companies' constitutional provisions can be found on pages 248 to 258. That section provides a description of voting arrangements, including restrictions which may apply in respect of the shares of either company under specified circumstances.

## Operating and financial review

Rio Tinto's principal activities during 2017 were minerals and metals exploration, development, production and processing.

The subsidiary and associated undertakings principally affecting the profits or net assets of the Group in the year are listed in notes 33 to 36 to the financial statements.

Significant changes and events affecting the Group during 2017 and until the date of this report have been:

### Financial

- On 5 April 2017, the Australian Commissioner of Taxation issued amended income tax assessments to Rio Tinto for the calendar years 2010 to 2013, requiring Rio Tinto to pay additional tax of A\$379 million plus interest of A\$68 million, a total of A\$447 million. The Australian Tax Office has acknowledged that the amended assessments do not relate to tax avoidance, and no penalties are payable. Rio Tinto challenged the amended assessments.
- On 10 April 2017, Rio Tinto disclosed details of the US\$4 billion paid in taxes and royalties and the more than US\$35 billion direct economic contribution delivered to host communities in 2016.
- On 23 June 2017, Rio Tinto announced that it had successfully completed its bond tender and redemption exercises announced on 22 May 2017 and had reduced gross debt by a further US\$2.5 billion. Since the start of 2016, the nominal value of the Group's outstanding bonds has reduced from approximately US\$21 billion to about US\$9.5 billion. The early redemption costs reduced underlying earnings by approximately US\$180 million and cash flow from

operating activities by approximately US\$259 million in the first half of 2017. These reductions will be offset by savings in future periods.

- Rio Tinto completed a US\$1.5 billion buy-back of Rio Tinto plc shares during 2017, comprising of US\$500 million and US\$1 billion on-market share buy-back programmes announced on 8 February 2017 and 2 August 2017 respectively.
- An additional US\$2.5 billion was committed to the ongoing share buy-back programme on 21 September 2017, returning the proceeds of the sale of Coal & Allied to its shareholders. As part of this, A\$750 million off-market share buy-back of Rio Tinto Limited shares was completed on 13 November 2017. A US\$1.925 million on-market buy-back of Rio Tinto plc shares commenced on 27 December 2017, to be completed no later than 31 December 2018.
- A further US\$1 billion share buy-back programme of Rio Tinto plc's ordinary shares was announced on 7 February 2018, also to be completed no later than 31 December 2018.
- On 16 February 2018, Rio Tinto announced that, following the Government of Mongolia's withdrawal from the Tavan Tolgoi power project, Oyu Tolgoi will now be obliged to deliver a domestic power source for the operation within four years. Rio Tinto will continue to review its capital expenditure forecasts for the project but has already earmarked US\$250 million a year for the development of a power station in Mongolia in its 2019 and 2020 capex forecasts.

### People

#### Executive Committee

- With effect from April 2017, Rio Tinto appointed Philip Richards as Group executive, Group General Counsel. Philip has responsibility for Rio Tinto's Legal, Governance and Risk functions and is a member of the Rio Tinto Executive Committee.
- With effect from January 2018, Rio Tinto appointed Simon Trott as chief commercial officer. Simon is also a member of the Rio Tinto Executive Committee.

#### Board

- On 10 February 2017, Rio Tinto appointed David Constable and Sam Laidlaw to the board with immediate effect and announced that Simon Henry would join the board with effect from 1 July 2017. Simon's appointment to the board was subsequently brought forward effective from 1 April 2017.
- On 9 March 2017, the Group announced that its chairman, Jan du Plessis, was to retire after the completion of an orderly succession process.
- On 20 June 2017, Rio Tinto announced that senior independent director John Varley had resigned as a non-executive director and would step down from the board with immediate effect. John was also chair of the Remuneration Committee.
- On 26 June 2017, Rio Tinto announced that Ann Godbehere had been appointed senior independent director on the Rio Tinto board, in which capacity she would lead the process under way to appoint a new chairman to succeed Jan du Plessis. Ann joined the Remuneration Committee and remains the chair of the Audit Committee. Simon Thompson was appointed chair of the Remuneration Committee. All of these appointments were with immediate effect.
- On 15 September 2017, Rio Tinto announced that its chief financial officer, Chris Lynch, is to retire by the end of September 2018 after the completion of an orderly succession process.
- On 4 December 2017, Rio Tinto announced that Simon Thompson would succeed Jan du Plessis as chairman on 5 March 2018. Simon will step down from his role as chair of the Remuneration Committee upon appointment as Chairman and will be succeeded by Sam Laidlaw.
- On 15 February 2018, Rio Tinto announced that it had appointed Moya Greene as an independent non-executive director. Moya, chief executive officer of Royal Mail Group, will join the board in the second half of 2018. It was also announced, that Paul Tellier, a non-executive director since 2007, will be stepping down from the board at the conclusion of the Rio Tinto Limited 2018 AGM.

### Regulatory

- On 17 October 2017, Rio Tinto was notified by the US Securities and Exchange Commission (SEC) that the SEC had filed a complaint in respect of Rio Tinto's disclosures and timing of the impairment of Rio Tinto Coal Mozambique (RTCM). The impairment was reflected in Rio Tinto's 2012 year-end accounts. Rio Tinto intends to vigorously defend itself against these allegations.

- On 17 October 2017, Rio Tinto announced that it had reached a settlement with the UK's Financial Conduct Authority (FCA) in relation to the timing of the impairment of RTCM. The FCA determined that Rio Tinto had breached the FCA's Disclosure and Transparency Rules and imposed a financial penalty on Rio Tinto of £27,385,400 (US\$36.4 million). The FCA made no findings of fraud, or of any systemic or widespread failure by Rio Tinto. The case is now closed. The Australian Securities and Investments Commission is also reviewing the RTCM impairment.

### Transactions

- On 24 January 2017, Rio Tinto announced that it had entered into a binding agreement for the sale of its Australian wholly owned subsidiary, Coal & Allied Industries Limited, to Yancoal Australia Limited ("Yancoal") for up to US\$2.45 billion. This required shareholder approval as Yancoal is considered to be a related party of Rio Tinto as a consequence of Chinalco being a 10.1 per cent shareholder in the Rio Tinto Group. Following competing bids by Glencore plc between 9 June and 23 June 2017, an improved revised offer from Yancoal was received on 25 June 2017, comprising total consideration of US\$2.69 billion, before working capital and other adjustments. Following general meetings of Rio Tinto plc and Rio Tinto Limited on 27 June 2017 and 29 June 2017, respectively, the transaction was approved by eligible shareholders, with 97.2 per cent of the votes cast voting in favour and completed on 1 September 2017.
- On 24 November 2017, it was announced that Rio Tinto and China's Sinosteel Corporation had agreed to extend the Channar Mining Joint Venture. This third extension will increase the life of the joint venture to cover production expected to total 290 million tonnes of iron ore.
- On 10 January 2018, Rio Tinto received a binding offer from Liberty House to acquire Rio Tinto's Aluminium Dunkerque smelter in northern France for US\$500 million, subject to final adjustments. In accordance with French law, Rio Tinto launched a consultation process with employees, relevant European works councils and other stakeholders in relation to the bid. Subject to satisfactory completion of these consultations, Rio Tinto expects to complete the sale of – Aluminium Dunkerque in the second quarter of 2018.
- On 26 February 2018, Rio Tinto received a binding offer from Hydro of US\$345 million, subject to final adjustments, to acquire Rio Tinto's ISAL smelter in Iceland, its 53.3 per cent share in the Aluchemie anode plant in the Netherlands and its 50 per cent share in the Aluminium fluoride plant in Sweden. In accordance with applicable laws, Rio Tinto will launch a consultation process with employees, relevant European works councils and other stakeholders in relation to the bid. Subject to satisfactory completion of these consultations and certain other conditions, Rio Tinto expects to complete the sale in the second quarter of 2018.

Details of events after the balance sheet date are further described in note 42 to the financial statements.

### Risk identification, assessment and management

The Group's principal risks and uncertainties are set out on pages 20 to 25. The Group's approach to risk management is discussed on page 19.

### Share capital

Details of the Group's share capital as at 31 December 2017 can be found in notes 27 and 28 to the financial statements. Details of the rights and obligations attached to each class of shares can be found on pages 250 and 251 under the heading "Voting arrangements".

Where, under an employee share plan operated by the company, participants are the beneficial owners of the shares, but not the registered owners, the voting rights are normally exercised by the registered owner at the direction of the participant.

Details of certain restrictions on holding shares in Rio Tinto and certain consequences triggered on a change of control are described on page 251 under the heading "Limitations on ownership of shares and merger obligations". There are no other restrictions on the transfer of ordinary Rio Tinto shares save for:

- restrictions that may from time to time be imposed by laws, regulations or Rio Tinto policy (for example, those relating to market abuse or insider dealing or share trading or those relating to Australian foreign investment);
- restrictions on the transfer of shares that may be imposed following a failure to supply information required to be disclosed, or where registration of the transfer may breach a court order or a law, or in relation to unmarketable parcels of shares;
- restrictions on the transfer of shares held under certain employee share plans while they remain subject to the plan.

At the AGMs held in 2017, shareholders authorised:

- the on-market purchase by Rio Tinto plc or Rio Tinto Limited or its subsidiaries, of up to 137,492,259 Rio Tinto plc shares (representing approximately ten per cent of Rio Tinto plc's issued share capital, excluding Rio Tinto plc shares held in Treasury at that time);
- the off-market purchase by Rio Tinto plc of up to 137,492,259 Rio Tinto plc shares acquired by Rio Tinto Limited or its subsidiaries under the above authority; and
- the off-market and/or on-market buy-back by Rio Tinto Limited of up to 42.4 million Rio Tinto Limited shares (representing approximately ten per cent of Rio Tinto Limited's issued share capital at the time).

### Substantial shareholders

Details of substantial shareholders can be found on page 252.

### Dividends

Details of dividends paid and declared for payment, together with the company's dividend policy can be found on page 254.

### Directors

The names of the directors who served during or since the end of the year and their period of appointment are set out on pages 52 to 54 of the Governance report. Details of each directors' qualifications, experience and special responsibilities, together with their recent directorships, are also shown on pages 52 and 54.

All directors, save for Jan du Plessis and Paul Tellier, will stand for re-election at the 2018 annual general meetings.

### Secretaries

Steve Allen is the Group company secretary, having been appointed on 9 January 2017. He is company secretary of Rio Tinto plc and joint company secretary, together with Tim Paine, of Rio Tinto Limited. Steve's and Tim's qualifications and experience are set out on page 54.

### Indemnities and insurance

The Articles of Association and Constitution of the companies provide for them to indemnify, to the extent permitted by law, directors and officers of the companies, including officers of certain subsidiaries, against liabilities arising from the conduct of the Group's business. The directors of the companies, the Group company secretary and the joint company secretary of Rio Tinto Limited, and certain employees serving as directors of certain eligible subsidiaries at the Group's request have also received direct indemnities consistent with these provisions. The indemnities are qualifying third-party indemnity provisions for the purposes of the UK Companies Act 2006 and each of these qualifying third-party indemnities was in force during the course of the financial year ended 31 December 2017 and as at the date of this Directors' report. No amount has been paid under any of these indemnities during the year.

Qualifying pension scheme indemnity provisions (as defined by section 235 of the UK Companies Act 2006) were in force during the course of the financial year ended 31 December 2017 and as at the date of this Directors' report, for the benefit of trustees of the Rio Tinto Group pension and superannuation funds across various jurisdictions. No amount has been paid under any of these indemnities during the year.

The Group has purchased directors' and officers' insurance during the year. In broad terms, the insurance cover indemnifies individual directors and officers against certain personal legal liability and legal defence costs for claims arising out of actions taken in connection with Group business.

## Purchases

### Rio Tinto plc shares of 10p each and Rio Tinto plc American Depositary Receipts (ADRs)

	Total number <sup>(a)</sup> of shares purchased	Average price <sup>(b)</sup> paid per share US\$	Total number of shares purchased to satisfy company dividend reinvestment plans	Total number of shares purchased to satisfy employee share plans	Total number <sup>(c)(l)</sup> of shares purchased as part of publicly announced plans or programmes	Maximum number of shares that may be purchased under plans or programmes
<b>2017</b>						
1 to 31 Jan	–	–	–	–	–	137,431,729 <sup>(e)</sup>
1 to 28 Feb	–	–	–	–	–	137,431,729 <sup>(e)</sup>
1 to 31 Mar	967,452	40.92	–	–	967,452	136,464,277 <sup>(e)</sup>
1 to 30 Apr	1,944,051	40.42	559,479	425,372	959,200	136,533,059 <sup>(f)</sup>
1 to 31 May	1,735,805	39.89	–	–	1,735,805	134,797,254 <sup>(f)</sup>
1 to 30 Jun	2,572,890	40.10	–	–	2,572,890	132,224,364 <sup>(f)</sup>
1 to 31 Jul	1,074,666	44.11	–	–	1,074,666	131,149,698 <sup>(f)</sup>
1 to 31 Aug	4,992,546	45.37	–	–	4,992,546	126,157,152 <sup>(f)</sup>
1 to 30 Sep	6,016,602	47.70	582,032	99,796	5,334,774	120,822,378 <sup>(f)</sup>
1 to 31 Oct	6,027,074	47.52	–	354,095	5,672,979	115,149,399 <sup>(f)</sup>
1 to 30 Nov	4,797,586	47.88	–	–	4,797,586	110,351,813 <sup>(f)</sup>
1 to 31 Dec	4,829,211	47.38	–	–	4,829,211	105,522,602 <sup>(f)</sup>
<b>Total</b>	<b>34,957,883 <sup>(d)</sup></b>	<b>45.67</b>	<b>1,141,511</b>	<b>879,263</b>	<b>32,937,109</b>	<b>–</b>
<b>2018</b>						
1 to 31 Jan	3,292,898	54.80	–	611,007	2,681,891	102,840,711 <sup>(f)</sup>
1 to 16 Feb	2,001,600	54.41	–	–	2,001,600	100,839,111 <sup>(f)</sup>

### Rio Tinto Limited shares

	Total number <sup>(a)</sup> of shares purchased	Average price <sup>(b)</sup> paid per share US\$	Total number of shares purchased to satisfy company dividend reinvestment plans	Total number <sup>(g)</sup> of shares satisfy employee share plans	Total number <sup>(c)(l)</sup> of shares purchased as part of publicly announced plans or programmes	Maximum number of shares that may be purchased under plans or programmes
<b>2017</b>						
1 to 31 Jan	–	–	–	–	–	42,400,000 <sup>(h)</sup>
1 to 28 Feb	–	–	–	–	–	42,400,000 <sup>(h)</sup>
1 to 31 Mar	–	–	–	–	–	42,400,000 <sup>(h)</sup>
1 to 30 Apr	1,233,903	45.46	788,936	444,967	–	42,400,000 <sup>(h)</sup>
1 to 31 May	–	–	–	–	–	42,400,000 <sup>(i)</sup>
1 to 30 Jun	–	–	–	–	–	42,400,000 <sup>(i)</sup>
1 to 31 Jul	–	–	–	–	–	42,400,000 <sup>(i)</sup>
1 to 31 Aug	–	–	–	–	–	42,400,000 <sup>(i)</sup>
1 to 30 Sep	715,126	52.25	652,368	62,758	–	42,400,000 <sup>(i)</sup>
1 to 31 Oct	262,198	53.19	–	262,198	–	42,400,000 <sup>(i)</sup>
1 to 30 Nov	11,778,064	48.53 <sup>(j)</sup>	–	–	11,778,064 <sup>(k)</sup>	30,621,936 <sup>(i)</sup>
1 to 31 Dec	–	–	–	–	–	30,621,936 <sup>(i)</sup>
<b>Total</b>	<b>13,989,291</b>	<b>48.54 <sup>(j)</sup></b>	<b>1,441,304</b>	<b>769,923</b>	<b>11,778,064</b>	<b>–</b>
<b>2018</b>						
1 to 31 Jan	542,237	57.28	–	542,237	–	30,621,936 <sup>(i)</sup>
1 to 16 Feb	–	–	–	–	–	30,621,936 <sup>(i)</sup>

(a) Monthly totals of purchases are based on the settlement date.

(b) The shares were purchased in the currency of the stock exchange on which the purchases took place and the sale price has been converted into US dollars at the exchange rate on the date of settlement.

(c) Shares purchased in connection with the dividend reinvestment plans and employee share plans are not deemed to form any part of any publicly announced plan or programme.

(d) This figure represents 2.6 per cent of Rio Tinto plc issued share capital at 31 December 2017.

(e) At the Rio Tinto plc AGM held in 2016, shareholders authorised the on-market purchase by Rio Tinto plc, Rio Tinto Limited and its subsidiaries of up to 137,431,729 Rio Tinto plc shares. This authorisation expired on 14 April 2017.

(f) At the Rio Tinto plc AGM held in 2017, shareholders authorized the on-market purchase by Rio Tinto plc, Rio Tinto Limited and its subsidiaries of up to 137,492,259 Rio Tinto plc shares. This authorisation will expire on the later of 30 June 2018 or the date of the 2018 AGM.

(g) The average price of shares purchased on-market by the trustee of Rio Tinto Limited's employee share trust during 2017 was US\$48.69.

(h) At the Rio Tinto Limited AGM held in 2016 shareholders authorised the off-market and/or on-market buy-back of up to 42.4 million Rio Tinto Limited shares.

(i) At the Rio Tinto Limited AGM held in 2017 shareholders authorised the off-market and/or on-market buy-back of up to 42.4 million Rio Tinto Limited shares.

(j) The 'Average price paid per share' includes the off-market share buy-back programme by Rio Tinto Limited.

(k) The shares were purchased at A\$63.67 per share under the Rio Tinto Limited off-market share buy-back, representing a 14 per cent discount to the relevant market price.

(l) Rio Tinto completed a US\$1.5 billion buy-back of Rio Tinto plc shares during 2017, comprising of US\$500 million and US\$1 billion on-market share buy-back programmes announced on 8 February 2017 and 2 August 2017 respectively. An additional US\$2.5 billion was committed to the ongoing share buy-back programme on 21 September 2017, returning the proceeds of the sale of Coal & Allied to its shareholders, to be completed no later than 31 December 2018. A A\$750 million off-market share buy-back of Rio Tinto Limited shares was completed on 13 November 2017 and the remaining US\$1.925 billion on-market buy-back of Rio Tinto plc shares commenced on 27 December 2017 to be completed no later than 31 December 2018.

## Political donations

No donations were made during 2017 for political purposes as defined by the UK Companies Act 2006 in the EU, Australia or elsewhere.

## Government regulations

Our operations in around 35 countries are subject to extensive laws and regulations imposed by local, state, provincial and federal governments. These regulations govern many aspects of our operations – how we explore, mine and process ore, conditions of land tenure and use, health, safety and environmental requirements; and how we operate as a company including laws regarding securities, taxation, intellectual property, competition and foreign investment, provisions to protect data privacy, conditions of trade and export and infrastructure access. In addition to these laws, several operations are also governed by the provisions of specific agreements, which have been made with governments. Some of these agreements are enshrined in legislation. The geographic and product diversity of our operations reduces the likelihood of any single law or government regulation having a material effect on the Group's business as a whole.

In Mongolia, amendments to the Law on State Registration of Legal Entities, Law on Corporate Income Tax and Minerals Law were passed on 10 November 2017 and are effective from 1 January 2018. The amendments provide a transfer of shares and interests in a mineral licence holder or in its ultimate holder to be an indirect transfer of a mineral licence. As a result, such income of sale of rights is taxed at 30 per cent.

## Environmental regulations

Rio Tinto is subject to various environmental laws and regulations in the countries where it has operations. Rio Tinto measures its performance against environmental regulation by tracking and rating incidents according to their actual environmental and compliance impacts using five severity categories (minor, medium, serious, major or catastrophic). Incidents with a consequence rating of major or catastrophic are of a severity that require notification to the relevant product group chief executive and the Rio Tinto chief executive immediately after the incident occurring. In 2017, there were no environmental incidents at managed operations with a major or catastrophic impact.

During 2017, six managed operations incurred fines amounting to US\$89,502 (2016: US\$57,618). Details of these fines are reported in the performance section of the sustainable development report at: [riotinto.com/sd2017](http://riotinto.com/sd2017).

Australian corporations that exceed specific greenhouse gas emissions or energy use thresholds have obligations under the Australian National Greenhouse and Energy Reporting Act 2007 (NGER). All Rio Tinto entities covered under this Act have submitted their annual NGER reports by the required 31 October 2017 deadline.

Further information on the Group's environmental performance is included in the sustainable development section of this Annual report, on pages 28 to 37, and on the website.

## Greenhouse gas emissions

### Greenhouse gas emissions (in million tCO<sub>2</sub>-e) <sup>(a) (b)</sup>

	2017	2016 <sup>(g)</sup>
Scope 1 <sup>(c)</sup>	20.0	21.0 <sup>(h)</sup>
Scope 2 <sup>(d)</sup>	11.0	11.4 <sup>(h)</sup>
Total emissions <sup>(e)</sup>	30.6	32.0
<b>Ratios</b>		
GH intensity index <sup>(f)</sup>	73.0	74.4 <sup>(h)</sup>
GH intensity (tCO <sub>2</sub> -e/t of product)	0.067	0.070 <sup>(h)</sup>

(a) Rio Tinto's greenhouse gas emissions for managed operations are reported in accordance with the requirements under Part 7 of The UK Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013. Our approach and methodology used for the determination of these emissions are available at: [riotinto.com/sd2017/environment](http://riotinto.com/sd2017/environment) and [riotinto.com/sd2017/glossary](http://riotinto.com/sd2017/glossary).

(b) Rio Tinto's greenhouse gas emission inventory is based on definitions provided by The World Resource Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol: A Carbon Reporting and Accounting Standard, March 2004.

- (c) Scope 1 emissions include "emissions from combustion of fuel and operation of managed facilities". It includes emissions from land management and livestock management at those facilities.
- (d) Scope 2 emissions include "emissions from the purchase of electricity, heat, steam or cooling".
- (e) Total emissions is the sum of scope 1 and scope 2 emissions minus emissions that are associated with the generation of electricity, heat, steam or cooling supplied to others. These emissions exclude indirect emissions associated with transportation and use of our products reported on page 32.
- (f) Rio Tinto greenhouse gas intensity index is the weighted emissions intensity for each of Rio Tinto's main commodities relative to the commodity intensities in the 2008 base year (set to 100). This index incorporates approximately 98 per cent of Rio Tinto's emissions from managed operations.
- (g) All the numbers are restated to ensure comparability over time. Amendment due to changes in measurement and calculation methodologies including adoption of updated global warming potentials from IPCC fourth assessment report or immaterial updates to data.
- (h) Numbers restated from those originally published to ensure comparability over time.

## Exploration, research and development

The Group carries out exploration as well as research and development in support of its activities, as described more fully under Growth & Innovation on pages 46 and 47. Amounts charged for the year, net of any gains and losses on disposal, generated a net loss before tax for exploration and evaluation of US\$460 million (2016: US\$453 million). Research and development costs were US\$58 million (2016: US\$60 million).

## Financial instruments

Details of the Group's financial risk management objectives and policies and exposure to risk are described in note 30 to the 2017 financial statements.

## Dealing in Rio Tinto securities

Rio Tinto operates rules which restrict the dealing in Rio Tinto securities by directors and employees with regular access to "inside information". These rules require those people to seek clearance before any proposed dealing and place restrictions on when some people can deal.

These rules also prohibit such persons from engaging in hedging or other arrangements which limit the economic risk in connection with Rio Tinto securities issued, or otherwise allocated, as remuneration that are either unvested, or that have vested, but remain subject to a holding period. There are also restrictions applying to a broader group of employees requiring them to seek clearance before engaging in similar arrangements over any Rio Tinto securities.

## Financial reporting

### Financial statements

The directors are required to prepare financial statements for each financial period, which give a true and fair view of the state of affairs of the Group as at the end of the financial period, and the profit or loss and cash flows for that period. This includes preparing financial statements in accordance with UK company law that give a true and fair view of the state of the company's affairs, and preparing a Remuneration Report that includes the information required by Regulation 11, Schedule 8 of the Large and Medium Sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended) and the Australian Corporations Act 2001.

In addition, the Code requires that the board provides a fair, balanced and understandable assessment of the company's position and prospects in its external reporting.

Management conducts extensive review and challenge in support of the board's obligations in this regard, seeking to ensure balance between positive and negative statements and good linkages throughout the Annual report. The directors were responsible for the preparation and approval of the Annual report for the year ended 31 December 2017.

They consider the Annual report, taken as a whole, to be fair, balanced and understandable, and that it provides the information necessary for shareholders to assess the company's position and performance, business model and strategy.

The directors are responsible for maintaining proper accounting records, in accordance with UK and Australian legislation. They have a general responsibility for taking such steps as are reasonably open to them to



safeguard the assets of the Group, and to prevent and detect fraud and other irregularities. The directors are also responsible for ensuring that appropriate systems are in place to maintain and preserve the integrity of the Group's website. Legislation in the UK governing the preparation and dissemination of financial statements may differ from current and future legislation in other jurisdictions. The work carried out by the external auditors does not involve consideration of such developments and, accordingly, the external auditors accept no responsibility for any changes, should any be made, to the financial statements after they are made available on the Group's website.

The directors, senior executives, senior financial managers and other members of staff who are required to exercise judgment in the course of the preparation of the financial statements are required to conduct themselves with integrity and honesty and in accordance with the ethical standards of their profession and the business, as are all other Group employees.

The directors consider that the 2017 Annual report presents a true and fair view and has been prepared in accordance with applicable accounting standards, using the most appropriate accounting policies for Rio Tinto's business, and supported by reasonable judgments and estimates. The accounting policies have been consistently applied as described on page 118. The directors have received a written statement from the chief executive and the chief financial officer to this effect. In accordance with the internal control requirements of the Code and the ASX Principles, this written statement confirms that the declarations in the statement are founded on a sound system of risk management and internal controls, and that the system is operating effectively in all material respects in relation to financial reporting risks. Further information in relation to directors' responsibilities in accordance with the UK Disclosure and Transparency Rules is set out on page 210.

#### Disclosure controls and procedures

The Group maintains disclosure controls and procedures as this term is defined in US Exchange Act Rule 13a-15(e). Management, with the participation of the chief executive and chief financial officer, has evaluated the effectiveness of the design and operation of the Group's disclosure controls and procedures pursuant to US Exchange Act Rule 13a-15(b) as of the end of the period covered by this report and has concluded that these disclosure controls and procedures were effective at a reasonable assurance level.

#### Management's report on internal control over financial reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The companies' internal control over financial reporting is a process designed under the supervision of the chief executive and chief financial officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation and fair presentation of the Group's published financial statements for external reporting purposes in accordance with International Financial Reporting Standards as defined on page 118.

The Group's internal control over financial reporting includes policies and procedures that pertain to the maintenance of records that, in reasonable detail:

- accurately and fairly reflect transactions and dispositions of assets;
- provide reasonable assurances that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS, and that receipts and expenditures are being made only in accordance with authorisations of management and directors of each of the companies; and
- provide reasonable assurance regarding prevention or timely detection of unauthorised acquisition, use or disposition of the Group's assets that could have a material effect on its financial statements.

Due to inherent limitations, internal control over financial reporting cannot provide absolute assurance, and may not prevent or detect all misstatements whether caused by error or fraud, if any, within each of Rio Tinto plc and Rio Tinto Limited.

There were no changes in the internal controls over financial reporting that occurred during the period that have materially affected, or are

reasonably likely to materially affect, the internal controls over financial reporting of each of Rio Tinto plc and Rio Tinto Limited.

Management evaluation of the effectiveness of the company's internal control over financial reporting was based on the criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organisations of the Treadway Commission. Based on this evaluation, management concluded that our internal control over financial reporting was effective as at 31 December 2017.

#### Audited information

Under Schedule 8 of the Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended), the information included in respect of: the single total figure of remuneration for each director as set out on pages 83 and 85 and Table 1b on page 99; details of the directors' total pension entitlements as set out on pages 85 and 87; details of scheme interests awarded to the directors during the financial year as set out on pages 84 and 86 and Table 3 on pages 101 to 105; details of payments to past directors as set out on page 87; and the statement of the directors' shareholdings and share interests, as set out in Tables 2 and 3 on pages 100 to 105 of the Implementation Report are all auditable. The Australian Securities and Investments Commission issued an order dated 14 December 2015, under which the Remuneration Report must be prepared and audited in accordance with the requirements of the Corporations Act 2001 applied on the basis of certain modifications set out in the order (as detailed on page 210). The information provided in the Remuneration Report has been audited as required by section 308 (3C) of the Corporations Act.

#### Auditors

Each person who held the office of director at the date the board resolved to approve this report makes the following statements:

- so far as the directors are aware, there is no relevant audit information of which the auditors are unaware; and
- each director has taken all steps that he or she ought to have taken as a director to make himself or herself aware of any relevant audit information and to establish that the auditors are aware of that information.

#### Non-audit services and auditor independence

Details of the non-audit services and a statement of independence regarding the provision of non-audit services undertaken by our external auditor, including the amounts paid for non-audit services are set out on pages 65 to 66 of the Governance report.

#### Going concern

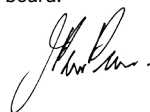
The directors, having made appropriate enquiries, have satisfied themselves that it is appropriate to adopt the going concern basis of accounting in preparing the financial statements. Additionally, the directors have considered longer-term viability and their statement in this regard may be found on page 18.

#### 2018 AGMs

The 2018 AGMs will be held on 11 April in London and 2 May in Melbourne. Separate notices of the 2018 AGMs are produced for the shareholders of each company.

#### Directors' approval statement

The Directors' report is delivered in accordance with a resolution of the board.



**Jan du Plessis**

**Chairman**

28 February 2018

# 2017 financial statements

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# Group income statement

Years ended 31 December

	Note	2017 US\$m	2016 US\$m	2015 US\$m
<b>Consolidated operations</b>				
Consolidated sales revenue	2,3	40,030	33,781	34,829
Net operating costs (excluding items shown separately)	4	(26,983)	(26,799)	(27,919)
Impairment charges	6	(796)	(249)	(2,791)
Net gains on disposal of interests in businesses	2,37	2,344	515	64
Exploration and evaluation costs	13	(445)	(497)	(576)
(Loss)/profit relating to interests in undeveloped projects	13	(15)	44	8
<b>Operating profit</b>		<b>14,135</b>	<b>6,795</b>	<b>3,615</b>
Share of profit after tax of equity accounted units	7	339	321	361
<b>Profit before finance items and taxation</b>		<b>14,474</b>	<b>7,116</b>	<b>3,976</b>
<b>Finance items</b>				
Net exchange (losses)/gains on external debt and intragroup balances	24	(601)	611	(3,538)
Net gains/(losses) on derivatives not qualifying for hedge accounting		33	(24)	(88)
Finance income	8	141	89	52
Finance costs	8	(848)	(1,111)	(750)
Amortisation of discount		(383)	(338)	(378)
		(1,658)	(773)	(4,702)
<b>Profit/(loss) before taxation</b>		<b>12,816</b>	<b>6,343</b>	<b>(726)</b>
<b>Taxation</b>	9	<b>(3,965)</b>	<b>(1,567)</b>	<b>(993)</b>
<b>Profit/(loss) after tax for the year</b>		<b>8,851</b>	<b>4,776</b>	<b>(1,719)</b>
– attributable to owners of Rio Tinto (net earnings/(loss))		8,762	4,617	(866)
– attributable to non-controlling interests (net earnings/(loss))		89	159	(853)
<b>Basic earnings/(loss) per share</b>	10	<b>490.4c</b>	256.9c	(47.5)c
<b>Diluted earnings/(loss) per share</b>	10	<b>486.9c</b>	255.3c	(47.5)c

The notes on pages 118 to 201 are an integral part of these consolidated financial statements.

# Group statement of comprehensive income

Years ended 31 December

	Note	2017 US\$m	2016 US\$m	2015 US\$m
<b>Profit/(loss) after tax for the year</b>		<b>8,851</b>	<b>4,776</b>	<b>(1,719)</b>
<b>Other comprehensive income/(loss):</b>				
<b>Items that will not be reclassified to profit or loss:</b>				
Actuarial gains/(losses) on post-retirement benefit plans	44	6	(90)	619
Tax relating to this component of other comprehensive income	9	(12)	29	(175)
Adjustments to deferred tax on post-retirement benefit plans due to changes in corporate tax rates in the US and France	9	(140)	-	-
		<b>(146)</b>	<b>(61)</b>	<b>444</b>
<b>Items that have been/may be subsequently reclassified to profit or loss:</b>				
Currency translation adjustment <sup>(a)</sup>		<b>3,096</b>	<b>(157)</b>	<b>(2,395)</b>
Currency translation on companies disposed of, transferred to the income statement		<b>78</b>	<b>99</b>	<b>(2)</b>
Fair value movements:				
– Cash flow hedge gains/(losses)		<b>62</b>	<b>(88)</b>	<b>(41)</b>
– Cash flow hedge (gains)/losses transferred to the income statement		<b>(62)</b>	<b>116</b>	<b>32</b>
– Gains/(losses) on revaluation of available for sale securities		<b>19</b>	<b>13</b>	<b>(19)</b>
– Losses on revaluation of available for sale securities transferred to the income statement		<b>8</b>	<b>-</b>	<b>11</b>
Tax relating to these components of other comprehensive income	9	<b>(1)</b>	<b>4</b>	<b>(3)</b>
Share of other comprehensive income/(loss) of equity accounted units, net of tax		<b>34</b>	<b>11</b>	<b>(57)</b>
<b>Other comprehensive income/(loss) for the year, net of tax</b>		<b>3,088</b>	<b>(63)</b>	<b>(2,030)</b>
<b>Total comprehensive income/(loss) for the year</b>		<b>11,939</b>	<b>4,713</b>	<b>(3,749)</b>
– attributable to owners of Rio Tinto		<b>11,691</b>	<b>4,504</b>	<b>(2,443)</b>
– attributable to non-controlling interests		<b>248</b>	<b>209</b>	<b>(1,306)</b>

(a) Excludes a currency translation gain of US\$310 million (2016: charge of US\$35 million; 2015: charge of US\$503 million) arising on Rio Tinto Limited's share capital for the year ended 31 December 2017, which is recognised in the Group statement of changes in equity. Refer to Group statement of changes in equity on page 116.

The notes on pages 118 to 201 are an integral part of these consolidated financial statements.

# Group cash flow statement

Years ended 31 December

	Note	2017 US\$m	2016 US\$m	2015 US\$m
<b>Cash flows from consolidated operations <sup>(a)</sup></b>		<b>16,670</b>	<b>11,368</b>	<b>12,102</b>
Dividends from equity accounted units		817	253	210
<b>Cash flows from operations</b>		<b>17,487</b>	<b>11,621</b>	<b>12,312</b>
Net interest paid		(897)	(1,294)	(827)
Dividends paid to holders of non-controlling interests in subsidiaries		(399)	(341)	(310)
Tax paid		(2,307)	(1,521)	(1,792)
<b>Net cash generated from operating activities</b>		<b>13,884</b>	<b>8,465</b>	<b>9,383</b>
<b>Cash flows from investing activities</b>				
Purchases of property, plant and equipment and intangible assets	2	(4,482)	(3,012)	(4,685)
Disposals of subsidiaries, joint ventures and associates	37	2,675	761	(38)
Purchases of financial assets		(723)	(789)	(49)
Sales of financial assets		40	582	65
Sales of property, plant and equipment and intangible assets		138	354	97
Net funding of equity accounted units		(3)	(12)	11
Acquisitions of subsidiaries, joint ventures and associates	37	-	-	(3)
Other investing cash flows		(18)	12	2
<b>Net cash used in investing activities</b>		<b>(2,373)</b>	<b>(2,104)</b>	<b>(4,600)</b>
<b>Cash flows before financing activities</b>		<b>11,511</b>	<b>6,361</b>	<b>4,783</b>
<b>Cash flows from financing activities</b>				
Equity dividends paid to owners of Rio Tinto	11	(4,250)	(2,725)	(4,076)
Proceeds from additional borrowings		18	4,413	1,837
Repayment of borrowings		(2,795)	(9,361)	(3,518)
Proceeds from issue of equity to non-controlling interests		170	101	103
Own shares purchased from owners of Rio Tinto		(2,083)	-	(2,028)
Purchase of non-controlling interests	37	(194)	(23)	-
Other financing cash flows		(7)	104	12
<b>Net cash flows used in financing activities</b>		<b>(9,141)</b>	<b>(7,491)</b>	<b>(7,670)</b>
Effects of exchange rates on cash and cash equivalents		(12)	(35)	(159)
<b>Net increase/(decrease) in cash and cash equivalents</b>		<b>2,358</b>	<b>(1,165)</b>	<b>(3,046)</b>
Opening cash and cash equivalents less overdrafts		8,189	9,354	12,400
Closing cash and cash equivalents less overdrafts	21	10,547	8,189	9,354
<b>(a) Cash flows from consolidated operations</b>				
Profit/(loss) after tax for the year		8,851	4,776	(1,719)
Adjustments for:				
– Taxation		3,965	1,567	993
– Finance items		1,658	773	4,702
– Share of profit after tax of equity accounted units		(339)	(321)	(361)
– Net gains on disposal and consolidation of interests in businesses	37	(2,344)	(515)	(64)
– Impairment charges net of reversals	6	796	249	2,791
– Depreciation and amortisation		4,375	4,794	4,645
– Provisions (including exchange differences on provisions)	26	535	1,417	726
Utilisation of provisions	26	(714)	(627)	(585)
Utilisation of provision for post-retirement benefits	26	(339)	(370)	(230)
Change in inventories		(482)	292	526
Change in trade and other receivables		(138)	(794)	1,404
Change in trade and other payables		421	229	(431)
Other items <sup>(b)</sup>		425	(102)	(295)
		16,670	11,368	12,102

(b) Includes adjustments to add back mark to market losses of US\$501 million (2016: gains of US\$29 million; 2015: gains of US\$227 million) mainly relating to derivative contracts transacted for operational purposes and not designated in a hedge relationship.

The notes on pages 118 to 201 are an integral part of these consolidated financial statements.



# Group balance sheet

At 31 December

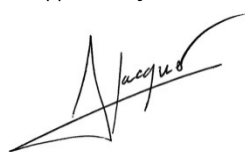
	Note	2017 US\$m	2016 US\$m
<b>Non-current assets</b>			
Goodwill	12	1,037	951
Intangible assets	13	3,119	3,279
Property, plant and equipment	14	62,093	58,855
Investments in equity accounted units	15	4,486	5,019
Inventories	16	160	143
Deferred tax assets	17	3,395	3,728
Trade and other receivables	18	1,724	1,342
Tax recoverable		30	38
Other financial assets (including loans to equity accounted units)	20	510	822
		<b>76,554</b>	<b>74,177</b>
<b>Current assets</b>			
Inventories	16	3,472	2,937
Trade and other receivables	18	3,443	3,460
Tax recoverable		129	98
Other financial assets (including loans to equity accounted units)	20	1,084	359
Cash and cash equivalents	21	10,550	8,201
		<b>18,678</b>	<b>15,055</b>
Assets of disposal groups held for sale	19	494	31
<b>Total assets</b>		<b>95,726</b>	<b>89,263</b>
<b>Current liabilities</b>			
Borrowings and other financial liabilities	22	(904)	(922)
Trade and other payables	25	(7,061)	(6,361)
Tax payable		(1,985)	(764)
Provisions including post-retirement benefits	26	(1,275)	(1,315)
		<b>(11,225)</b>	<b>(9,362)</b>
<b>Non-current liabilities</b>			
Borrowings and other financial liabilities	22	(15,148)	(17,470)
Trade and other payables	25	(856)	(789)
Tax payable		(263)	(274)
Deferred tax liabilities	17	(3,628)	(3,121)
Provisions including post-retirement benefits	26	(13,367)	(12,479)
		<b>(33,262)</b>	<b>(34,133)</b>
Liabilities of disposal groups held for sale	19	(124)	(38)
<b>Total liabilities</b>		<b>(44,611)</b>	<b>(43,533)</b>
<b>Net assets</b>		<b>51,115</b>	<b>45,730</b>
<b>Capital and reserves</b>			
Share capital			
– Rio Tinto plc	27	220	224
– Rio Tinto Limited	28	4,140	3,915
Share premium account		4,306	4,304
Other reserves	29	12,284	9,216
Retained earnings	29	23,761	21,631
<b>Equity attributable to owners of Rio Tinto</b>		<b>44,711</b>	<b>39,290</b>
Attributable to non-controlling interests		6,404	6,440
<b>Total equity</b>		<b>51,115</b>	<b>45,730</b>

The notes on pages 118 to 201 are an integral part of these consolidated financial statements.

The financial statements on pages 111 to 201 were approved by the directors on 28 February 2018 and signed on their behalf by



Jan du Plessis  
Chairman



Jean-Sébastien Jacques  
Chief executive



Chris Lynch  
Chief financial officer

# Group statement of changes in equity

Year ended 31 December 2017	Attributable to owners of Rio Tinto					Non-controlling interests US\$m	Total equity US\$m
	Share capital (notes 27 and 28) US\$m	Share premium account US\$m	Other reserves (note 29) US\$m	Retained earnings (note 29) US\$m	Total US\$m		
<b>Opening balance</b>	<b>4,139</b>	<b>4,304</b>	<b>9,216</b>	<b>21,631</b>	<b>39,290</b>	<b>6,440</b>	<b>45,730</b>
Total comprehensive income for the year <sup>(a)</sup>	-	-	3,078	8,613	11,691	248	11,939
Currency translation arising on Rio Tinto Limited's share capital <sup>(b)</sup>	310	-	-	-	310	-	310
Dividends (note 11)	-	-	-	(4,250)	(4,250)	(403)	(4,653)
Share buy-back <sup>(c)</sup>	(89)	-	4	(2,312)	(2,397)	-	(2,397)
Companies no longer consolidated	-	-	(124)	130	6	(8)	(2)
Own shares purchased from Rio Tinto shareholders to satisfy share options <sup>(d)</sup>	-	-	(64)	(18)	(82)	-	(82)
Change in equity interest held by Rio Tinto	-	-	-	43	43	(43)	-
Treasury shares reissued and other movements	-	2	-	-	2	-	2
Equity issued to holders of non-controlling interests	-	-	-	-	-	170	170
Employee share options and other IFRS 2 charges to the income statement	-	-	41	57	98	-	98
Transfers and other movements	-	-	133	(133)	-	-	-
<b>Closing balance</b>	<b>4,360</b>	<b>4,306</b>	<b>12,284</b>	<b>23,761</b>	<b>44,711</b>	<b>6,404</b>	<b>51,115</b>
Year ended 31 December 2016							
	Attributable to owners of Rio Tinto					Non-controlling interests US\$m	Total equity US\$m
	Share capital (notes 27 and 28) US\$m	Share premium account US\$m	Other reserves (note 29) US\$m	Retained earnings (note 29) US\$m	Total US\$m		
<b>Opening balance</b>	<b>4,174</b>	<b>4,300</b>	<b>9,139</b>	<b>19,736</b>	<b>37,349</b>	<b>6,779</b>	<b>44,128</b>
Total comprehensive income for the year <sup>(a)</sup>	-	-	(49)	4,553	4,504	209	4,713
Currency translation arising on Rio Tinto Limited's share capital <sup>(b)</sup>	(35)	-	-	-	(35)	-	(35)
Dividends	-	-	-	(2,725)	(2,725)	(352)	(3,077)
Companies no longer consolidated	-	-	-	-	-	8	8
Own shares purchased from Rio Tinto shareholders to satisfy share options <sup>(d)</sup>	-	-	(43)	(37)	(80)	-	(80)
Change in equity interest held by Rio Tinto <sup>(e)</sup>	-	-	108	40	148	(313)	(165)
Treasury shares reissued and other movements	-	4	-	-	4	-	4
Equity issued to holders of non-controlling interests	-	-	-	-	-	109	109
Employee share options and other IFRS 2 charges to the income statement	-	-	61	64	125	-	125
<b>Closing balance</b>	<b>4,139</b>	<b>4,304</b>	<b>9,216</b>	<b>21,631</b>	<b>39,290</b>	<b>6,440</b>	<b>45,730</b>
Year ended 31 December 2015							
	Attributable to owners of Rio Tinto					Non-controlling interests US\$m	Total equity US\$m
	Share capital (notes 27 and 28) US\$m	Share premium account US\$m	Other reserves (note 29) US\$m	Retained earnings (note 29) US\$m	Total US\$m		
<b>Opening balance</b>	<b>4,765</b>	<b>4,288</b>	<b>11,122</b>	<b>26,110</b>	<b>46,285</b>	<b>8,309</b>	<b>54,594</b>
Total comprehensive loss for the year <sup>(a)</sup>	-	-	(2,020)	(423)	(2,443)	(1,306)	(3,749)
Currency translation arising on Rio Tinto Limited's share capital <sup>(b)</sup>	(503)	-	-	-	(503)	-	(503)
Dividends	-	-	-	(4,076)	(4,076)	(315)	(4,391)
Share buy-back	(88)	-	6	(1,946)	(2,028)	-	(2,028)
Companies no longer consolidated	-	-	-	-	-	5	5
Own shares purchased from Rio Tinto shareholders to satisfy share options <sup>(d)</sup>	-	-	(25)	(28)	(53)	-	(53)
Change in equity interest held by Rio Tinto	-	-	-	20	20	(17)	3
Treasury shares reissued and other movements	-	12	-	1	13	-	13
Equity issued to holders of non-controlling interests	-	-	-	-	-	103	103
Employee share options and other IFRS 2 charges to the income statement	-	-	56	78	134	-	134
<b>Closing balance</b>	<b>4,174</b>	<b>4,300</b>	<b>9,139</b>	<b>19,736</b>	<b>37,349</b>	<b>6,779</b>	<b>44,128</b>

- (a) Refer to Group statement of comprehensive income for further details. Adjustments to other reserves include currency translation attributable to owners of Rio Tinto, other than that arising on Rio Tinto Limited share capital.
- (b) Refer to note 1(d).
- (c) In 2017, the total amount of US\$2,397 million includes own shares purchased from the owners of Rio Tinto as per the cash flow statement of US\$2,083 million and a financial liability recognised in respect of an irrevocable contract in place as at 31 December 2017 to cover the share buy-back programme.
- (d) Net of contributions received from employees for share options.
- (e) The restructure of Coal & Allied Industries Limited completed on 3 February 2016. The restructure involved the exchange of a 32.4 per cent interest in Hunter Valley Operations mine for an additional 20 per cent shareholding in Coal & Allied Industries Limited, increasing Rio Tinto's shareholding of Coal & Allied Industries Limited from 80 per cent to 100 per cent. Rio Tinto sold its 100 per cent interest in Coal & Allied Industries Limited on 1 September 2017.

## Reconciliation with Australian Accounting Standards

The Group's financial statements have been prepared in accordance with IFRS, as defined in note 1, which differs in certain respects from the version of International Financial Reporting Standards that is applicable in Australia, referred to as Australian Accounting Standards (AAS).

Prior to 1 January 2004, the Group's financial statements were prepared in accordance with UK GAAP. Under IFRS, as defined in note 1, goodwill on acquisitions prior to 1998, which was eliminated directly against equity in the Group's UK GAAP financial statements, has not been reinstated. This was permitted under the rules governing the transition to IFRS set out in IFRS 1. The equivalent Australian Standard, AASB 1, does not provide for the netting of goodwill against equity. As a consequence, shareholders' funds under AAS include the residue of such goodwill, which amounted to US\$557 million at 31 December 2017 (2016: US\$561 million).

Save for the exception described above, the Group's financial statements drawn up in accordance with IFRS are consistent with the requirements of AAS.

## Outline of dual listed companies structure and basis of financial statements

### The Rio Tinto Group

These are the financial statements of the Group formed through the merger of economic interests of Rio Tinto plc and Rio Tinto Limited ("Merger"), and presented by both Rio Tinto plc and Rio Tinto Limited as their consolidated financial statements in accordance with both UK and Australian legislation and regulations.

### Merger terms

On 21 December 1995, Rio Tinto plc and Rio Tinto Limited, entered into a dual listed companies (DLC) merger. Rio Tinto plc is incorporated in the UK and listed on the London and New York Stock Exchanges and Rio Tinto Limited is incorporated in Australia and listed on the Australian Stock Exchange. The Merger was effected by contractual arrangements between the companies and amendments to Rio Tinto plc's Memorandum and Articles of Association and Rio Tinto Limited's Constitution.

As a result, Rio Tinto plc and Rio Tinto Limited and their respective groups operate together as a single economic enterprise, with neither assuming a dominant role. In particular, the arrangements:

- confer upon the shareholders of Rio Tinto plc and Rio Tinto Limited a common economic interest in both groups;
- provide for common boards of directors and a unified management structure;
- provide for equalised dividends and capital distributions; and
- provide for the shareholders of Rio Tinto plc and Rio Tinto Limited to take key decisions, including the election of directors, through an electoral procedure in which the public shareholders of the two companies in effect vote on a joint basis.

The Merger involved no change in the legal ownership of any assets of Rio Tinto plc or Rio Tinto Limited, nor any change in the ownership of any existing shares or securities of Rio Tinto plc or Rio Tinto Limited, nor the issue of any shares, securities or payment by way of consideration, save for the issue by each company of one special voting share to a trustee company which facilitates the joint electoral procedure for public shareholders. During 2002, each of the parent companies issued a DLC Dividend Share to facilitate the efficient management of funds within the DLC structure.

### Accounting standards

The financial statements have been drawn up in accordance with IFRS as defined in note 1. The Merger was accounted for as a merger under UK GAAP. As permitted under the rules governing the transition to IFRS, which are set out in IFRS 1, the Group did not restate business combinations that occurred before the transition date of 1 January 2004. As a result, the DLC Merger of economic interests described above continues to be accounted for as a merger under IFRS as defined in note 1.

The main consequence of adopting merger rather than acquisition accounting is that the balance sheet of the merged Group includes the assets and liabilities of Rio Tinto plc and Rio Tinto Limited at their carrying values prior to the Merger, subject to adjustments to achieve uniformity of accounting policies, rather than at their fair values at the date of the Merger. For accounting purposes Rio Tinto plc and Rio Tinto Limited are viewed as a single public parent company (with their respective public shareholders being the shareholders in that single company). As a result, the amounts attributable to both Rio Tinto plc and Rio Tinto Limited public shareholders are included in the amounts attributed to owners of Rio Tinto on the balance sheet, income statement and statement of comprehensive income.

### Australian Corporations Act

The financial statements are drawn up in accordance with an order, under section 340 of the Australian Corporations Act 2001, issued by the Australian Securities and Investments Commission (ASIC) on 14 December 2015. The main effect of the order is that the financial statements are prepared on the basis that Rio Tinto Limited, Rio Tinto plc and their respective controlled entities are treated as a single economic entity, and in accordance with the principles and requirements of International Financial Reporting Standards as adopted by the European Union (EU IFRS) and include a reconciliation from EU IFRS to the Australian equivalents of IFRS (see above).

For further details of the ASIC Class Order relief see page 209.

# Notes to the 2017 financial statements

## 1 Principal accounting policies

### Corporate information

Rio Tinto's business is finding, mining and processing mineral resources. Major products are aluminium, copper, diamonds, gold, industrial minerals (borates, titanium dioxide and salt), iron ore, thermal and metallurgical coal and uranium. Activities span the world and are strongly represented in Australia and North America, with significant businesses also in Asia, Europe, Africa and South America.

Rio Tinto plc is incorporated in the UK and listed on the London and New York Stock Exchanges and Rio Tinto Limited is incorporated in Australia and listed on the Australian Stock Exchange. Rio Tinto plc's registered office is at 6 St James's Square, London SW1Y 4AD, UK. Rio Tinto Limited's registered office is at Level 7, 360 Collins Street, Melbourne, Victoria, Australia, 3000.

As described in the "Outline of dual listed companies structure and basis of financial statements" on page 117, for the purposes of preparing the IFRS compliant consolidated financial statements of the Rio Tinto Group, both the DLC companies, Rio Tinto plc and Rio Tinto Limited, are viewed as a single economic entity, and the interests of shareholders of both companies are presented as the equity interests of shareholders in the Rio Tinto Group.

These financial statements consolidate the accounts of Rio Tinto plc and Rio Tinto Limited (together "the Companies") and their respective subsidiaries (together "the Group") and include the Group's share of joint arrangements and associates as explained in note 1(b) below. The Group's financial statements for the year ended 31 December 2017 were authorised for issue in accordance with a directors' resolution on 28 February 2018.

Notes 33 to 36 provide more information on the Group's subsidiaries, joint arrangements and associates and note 40 provides information on the Group's transactions with other related parties.

The 2017 Annual report satisfies the obligations of Rio Tinto Limited to prepare consolidated accounts under Australian company law, as amended by an order issued by the Australian Securities and Investments Commission on 14 December 2015. The 2017 financial statements disclose on page 117 the effect of the adjustments to the Group's consolidated profit/(loss), consolidated total comprehensive income/(loss) and consolidated shareholders' funds as prepared under IFRS as defined below that would be required under the version of International Financial Reporting Standards that is applicable in Australia, referred to as Australian Accounting Standards (AAS).

The US dollar is the presentation currency used in these financial statements, as it most reliably reflects the Group's global business performance.

### Basis of preparation of the financial statements

The basis of preparation and the accounting policies used in preparing the Group's 2017 financial statements are set out below.

The financial statements have been prepared on a going concern basis in accordance with the Companies Act 2006 applicable to companies reporting under International Financial Reporting Standards and in accordance with applicable UK law, applicable Australian law as amended by the Australian Securities and Investments Commission Order dated 14 December 2015, Article 4 of the European Union IAS regulation and also with:

- International Financial Reporting Standards as issued by the International Accounting Standards Board (IASB) and interpretations issued from time to time by the IFRS Interpretations Committee (IFRS IC) both as adopted by the European Union (EU) and which are mandatory for EU reporting as at 31 December 2017; and
- International Financial Reporting Standards as issued by the IASB and interpretations issued from time to time by the IFRS IC which are mandatory as at 31 December 2017.

The above accounting standards and interpretations are collectively referred to as "IFRS" in this report. The Group has not early adopted

any amendments, standards or interpretations that have been issued but are not yet mandatory.

Further detail on the going concern basis of accounting is included on page 110.

The Group's financial statements have been prepared on the basis of accounting policies consistent with those applied in the financial statements for the year ended 31 December 2016. The amendment to IAS 12: "Recognition of Deferred Tax Assets for Unrealised Losses", which is mandatory for 2017, clarifies the accounting treatment for deferred tax assets related to debt instruments measured at fair value. The Group already complied with this amendment. An amendment to IAS 7 "Statement of Cash Flows: Disclosure Initiative", which is mandatory for 2017, requires entities to provide disclosures about changes in liabilities arising from financing activities, including changes from financing cash flows and non-cash changes (such as foreign exchange gains or losses). The Group has expanded the net debt reconciliation in note 24 to comply with this amendment. Both of these amendments have been endorsed by the EU. The clarification in "Annual Improvements 2014-2016 – IFRS 12 Disclosure of interests in other entities" regarding the scope of the standard is not relevant to the Group in 2017.

### Mandatory in 2018

The impact on the Group's net assets of transition to the accounting pronouncements listed below which are mandatory in 2018 is currently expected to be immaterial; however, practice continues to develop on application of these standards.

*IFRS 15 "Revenue from Contracts with Customers" (Endorsed by the EU and mandatory in 2018)*

The core principle of IFRS 15 is that an entity recognises revenue related to the transfer of promised goods or services when control of the goods or services passes to the customer. The amount of revenue recognised should reflect the consideration to which the entity expects to be entitled in exchange for those goods or services.

The Group has reviewed a representative sample of sales contracts at all of its businesses to identify potential changes in: timing of revenue recognition, measurement of the amount of revenue and note disclosure between the current standard, IAS 18 Revenue, and IFRS 15. The following points were noted.

The Group sells a significant proportion of its products on Cost and Freight (CFR) or Cost, Insurance & Freight (CIF) Incoterms. This means that the Group is responsible for providing shipping services after the date at which control of the goods passes to the customer at the loading port. Under IAS 18, the Group recognises such shipping and other freight revenue and accrues the associated costs in full on loading whereas under IFRS 15, freight and, where applicable, insurance, are required to be accounted for as separate performance obligations with revenue recognised over time as the service is rendered. The impact is immaterial at 31 December 2017.

The nature of the products sold by the Group is such that adjustments may be made to price if the specification of the product sold does not conform to the terms specified in the sales contract. The Group has considered whether revenue arising from the sales of such products should be constrained under the IFRS 15 rules on variable consideration whereby revenue can only be recognised if it is highly unlikely to reverse. Any such constraints are immaterial at 31 December 2017.

Some of the Group's businesses provide volume discounts in certain circumstances which are recognised under IAS 18 based on the 'best estimate' method. The impact of further constraining such variable consideration under IFRS 15 was immaterial at 31 December 2017.

As explained on page 122, certain of the Group's products are provisionally priced at the date revenue is recognised, however, with the exception of copper, prices are generally finalised within the calendar quarter of the month of shipment. Such adjustments to revenue are dealt with under IFRS 9, "Financial Instruments" rather than IFRS 15 and therefore the IFRS 15 rules on variable consideration do not apply. These 'provisional pricing' adjustments will continue to be included in Consolidated sales revenue on the face of the income statement and changes to systems have been made to allow the amount of such adjustments to be disclosed by way of note to the financial statements for 2018 onwards.

Revenues from the sale of significant by-products, such as gold, are within the scope of IFRS 15 and will continue to be included in Consolidated sales revenue. Other operating income, for example, the sale of surplus power, which is incidental to the main revenue-generating activities of the operations, is outside of the scope of IFRS 15 and will continue to be treated as a credit to operating costs.

The Group has an 'uplift' arrangement with a partner in a joint operation whereby sales revenue is recognised under IAS 18 when the Group sells product from other operations to its partner to allow it to meet its contractual obligations when insufficient product is available in the jointly owned operation. The Group recognises an asset for product which will be receivable from the partner out of the partner's share of future production of the joint operation. Under IFRS 15, such transactions with partners in joint operations cannot be recognised as sales revenue. The impact on adoption will be to derecognise a receivable of US\$235 million (US\$164 million post tax) which has accumulated over prior years as a transition adjustment. There is no impact on the commercial arrangement or current or future cash flows. Sales revenue will be recognised in the income statement in the future when product is received from the partner and sold to a customer. The annual impact is expected to be immaterial (2017: US\$15 million decrease in sales revenue).

The Group will adopt the modified transitional approach to implementation where any transitional adjustment is recognised in retained earnings at 1 January 2018 without adjustment of comparatives and the new standard will only be applied to contracts that remain in force at that date.

#### IFRS 9 "Financial Instruments"

(Endorsed by the EU and mandatory in 2018)

The standard includes a single approach for the classification of financial assets, based on a) the business model used to manage financial assets in order to generate cash flows, and b) the cash flow characteristics of those financial assets. A financial asset held at amortised cost must be managed under a business model where financial assets are held to collect contractual cash flows and have cash flows which relate solely to payments of principal and interest ('SPPI'). A financial asset held under a business model under which financial assets may be either held to collect contractual cash flows or sold will be classified as held at fair value through Other Comprehensive Income ("FVOCI") if the SPPI criteria are met. Any other financial assets will be held at fair value through profit or loss ("FVTPL") or FVOCI as appropriate.

The Group's strategy for investing surplus cash is to balance security, liquidity and return with a focus on security and liquidity. The Group manages its financial assets on a hold to collect basis with some minor exceptions. Money market funds (US\$7.8 billion at 31 December 2017) are an important component of the Group's investment portfolio but do not meet the strict SPPI definition and will therefore be held at FVTPL under IFRS 9 (held at amortised cost under IAS 39). These money market funds continue to meet the cash and cash equivalents criteria of IAS 7 "Statement of Cash Flows". Similarly, provisionally priced receivables, as defined in note 1 (c) below will be held at FVTPL at 1 January 2018. Both of these types of financial asset have a short maturity and therefore this change in classification is expected to have minimal impact on measurement.

IFRS 9 also introduces the expected credit loss model for impairment of financial assets which replaces the incurred loss model used in IAS 39 "Financial instruments; recognition and measurement". Application of the IFRS 9 impairment model is expected to have minimal impact given the Group's credit risk management policies.

Lastly, the standard amends the rules on hedge accounting to align the accounting treatment with the risk management practices of the reporting entity. The Group will apply hedge accounting under IFRS 9 to the aluminium forward and option contracts embedded in the electricity purchase contracts of certain aluminium smelters. It is not currently possible to hedge account for these contracts under IAS 39. The increased application of hedge accounting will eliminate some of the income statement volatility arising from the mark to market of these embedded derivatives.

The Group will amortise the cost of hedging over the life of the hedging instrument. This will impact the Group's cross currency swaps as the cost is taken directly to the income statement under IAS 39. The impact is not expected to be material.

#### IFRIC 22 "Foreign Currency Transactions and Advance Consideration" (Mandatory in 2018 and not yet endorsed by the EU)

The Interpretation covers those foreign currency transactions where an entity recognises a non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration before the entity recognises the related asset, expense or income. The Group has made some minor changes to systems and processes to comply with the pronouncement.

#### "Amendments to IFRS 2 Classification and Measurement of Share Based Payment Transactions", "Amendments to IAS 40 Investment Property and Annual Improvements to IFRS Standards 2014 -2016 Cycle" (Mandatory in 2018 and not endorsed by the EU)

#### "Amendments to IFRS 4 Applying IFRS 9 Financial Instruments with IFRS 4 Insurance Contracts" (Endorsed by the EU and mandatory in 2018)

#### Mandatory in 2019 and beyond

#### IFRS 16 "Leases" (Endorsed by the EU and mandatory in 2019)

Under the new standard, a lessee is in essence required to:

- recognise all right of use assets and lease liabilities, with the exception of short term (under 12 months) and low value leases, on the balance sheet. The liability is initially measured at the present value of future lease payments for the lease term. Where a lease contains an extension option, the lease payments for the extension period will be included in the IFRS 16 liability if the Group is reasonably certain that it will exercise the option. The liability includes variable lease payments that depend on an index or rate but excludes other variable lease payments. The right of use asset reflects the lease liability, initial direct costs and any lease payments made before the commencement date of the lease less any lease incentives and, where applicable, provision for dismantling and restoration.
- recognise depreciation of right of use assets and interest on lease liabilities in the income statement over the lease term.
- separate the total amount of cash paid into a principal portion (presented within financing activities) and interest portion (which the Group presents in operating activities) in the cash flow statement.

IFRS 16 will therefore result in higher assets and liabilities on the balance sheet. Information on the undiscounted amount of the Group's non-cancellable operating lease commitments as defined under IAS 17, the current leasing standard, as at 31 December 2017 is disclosed in note 31. The present value of the Group's operating lease payments as defined under the new standard will be recognised as lease liabilities on the balance sheet and included in net debt. There are a number of differences in definition between the two standards.

EBITDA, as disclosed in the Financial Information by Business Unit on page 206 will increase as the operating lease cost is charged against EBITDA under IAS 17 while under IFRS 16 the charge will be included in depreciation and interest which are excluded from EBITDA (although included in earnings).

Operating cash flow will increase under IFRS 16 as the element of cash paid attributable to the repayment of principal will be included in financing cash flow. The net increase/decrease in cash and cash equivalents will remain the same.

This standard must be implemented retrospectively, either with the restatement of comparatives or with the cumulative impact of application recognised as at 1 January 2019 under the modified retrospective approach. The Group currently expects to use the modified retrospective approach.

IFRS 16 contains a number of practical expedients, one of which permits the retention of the classification of existing contracts as leases under current accounting standards instead of reassessing whether existing contracts are or contain a lease at the date of initial application of the new standard.



# Notes to the 2017 financial statements

continued

## 1 Principal accounting policies continued

Under the modified retrospective approach, the right of use asset may be deemed to be equivalent to the liability at transition or calculated retrospectively as at inception of the lease, on a lease-by-lease basis.

IFRS 16 is expected to be the most significant of the new accounting pronouncements for the Group in terms of impact on the primary statements and on systems and processes.

To date, work has focused on the identification and understanding of the provisions of the standard which will most impact the Group, establishing the population of lease contracts which will extend beyond 1 January 2019, the provision of training, impact analysis, discount rate determination, adapting the contract review process where required, and the review of system requirements. In 2018, work on these issues and their resolution will continue, system requirements will be addressed and work on the accounting processes will commence. A significant proportion by value of the Group's current operating lease commitments relate to dry bulk vessels and offices and effort to date has focussed on these areas.

*IFRIC 23 "Uncertainty over Income Tax Treatments"*  
(Mandatory in 2019 and not yet endorsed by the EU)

The method of calculating provisions for uncertain tax positions will be subject to revision, as a result of this interpretation. The Group currently recognises provisions based on the most likely amount of the liability, if any, for each uncertain tax position.

The interpretation requires a probability weighted average approach to be taken for tax issues for which there are a wide range of possible outcomes. For tax issues with a binary outcome, the most likely amount method should continue to be used.

The Group is currently evaluating the impact of this pronouncement.

*"Amendments to IFRS 9: Prepayment Features with Negative Compensation", "Amendments to IAS 28: Long-term Interests in Associates and Joint Ventures", "Annual Improvements to IFRS Standards 2015-2017 Cycle" and "Amendments to IAS 19 – Plan Amendment, Curtailment or Settlement"* (Mandatory in 2019 and not yet endorsed by the EU)

The Group is currently evaluating the impact of these pronouncements.

*IFRS 17 "Insurance Contracts"*  
(Mandatory in 2021 and not yet endorsed by the EU)

The standard provides consistent principles for all aspects of accounting for insurance contracts. The Group will evaluate the impact of this pronouncement in due course.

### Judgments in applying accounting policies and key sources of estimation uncertainty

The preparation of the financial statements requires management to use judgment in applying accounting policies and in making critical accounting estimates.

These judgments and estimates are based on management's best knowledge of the relevant facts and circumstances, having regard to previous experience, but actual results may differ materially from the amounts included in the financial statements. Areas of judgment in the application of accounting policies that have the most significant effect on the amounts recognised in the financial statements and key sources of estimation uncertainty that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are noted below and further

information is contained in the accounting policies and/or the notes to the financial statements.

These areas of judgment and estimation are discussed further in critical accounting policies and estimates on pages 128 to 130. The quantum of ore reserves and mineral resources impacts many of these areas and the basis of calculation is explained below. Information on less material judgments and sources of estimation uncertainty has been incorporated into the relevant accounting policy notes.

Areas of judgment in the application of accounting policies that have the most significant effect on the amounts recognised in the financial statements are:

- Impairment of non-current assets - determination of Cash Generating Units (CGUs) and assessment of indicators of impairment – note 1(e) and (i), note 6, note 12 and note 13;
- Estimation of asset lives – whether certain assets are indefinite lived - note 1(e) and (i);
- Provision for onerous contracts – determination of assets dedicated to a contract - note 1(i);
- Close-down, restoration and environmental obligations – determining when an estimate is sufficiently reliable to update - note 1(k);
- Deferral of stripping costs – judgment on components/strip ratios and separate or integrated multiple pit mines - note 1(h);
- Uncertain tax positions – technical interpretation of tax law and the use of the most likely scenario for provision - note 1(m), note 9 and note 31;
- Recoverability of potential deferred tax assets – recognition of deferred tax assets for loss making operations - note 17(c), (e) and (f);
- Identification of functional currencies – different companies may make different judgments based on similar facts - note 1(d);
- Basis of consolidation – judgment as to when the Group has control, joint control or significant influence - notes 33 to 36;
- Contingencies – assessing the probability of any loss and whether it is possible to quantify any loss - note 31;
- Exclusions from underlying earnings – judgment on items to be excluded on grounds of nature or size - note 2.

Key sources of estimation uncertainty that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are:

- Impairment of non-current assets - review of asset carrying values, impairment charges and reversals and the recoverability of goodwill – determination of discounted cash flows - note 1(e) and (i), note 6, note 12 and note 13;
- Provision for onerous contracts - cash flow estimates and the discount rate to be used – note 1(i);
- Close-down, restoration and environmental cost obligations – estimation of costs and the timing of expenditure – note 1(k) and note 26;
- Uncertain tax positions – estimating the potential exposures for each possible scenario - note 1(m), note 9 and note 31;
- Recoverability of potential deferred tax assets – determination of cash flows - note 1(m), note 17(c), (e) and (f);
- Estimation of obligations for post-employment costs – note 1(n) and note 44;
- Contingencies – estimate of possible liability - note 31.

### Ore reserves and mineral resources

Estimates of ore reserves and, in some cases, mineral resources can impact: depreciation and amortisation rates; the carrying values of intangible assets and property, plant and equipment; deferred stripping costs; provisions for close-down and restoration costs; and the recovery of deferred tax assets.

The Group estimates its ore reserves and mineral resources based on information compiled by Competent Persons as defined in accordance with the Joint Ore Reserves Committee (JORC) code (see note 1(j)).

The estimation of ore reserves and mineral resources requires judgment to interpret available geological data and subsequently to select an appropriate mining method and then to establish an extraction schedule. Estimation requires assumptions about future commodity prices and demand, exchange rates, production costs, transport costs, close-down and restoration costs, recovery rates and discount rates and, in some instances, the renewal of mining licences.

There are many uncertainties in the estimation process and assumptions that are valid at the time of estimation may change significantly when new information becomes available. New geological or economic data, or unforeseen operational issues may change estimates of ore reserves and mineral resources.

The Group uses judgment as to when to include mineral resources in accounting estimates, for example, the use of mineral resources in the Group's depreciation policy is described in note 1(i) below and in the determination of the date of closure as described in note 1(k). The unaudited statement of ore reserves is included on page 228 and of mineral resources on page 234.

#### (a) Accounting convention

The financial information included in the financial statements for the year ended 31 December 2017, and for the related comparative periods, has been prepared under the historical cost convention, as modified by the revaluation of certain derivative contracts and financial assets, the impact of fair value hedge accounting on the hedged item and the accounting for post-employment assets and obligations. The Group's policy in respect of these items is set out in the notes below.

The Group's financial statements are presented in US dollars and all values are rounded to the nearest million (US\$m) unless otherwise stated.

Where applicable, comparatives have been adjusted to measure or present them on the same basis as current period figures.

#### (b) Basis of consolidation (notes 33 to 36)

All intragroup transactions and balances have been eliminated on consolidation.

Where necessary, adjustments are made to the locally reported assets, liabilities, and results of subsidiaries, joint arrangements and associates to bring their accounting policies in line with those used by the Group.

**Subsidiaries:** Subsidiaries are entities controlled by either of the Companies. Control exists where either of the Companies has: power over the entities, that is, existing rights that give it the current ability to direct the relevant activities of the entities (those that significantly affect the Companies' returns); exposure, or rights, to variable returns from its involvement with the entities; and the ability to use its power to affect those returns. Subsidiaries are fully consolidated from the date on which the Group obtains control. They are deconsolidated from the date that control ceases.

**Joint arrangements:** A joint arrangement is an arrangement in which two or more parties have joint control. Joint control is the contractually agreed sharing of control such that decisions about the relevant activities of the arrangement (those that significantly affect the Companies' returns) require the unanimous consent of the parties sharing control. The Group has two types of joint arrangements:

**Joint operations (JO):** A JO is a joint arrangement in which the parties that share joint control have rights to the assets, and obligations for the liabilities, relating to the arrangement. This includes situations where the parties benefit from the joint activity through a share of the output, rather than by receiving a share of the results of trading. In relation to its interest in a JO, the Group recognises: its share of assets and liabilities; revenue from the sale of its share of the output and its share of any revenue generated from the sale of the output by the JO; and its share of expenses. All such amounts are measured in accordance with the terms of the arrangement, which is usually in proportion to the Group's interest in the JO. These amounts are recorded in the Group's financial statements on the appropriate lines.

**Joint ventures (JV):** A JV is a joint arrangement in which the parties that share joint control have rights to the net assets of the arrangement. JVs are accounted for using the equity accounting method.

**Other unincorporated arrangements:** In some cases, the Group participates in unincorporated arrangements and has rights to its share of the assets and obligations for its share of the liabilities of the arrangement rather than a right to a net return, but does not share joint control. In such cases, the Group recognises: its share of assets and liabilities; revenue from the sale of its share of the output and its share of any revenue generated from the sale of the output by the unincorporated arrangement; and its share of expenses. All such amounts are measured in accordance with the terms of the arrangement, which is usually in proportion to the Group's interest in the arrangement. These amounts are recorded in the Group's financial statements on the appropriate lines.

**Associates:** An associate is an entity that is neither a subsidiary nor a joint arrangement, over which the Group has significant influence. Significant influence is presumed to exist where there is neither control nor joint control and the Group has over 20 per cent of the voting rights, unless it can be clearly demonstrated that this is not the case. Significant influence can arise where the Group holds less than 20 per cent of the voting rights if it has the power to participate in the financial and operating policy decisions affecting the entity. Investments in associates are accounted for using the equity accounting method.

The Group uses the term "equity accounted units" (EAUs) to refer to associates and JVs collectively. Under the equity accounting method the investment is recorded initially at cost to the Group, including any goodwill on acquisition. In subsequent periods the carrying amount of the investment is adjusted to reflect the Group's share of the EAUs' retained post-acquisition profit or loss and other comprehensive income. Long term loans to EAUs that in substance form part of the Group's net investment (quasi equity loans) are financial assets but are included in the line "Investments in equity accounted units" on the face of the balance sheet. When the Group's share of losses in an EAU equals or exceeds its interest in the EAU, including such long term loans and any other unsecured receivables, the Group does not recognise further losses, unless it has incurred legal or constructive obligations to continue to make payments on behalf of the EAU.

#### Acquisitions (note 37)

Under the "acquisition" method of accounting for business combinations, the purchase consideration is allocated to the identifiable assets acquired and liabilities and contingent liabilities assumed (the identifiable net assets) on the basis of their fair value at the date of acquisition, which is the date on which control is obtained.

The consideration transferred for the acquisition of a subsidiary comprises the fair values of the assets transferred, the liabilities incurred to the former owners of the acquiree, the fair value of any asset or liability resulting from a contingent consideration arrangement and any equity interests issued by the Group. Costs related to the acquisition of a subsidiary are expensed as incurred.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets acquired is recorded as goodwill. Any shortfall is immediately recognised in the income statement.

Non-controlling interests in the acquiree, that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation, are recognised by the Group in one of two ways with the choice being available on an acquisition-by-acquisition basis. They can be measured at either the non-controlling interest's proportionate share of the acquiree's identifiable net assets or at fair value. In some cases, non-controlling interests may be treated as equity options and valued on that basis. Goodwill (see note (e)) and amounts attributable to non-controlling interests will differ depending on the basis used.

Where the Group has a previously held non-controlling interest in the acquiree, this is remeasured to fair value at the date control is obtained with any gain or loss recognised in the income statement. The cash cost of the share purchase that gives rise to control is included within "Investing activities" in the cash flow statement.

## Notes to the 2017 financial statements

continued

### 1 Principal accounting policies continued

Where the Group increases its ownership interest in a subsidiary, the difference between the purchase price and the carrying value of the share of net assets acquired is recorded in equity. The cash cost of such purchases is included within "Financing activities" in the cash flow statement.

Provisional fair values allocated at a reporting date are finalised within 12 months of the acquisition date.

The results of businesses acquired during the year are included in the consolidated financial statements from the date on which control, joint control or significant influence is obtained.

#### *Disposals (note 37)*

Individual non-current assets or "disposal groups" (that is, groups of assets and liabilities) to be disposed of by sale or otherwise in a single transaction are classified as "held for sale" if the following criteria are met at the period end:

- the carrying amount will be recovered principally through a sale transaction rather than through continuing use; and
- the disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for such sales; and
- the sale is highly probable.

Disposal groups held for sale are carried at the lower of their carrying amount and fair value less costs to sell. The comparative balance sheet is not restated. Disposal groups acquired with a view to resale are held at the fair value determined at the acquisition date. For these assets acquired for resale no profits or losses are recognised between the acquisition date and the disposal date, unless there is a subsequent impairment.

On classification as held for sale, the assets are no longer depreciated and, if applicable, equity accounting ceases.

If control is lost, any interest in the entity retained by the Group is remeasured to its fair value and the change in carrying amount is recognised in the income statement. The retained interest may be subsequently accounted for as a joint venture, joint operation, associate or financial asset depending on the facts. Certain amounts previously recognised in other comprehensive income in respect of the entity disposed of, or for which control, joint control or significant influence has ceased, may be recycled to the income statement. The cash proceeds of disposals are included within "Investing activities" in the cash flow statement.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for in equity. The cash proceeds of such disposals are included within "Financing activities" in the cash flow statement.

#### **(c) Sales revenue**

Sales revenue comprises sales to third parties. All shipping and handling costs incurred by the Group are recognised as operating costs. If the Group is acting solely as an agent, amounts billed to customers for shipping and handling are offset against the relevant costs. Revenue from services is recognised as those services are rendered to, and accepted by, the customer.

Sales revenue excludes any applicable sales taxes. Mining royalties payable are presented as an operating cost or, where they are in substance a profit-based tax, within taxation.

Revenues from the sale of significant by-products, such as gold, are included in sales revenue. Other operating income, incidental to the main revenue-generating activities of the operations, is treated as a credit to operating costs.

Third-party commodity swap arrangements principally for delivery and receipt of smelter grade alumina are offset within operating costs.

Sales of copper concentrate are stated at their invoiced amount which is net of treatment and refining charges.

Sales revenue is only recognised on individual sales when all of the following criteria are met:

- the significant risks and rewards of ownership of the product have been transferred to the buyer;
- neither continuing managerial involvement to the degree usually associated with ownership, nor effective control over the goods sold, has been retained;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits associated with the sale will flow to the Group; and
- the costs incurred or to be incurred in respect of the sale can be measured reliably.

In most instances, sales revenue is recognised when the product is delivered to the destination specified by the customer, which is typically the vessel on which it will be shipped, the destination port or the customer's premises.

The Group's products are sold to customers under contracts which vary in tenure and pricing mechanisms, including some volumes sold in the spot market. Sales revenue may be subject to adjustment if the product specification does not conform to the terms specified in the sales contract.

Pricing for iron ore is on a range of terms, the majority being either monthly or quarterly average pricing mechanisms, with a smaller proportion of iron ore volumes being sold on the spot market.

Certain of the Group's products are provisionally priced at the date revenue is recognised, however, with the exception of copper, prices are generally finalised within the calendar quarter of the month of shipment. The final selling price is based on the price for the quotational period stipulated in the contract. Substantially all iron ore and aluminium sales are reflected at final prices in the results for the period. Final prices for copper concentrate are normally determined between 30 to 180 days after delivery to the customer. The change in value of the embedded pricing derivative included in the receivable is based on relevant forward market prices and is included in sales revenue.

Information on provisionally priced sales contracts is included in note 30.

#### **(d) Currency translation**

The functional currency for each entity in the Group, and for joint arrangements and associates, is the currency of the primary economic environment in which that entity operates. For many of these entities, this is the currency of the country in which they are located. Transactions denominated in other currencies are converted to the functional currency at the exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are retranslated at period-end exchange rates.

The Group's financial statements are presented in US dollars, as that presentation currency most reliably reflects the global business performance of the Group as a whole. On consolidation, income statement items for each entity are translated from the functional currency into US dollars at average rates of exchange, except for material one-off transactions, which are translated at the rate prevailing on the transaction date. Balance sheet items are translated into US dollars at period-end exchange rates.

Exchange differences arising on the translation of the net assets of entities with functional currencies other than the US dollar are recognised directly in the currency translation reserve. These translation differences are shown in the statement of comprehensive income, with the exception of translation adjustments relating to Rio Tinto Limited's share capital which are shown in the statement of changes in equity.

Where an intragroup balance is, in substance, part of the Group's net investment in an entity, exchange gains and losses on that balance are taken to the currency translation reserve.

Except as noted above, or in note 1(p) relating to derivative contracts, all other exchange differences are charged or credited to the income statement in the year in which they arise.

**(e) Goodwill and intangible assets (excluding exploration and evaluation expenditure) (notes 12 and 13)**

Goodwill is not amortised; it is tested annually for impairment or more frequently if events or changes in circumstances indicate a potential impairment. Investments in EAU, including any goodwill, are tested for impairment as a single asset when a trigger for impairment has been identified. The Group's impairment policy is explained in note 1(i).

Purchased intangible assets are initially recorded at cost. Finite-life intangible assets are amortised over their useful economic lives on a straight-line or units of production basis, as appropriate. Intangible assets that are deemed to have indefinite lives and intangible assets that are not yet ready for use are not amortised; they are reviewed annually for impairment or more frequently if events or changes in circumstances indicate a potential impairment in accordance with accounting policy note 1(i).

The Group considers that intangible assets have indefinite lives when, based on an analysis of all of the relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate cash flows for the Group. The factors considered in making this judgment include the existence of contractual rights for unlimited terms or evidence that renewal of the contractual rights without significant incremental cost can be expected for indefinite future periods in view of the Group's investment intentions. The life cycles of the products and processes that depend on the asset are also considered.

**(f) Exploration and evaluation (note 13)**

Exploration and evaluation expenditure comprises costs that are directly attributable to:

- researching and analysing existing exploration data;
- conducting geological studies, exploratory drilling and sampling;
- examining and testing extraction and treatment methods; and/or
- compiling various studies (order of magnitude, pre-feasibility and feasibility).

Exploration expenditure relates to the initial search for deposits with economic potential. Expenditure on exploration activity undertaken by the Group is not capitalised.

Evaluation expenditure relates to a detailed assessment of deposits or other projects (including smelter and refinery projects) that have been identified as having economic potential. Capitalisation of evaluation expenditure commences when there is a high degree of confidence that the Group will determine that a project is commercially viable, that is the project will provide a satisfactory return relative to its perceived risks, and therefore it is considered probable that future economic benefits will flow to the Group. The Group's view is that a high degree of confidence is greater than "more likely than not" (that is, greater than 50 per cent certainty) and less than "virtually certain" (that is, less than 90 per cent certainty).

Assessing whether there is a high degree of confidence that the Group will ultimately determine that an evaluation project is commercially viable requires a significant degree of judgment and consideration of all relevant factors such as the nature and objective of the project; the project's current stage; project timeline; current estimates of the project's net present value, including sensitivity analyses for the key assumptions; and the main risks of the project. Development expenditure incurred prior to the decision to proceed is subject to the same criteria for capitalisation, being a high degree of confidence that the Group will ultimately determine that a project is commercially viable.

In some cases, undeveloped projects are regarded as successors to orebodies, smelters or refineries currently in production. Where this is the case, it is intended that these will be developed and go into production when the current source of ore is exhausted or when existing smelters or refineries are closed.

Ore reserves may be declared for an undeveloped mining project before its commercial viability has been fully determined. Evaluation costs may continue to be capitalised during the period between declaration of ore reserves and approval to mine as further work is undertaken in order to refine the development case to maximise the project's returns.

In accordance with IFRS 6 "Exploration for and Evaluation of Mineral Resources", the criteria for the capitalisation of evaluation costs are applied consistently from period to period.

The carrying values of capitalised evaluation expenditure for undeveloped mining projects (projects for which the decision to mine has not yet been approved at the appropriate authorisation level within the Group) are reviewed at each reporting date for indicators of impairment in accordance with IFRS 6, and when indicators are identified are tested in accordance with IAS 36. Evaluation expenditure for non-mining projects is reviewed and tested under IAS 36.

In the case of undeveloped mining projects which have arisen through acquisition, the allocation of the purchase price consideration may result in undeveloped properties being recognised at an earlier stage of project evaluation compared with projects arising from the Group's exploration and evaluation programme. Subsequent expenditure on acquired undeveloped projects is only capitalised if it meets the high degree of confidence threshold discussed above.

The impairment review is based on a status report summarising the Group's intentions to recover value through development, sale or other partnering arrangements. If a project does not prove viable and is cancelled, all irrecoverable costs associated with the project net of any previously recorded impairment provisions are charged to the income statement.

**(g) Property, plant and equipment (note 14)**

Once an undeveloped mining project has been determined as commercially viable and approval to mine has been given, expenditure other than that on land, buildings, plant, equipment and capital work in progress is capitalised under "Mining properties and leases" together with any amount transferred from "Exploration and evaluation".

Costs which are necessarily incurred whilst commissioning new assets, in the period before they are capable of operating in the manner intended by management, are capitalised. Development costs incurred after the commencement of production are capitalised to the extent they are expected to give rise to a future economic benefit. Interest on borrowings related to construction or development projects is capitalised, at the rate payable on project-specific debt if applicable or at the Group or subsidiary's cost of borrowing if not, until the point when substantially all the activities that are necessary to make the asset ready for its intended use are complete. It may be appropriate to use a subsidiary's cost of borrowing when the debt was negotiated based on the financing requirements of that subsidiary.

Property, plant and equipment is stated at cost, as defined in IAS 16, less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes, where applicable, the estimated close-down and restoration costs associated with the asset.



## Notes to the 2017 financial statements

continued

### 1 Principal accounting policies continued

#### (h) Deferred stripping (note 14)

In open pit mining operations, overburden and other waste materials must be removed to access ore from which minerals can be extracted economically. The process of removing overburden and waste materials is referred to as stripping. During the development of a mine (or, in some instances, pit; see below), before production commences, stripping costs related to a component of an orebody are capitalised as part of the cost of construction of the mine (or pit) and are subsequently amortised over the life of the mine (or pit) on a units of production basis.

Where a mine operates several open pits that are regarded as separate operations for the purpose of mine planning, initial stripping costs are accounted for separately by reference to the ore from each separate pit. If, however, the pits are highly integrated for the purpose of mine planning, the second and subsequent pits are regarded as extensions of the first pit in accounting for stripping costs. In such cases, the initial stripping (i.e. overburden and other waste removal) of the second and subsequent pits is considered to be production phase stripping (see below).

The Group's judgment as to whether multiple pit mines are considered separate or integrated operations depends on each mine's specific circumstances.

The following factors would point towards the initial stripping costs for the individual pits being accounted for separately:

- If mining of the second and subsequent pits is conducted consecutively following that of the first pit, rather than concurrently.
- If separate investment decisions are made to develop each pit, rather than a single investment decision being made at the outset.
- If the pits are operated as separate units in terms of mine planning and the sequencing of overburden removal and ore mining, rather than as an integrated unit.
- If expenditures for additional infrastructure to support the second and subsequent pits are relatively large.
- If the pits extract ore from separate and distinct orebodies, rather than from a single orebody.

If the designs of the second and subsequent pits are significantly influenced by opportunities to optimise output from several pits combined, including the co-treatment or blending of the output from the pits, then this would point to treatment as an integrated operation for the purposes of accounting for initial stripping costs.

The relative importance of each of the above factors is considered in each case.

In order for production phase stripping costs to qualify for capitalisation as a stripping activity asset, three criteria must be met:

- It must be probable that there will be an economic benefit in a future accounting period because the stripping activity has improved access to the orebody;
- It must be possible to identify the "component" of the orebody for which access has been improved; and
- It must be possible to reliably measure the costs that relate to the stripping activity.

A "component" is a specific section of the orebody that is made more accessible by the stripping activity. It will typically be a subset of the larger orebody that is distinguished by a separate useful economic life (for example, a pushback).

Production phase stripping can give rise to two benefits: the extraction of ore in the current period and improved access to ore which will be extracted in future periods. When the cost of stripping which has a future benefit is not distinguishable from the cost of producing current inventories, the stripping cost is allocated to each

of these activities based on a relevant production measure using a life-of-component strip ratio. The ratio divides the tonnage of waste mined for the component for the period either by the quantity of ore mined for the component or by the quantity of minerals contained in the ore mined for the component. In some operations, the quantity of ore is a more appropriate basis for allocating costs, particularly where there are significant by-products. Stripping costs for the component are deferred to the extent that the current period ratio exceeds the life of component ratio. The stripping activity asset is depreciated on a "units of production" basis based on expected production of either ore or minerals contained in the ore over the life of the component unless another method is more appropriate.

The life-of-component ratios are based on the ore reserves of the mine (and for some mines, other mineral resources) and the annual mine plan; they are a function of the mine design and, therefore, changes to that design will generally result in changes to the ratios. Changes in other technical or economic parameters that impact the ore reserves (and for some mines, other mineral resources) may also have an impact on the life-of-component ratios even if they do not affect the mine design. Changes to the ratios are accounted for prospectively.

It may be the case that subsequent phases of stripping will access additional ore and that these subsequent phases are only possible after the first phase has taken place. Where applicable, the Group considers this on a mine-by-mine basis. Generally, the only ore attributed to the stripping activity asset for the purposes of calculating a life-of-component ratio, and for the purposes of amortisation, is the ore to be extracted from the originally identified component.

Deferred stripping costs are included in "Mining properties and leases" within "Property, plant and equipment" or within "Investments in equity accounted units", as appropriate. Amortisation of deferred stripping costs is included in "Depreciation of property, plant and equipment" within "Net operating costs" or in "Share of profit after tax of equity accounted units", as appropriate.

#### (i) Depreciation and impairment (notes 13 and 14)

##### *Depreciation of non-current assets*

Property, plant and equipment is depreciated over its useful life, or over the remaining life of the mine or smelter or refinery if that is shorter and there is no reasonable alternative use for the asset by the Group.

The useful lives of the major assets of a cash-generating unit are often dependent on the life of the orebody to which they relate. Where this is the case, the lives of mining properties, and their associated refineries, concentrators and other long-lived processing equipment are generally limited to the expected life of the orebody. The life of the orebody, in turn, is estimated on the basis of the life-of-mine plan. Where the major assets of a cash-generating unit are not dependent on the life of a related orebody, management applies judgment in estimating the remaining service potential of long-lived assets. Factors affecting the remaining service potential of smelters include, for example, smelter technology and electricity purchase contracts when power is not sourced from the company's, or in some cases a local government's, renewably sourced electricity generating capacity.

The useful lives and residual values for material assets and categories of assets are reviewed annually and changes are reflected prospectively.

Depreciation commences when an asset is available for use. The major categories of property, plant and equipment are depreciated on a units of production and/or straight-line basis as follows:

##### *Units of production basis*

For mining properties and leases and certain mining equipment, consumption of the economic benefits of the asset is linked to production. Except as noted below, these assets are depreciated on the units of production basis.



In applying the units of production method, depreciation is normally calculated based on production in the period as a percentage of total expected production in current and future periods based on ore reserves and, for some mines, other mineral resources. Other mineral resources may be included in the calculations of total expected production in limited circumstances where there are very large areas of contiguous mineralisation, for which the economic viability is not sensitive to likely variations in grade, as may be the case for certain iron ore, bauxite and industrial minerals deposits and where there is a high degree of confidence that the other mineral resources can be extracted economically. This would be the case when the other mineral resources do not yet have the status of ore reserves merely because the necessary detailed evaluation work has not yet been performed and the responsible technical personnel agree that inclusion of a proportion of measured and indicated resources in the calculation of total expected production is appropriate based on historical reserve conversion rates.

The required level of confidence is unlikely to exist for minerals that are typically found in low-grade ore (as compared with the above), such as copper or gold. In these cases, specific areas of mineralisation have to be evaluated in considerable detail before their economic status can be predicted with confidence.

Where measured and indicated resources are used in the calculation of depreciation for infrastructure, primarily rail and port, which will benefit current and future mines, then the measured and indicated resources may relate to mines which are currently in production or to mines where there is a high degree of confidence that they will be brought into production in the future. The quantum of mineral resources is determined taking into account future capital costs as required by the JORC code. The depreciation calculation, however, applies to current mines only and does not take into account future development costs for mines which are not yet in production. Measured and indicated resources are currently incorporated into depreciation calculations in the Group's Australian iron ore business.

#### Straight-line basis

Assets within operations for which production is not expected to fluctuate significantly from one year to another or which have a physical life shorter than the related mine are depreciated on a straight-line basis.

#### Impairment charges/reversals of non-current assets

Impairment charges and reversals are assessed at the level of cash-generating units which, in accordance with IAS 36 "Impairment of Assets", are identified as the smallest identifiable asset or group of assets that generate cash inflows, which are largely independent of the cash inflows from other assets. Separate cash-generating units are identified where an active market exists for intermediate products, even if the majority of those products are further processed internally. Impairment of financial assets is evaluated in accordance with IAS 39.

In some cases, individual business units consist of several operations with independent cash-generating streams which constitute separate cash-generating units.

Goodwill acquired through business combinations is allocated to the cash-generating unit or groups of cash-generating units that are expected to benefit from the related business combination, and tested for impairment at the lowest level within the Group at which goodwill is monitored for internal management purposes. All goodwill, intangible assets that have an indefinite life and intangible assets that are not ready for use are tested annually for impairment as at 30 September, regardless of whether there has been an impairment trigger, or more frequently if events or changes in circumstances indicate a potential impairment.

Property, plant and equipment and intangible assets with finite lives are reviewed for impairment if there is an indication that the carrying amount may not be recoverable. The Group conducts an internal review of the asset values annually as at 30 September which is used as a source of information to assess for indications of impairment or reversal of previously recognised impairment losses. External factors, such as changes in forecasted commodity prices, costs and other market factors as well as internal factors such as cancellation of a project or reduced project scope, are also monitored to assess for

indications of impairment or reversal of previously recognised impairment losses. If any such indication exists then an impairment review is undertaken; the recoverable amount is assessed by reference to the higher of value in use (being the net present value of expected future cash flows of the relevant cash-generating unit in its current condition) and fair value less costs of disposal (FVLCD).

When the recoverable amount of the cash-generating unit is measured by reference to FVLCD, this amount is further classified in accordance with the fair value hierarchy for observable market data that is consistent with the unit of account for the cash-generating unit being tested. The Group considers that the best evidence of FVLCD is the value obtained from an active market or binding sale agreement and, in this case, the recoverable amount is classified in the fair value hierarchy as level 1. When FVLCD is based on quoted prices for equity instruments but adjusted to reflect factors such as a lack of liquidity in the market, the recoverable amount is classified as level 2 in the fair value hierarchy. No cash-generating units are currently assessed for impairment by reference to a recoverable amount based on FVLCD classified as level 1 or level 2.

Where unobservable inputs are material to the measurement of the recoverable amount, FVLCD is based on the best information available to reflect the amount the Group could receive for the cash-generating unit in an orderly transaction between market participants at the measurement date. This is often estimated using discounted cash flow techniques and is classified as level 3 in the fair value hierarchy.

Where the recoverable amount is assessed using FVLCD based on discounted cash flow techniques, the resulting estimates are based on detailed life-of-mine and/or long-term production plans. These may include anticipated expansions which are at the evaluation stage of study.

The cash flow forecasts for FVLCD purposes are based on management's best estimates of expected future revenues and costs, including the future cash costs of production, capital expenditure, and closure, restoration and environmental costs. For the purposes of determining FVLCD from a market participant's perspective, the cash flows incorporate management's price and cost assumptions in the short and medium term. In the longer term, operating margins are assumed to remain constant where appropriate; as it is considered unlikely that a market participant would prepare detailed forecasts over a longer term. The cash flow forecasts may include net cash flows expected to be realised from the extraction, processing and sale of material that does not currently qualify for inclusion in ore reserves. Such non-reserve material is only included when there is a high degree of confidence in its economic extraction. This expectation is usually based on preliminary drilling and sampling of areas of mineralisation that are contiguous with existing ore reserves. Typically, the additional evaluation required to achieve reserves status for such material has not yet been done because this would involve incurring evaluation costs earlier than is required for the efficient planning and operation of the mine.

As noted above, cost levels incorporated in the cash flow forecasts for FVLCD purposes are based on the current life-of-mine plan or long-term production plan for the cash-generating unit. This differs from value in use which requires future cash flows to be estimated for the asset in its current condition and therefore does not include future cash flows associated with improving or enhancing an asset's performance. Anticipated enhancements to assets may be included in FVLCD calculations and, therefore, generally result in a higher value.

Where the recoverable amount of a cash-generating unit is dependent on the life of its associated orebody, expected future cash flows reflect the current life of mine and/or long-term production plans, which are based on detailed research, analysis and iterative modelling to optimise the level of return from investment, output and sequence of extraction. The mine plan takes account of all relevant characteristics of the orebody, including waste-to-ore ratios, ore grades, haul distances, chemical and metallurgical properties of the ore impacting process recoveries and capacities of processing equipment that can be used. The life-of-mine plan and/or long term production plans are, therefore, the basis for forecasting production output and production costs in each future year.

## Notes to the 2017 financial statements

continued

### 1 Principal accounting policies continued

Forecast cash flows for ore reserve estimation for JORC purposes are generally based on Rio Tinto's commodity price forecasts, which assume short-term market prices will revert to the Group's assessment of the long-term price, generally over a period of three to five years. For most commodities, these forecast commodity prices are derived from a combination of analyses of the marginal costs of the producers and of the incentive price of these commodities. These assessments often differ from current price levels and are updated periodically. The Group does not believe that published medium and long-term forward prices necessarily provide a good indication of future levels because they tend to be strongly influenced by spot prices. The price forecasts used for ore reserve estimation are generally consistent with those used for impairment testing unless management deems that in certain economic environments, a market participant would not assume Rio Tinto's view on prices, in which case in preparing FVLCD impairment calculations management estimates the assumptions that a market participant would be expected to use.

Forecast future cash flows of a cash-generating unit take into account the sales prices under existing sales contracts.

The discount rates applied to the future cash flow forecasts represent an estimate of the rate the market would apply having regard to the time value of money and the risks specific to the asset for which the future cash flow estimates have not been adjusted. The Group's weighted average cost of capital is generally used as a starting point for determining the discount rates, with appropriate adjustments for the risk profile of the countries in which the individual cash-generating units operate. For final feasibility studies and ore reserve estimation, internal hurdle rates, which are generally higher than the Group's weighted average cost of capital, are used. For developments funded with project finance, the debt component of the weighted average cost of capital may be calculated by reference to the specific interest rate of the project finance and anticipated leverage of the project.

For operations with a functional currency other than the US dollar, the impairment review is undertaken in the relevant functional currency. In estimating FVLCD, internal forecasts of exchange rates take into account spot exchange rates, historical data and external forecasts, and are kept constant in real terms after five years. The great majority of the Group's sales are based on prices denominated in US dollars. To the extent that the currencies of countries in which the Group produces commodities strengthen against the US dollar without an increase in commodity prices, cash flows and, therefore, net present values are reduced. Management considers that over the long term, there is a tendency for movements in commodity prices to compensate to some extent for movements in the value of the US dollar, particularly against the Australian dollar and Canadian dollar, and vice versa. However, such compensating changes are not synchronised and do not fully offset each other. In estimating value in use, the present value of future cash flows in foreign currencies is translated at the spot exchange rate on the testing date.

Non-current assets (excluding goodwill) that have suffered impairment are reviewed using the same basis for valuation as explained above whenever events or changes in circumstances indicate that the impairment loss may no longer exist, or may have decreased. If appropriate an impairment reversal will be recognised. The carrying amount of the cash-generating unit after reversal must be the lower of (a) the recoverable amount, as calculated above, and (b) the carrying amount that would have been determined (net of amortisation or depreciation) had no impairment loss been recognised for the cash-generating unit in prior periods.

An onerous contract is defined under IAS 37 "Provisions, Contingent Liabilities and Contingent Assets" as a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received under it. Provision is made when the assets dedicated to the contract are fully impaired or the contract becomes stranded as a result of a business decision.

### (j) Determination of ore reserve and mineral resource estimates

The Group estimates its ore reserves and mineral resources based on information compiled by Competent Persons as defined in accordance with the JORC code.

Ore reserves and, for certain mines, other mineral resources, determined in this way are used in the calculation of depreciation, amortisation and impairment charges and for forecasting the timing of the payment of close-down and restoration costs and the recovery of deferred tax assets. The depreciation and impairment policy above notes instances in which mineral resources are taken into account for accounting purposes. In addition, value may be attributed to mineral resources in purchase price allocations undertaken for the purposes of business combination accounting.

### (k) Close-down, restoration and environmental obligations (note 26)

The Group has provisions for close-down and restoration costs which include the dismantling and demolition of infrastructure, the removal of residual materials and the remediation of disturbed areas for mines and certain refineries and smelters. These provisions are based on all regulatory requirements and any other commitments made to stakeholders.

Closure provisions are not made for those operations that have no known restrictions on their lives as the closure dates cannot be reliably estimated. This applies primarily to certain Canadian smelters which have indefinite-lived water rights or power agreements for renewably sourced power with local governments.

Close-down and restoration costs are a normal consequence of mining or production, and the majority of close-down and restoration expenditure is incurred in the years following closure of the mine, refinery or smelter. Although the ultimate cost to be incurred is uncertain, the Group's businesses estimate their costs using current restoration standards and techniques.

Close-down and restoration costs are provided for in the accounting period when the obligation arising from the related disturbance occurs, based on the net present value of the estimated future costs of restoration to be incurred during the life of the operation and post closure. Where appropriate, the provision is estimated using probability weighting of the different remediation and closure scenarios. The obligation may occur during development or during the production phase of a facility.

Provisions for close-down and restoration costs do not include any additional obligations which are expected to arise from future disturbance.

The costs are estimated on the basis of a closure plan, and are reviewed at each reporting period during the life of the operation to reflect known developments. The estimates are also subject to formal review, with appropriate external support, at regular intervals.

The initial close-down and restoration provision is capitalised within "Property, plant and equipment". Subsequent movements in the close-down and restoration provisions for ongoing operations, including those resulting from new disturbance related to expansions or other activities qualifying for capitalisation, updated cost estimates, changes to the estimated lives of operations, changes to the timing of closure activities and revisions to discount rates are also capitalised within "Property, plant and equipment". These costs are then depreciated over the lives of the assets to which they relate. Changes in closure provisions relating to closed operations are charged/credited to "Net operating costs" in the income statement.

Where rehabilitation is conducted systematically over the life of the operation, rather than at the time of closure, provision is made for the estimated outstanding continuous rehabilitation work at each balance sheet date and the cost is charged to the income statement.

The amortisation or "unwinding" of the discount applied in establishing the provisions is charged to the income statement in each accounting period. The amortisation of the discount is shown within "Finance items" in the income statement.

Environmental costs result from environmental damage that was not a necessary consequence of operations, and may include remediation, compensation and penalties. Provision is made for the estimated present value of such costs at the balance sheet date. These costs are charged to "Net operating costs", except for the unwinding of the discount which is shown within "Finance items".

Remediation procedures may commence soon after the time the disturbance, remediation process and estimated remediation costs become known, but can continue for many years depending on the nature of the disturbance and the remediation techniques used.

#### (l) Inventories (note 16)

Inventories are valued at the lower of cost and net realisable value, primarily on a weighted average cost basis. Average costs are calculated by reference to the cost levels experienced in the relevant month together with those in opening inventory. The cost of raw materials and consumable stores is the purchase price. The cost of partly-processed and saleable products is generally the cost of production, including:

- labour costs, materials and contractor expenses which are directly attributable to the extraction and processing of ore or the production of alumina and aluminium;
- the depreciation of mining properties and leases and of property, plant and equipment used in the extraction and processing of ore or the production of alumina and aluminium; and
- production overheads.

Work in progress includes ore stockpiles and other partly processed material. Stockpiles represent ore that has been extracted and is available for further processing. If there is significant uncertainty as to if and/or when the stockpiled ore will be processed, the ore is expensed as mined. If the ore will not be processed within 12 months after the balance sheet date, it is included within non-current assets and net realisable value is calculated on a discounted cash flow basis. Quantities of stockpiled ore are assessed primarily through surveys and assays. Certain estimates, including expected metal recoveries, are calculated using available industry, engineering and scientific data, and are periodically reassessed taking into account technical analysis and historical performance.

#### (m) Taxation (note 9 and note 17)

Current tax is the tax expected to be payable on the taxable income for the year calculated using rates that have been enacted or substantively enacted at the balance sheet date. It includes adjustments for tax expected to be payable or recoverable in respect of previous periods. Where the amount of tax payable or recoverable is uncertain, Rio Tinto establishes provisions based on the Group's judgment of the most likely amount of the liability, or recovery.

Deferred tax is calculated in accordance with IAS 12. The Group provides for deferred tax in respect of fair value adjustments on acquisitions including mining rights that, in general, are not eligible for income tax allowances. Provision for deferred tax is based on the difference between the carrying value of the asset and its income tax base (which may be nil). Even when there is no income tax base, the existence of a tax base for capital gains tax purposes is not usually taken into account in determining the deferred tax provision for the assets, unless they are classified as held for sale or it is determined for other reasons that the carrying amount is expected to be recovered primarily through disposal and not through use of the assets.

#### (n) Post-employment benefits (note 44)

The Group operates a number of defined benefit plans which provide lump sums, pensions, medical benefits and life insurance to retirees. In accordance with IAS 19, for post-employment defined benefit plans, the difference between the fair value of any plan assets and the present value of the plan obligations is recognised as an asset or liability in the balance sheet.

Where appropriate, the recognition of assets may be restricted to the present value of any amounts the Group expects to recover by way of refunds from the plan or reductions in future contributions. In determining the extent to which a refund will be available the Group considers whether any third party, such as a trustee or pension committee, has the power to enhance benefits or to wind up a pension plan without the Group's consent.

The most significant assumptions used in accounting for pension plans are the discount rate, the inflation rate and mortality rates. The discount rate is used to determine the net present value of the obligations, the interest cost on the obligations and the interest income on plan assets. The discount rate used is the yield on high-quality corporate bonds with maturities and terms that match those of the post-employment obligations as closely as possible. Where there is no developed corporate bond market in a currency, the rate on government bonds is used. The inflation rate is used to project increases in future benefit payments for those plans that have benefits linked to inflation. The mortality rates are used to project the period over which benefits will be paid, which is then discounted to arrive at the net present value of the obligations.

The current service cost, any past service cost and the effect of any curtailment or settlements are recognised in the income statement. The interest cost less interest income on assets held in the plans is also charged to the income statement. All amounts charged to the income statement in respect of these plans are included within "Net operating costs" or in "Share of profit after tax of equity accounted units", as appropriate.

The Group's contributions to defined contribution plans are charged to the income statement in the period to which the contributions relate. These are included within "Net operating costs" or in "Share of profit after tax of equity accounted units", as appropriate.

#### (o) Cash and cash equivalents (note 21)

For the purpose of the balance sheet, cash and cash equivalents comprise: cash on hand, deposits held with banks, and short-term, highly liquid investments (mainly money market funds) that are readily convertible into known amounts of cash and which are subject to insignificant risk of changes in value. Bank overdrafts are shown as current liabilities in the balance sheet.

Further detail on cash and cash equivalents, including restricted cash, is shown in note 21).

For the purposes of the cash flow statement, cash and cash equivalents are net of bank overdrafts that are repayable on demand.

#### (p) Financial instruments (note 30)

##### (i) Financial assets

##### Classification

The Group classifies its financial assets in the following categories: at fair value through profit or loss; loans and receivables; held-to-maturity; and available-for-sale investments. The classification depends on the purpose for which the financial assets were acquired. The Group's policy with regard to financial risk management is set out in note 30. Generally, the Group does not acquire financial assets for the purpose of selling in the short term. When the Group enters into derivative contracts, these transactions are designed to reduce exposures related to assets and liabilities, firm commitments or anticipated transactions.

Management determines the classification of financial assets at initial recognition.

##### (a) Financial assets at fair value through profit or loss

Assets in this category are classified as current assets if expected to be settled within 12 months, otherwise they are classified as non-current. Derivative assets, including embedded derivatives separated from the host contracts, are included within financial assets at fair value through profit or loss unless they are designated as hedging instruments.

##### (b) Loans and receivables

Loans and receivables comprise non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Trade receivables are included within this category; however, the embedded derivatives for provisional pricing included within some trade receivables are valued as explained in note 1(c) Sales revenue.

##### (c) Held-to-maturity

Held-to-maturity investments are non-derivative financial assets with fixed or determinable payments and fixed maturity that the Group has the intention and ability to hold to maturity and which do not qualify as loans and receivables. Assets in this category are classified as other investments and are classified as current assets or non-current assets based on their maturity.

# Notes to the 2017 financial statements

## continued

### 1 Principal accounting policies continued

#### (d) Available-for-sale

Available-for-sale financial assets are non-derivative financial assets that are either designated as available-for-sale or not classified in any of the other categories. Assets in this category are included in non-current assets unless the Group intends to dispose of the assets within 12 months of the balance sheet date or the asset matures within 12 months.

#### *Recognition and measurement*

Available-for-sale financial assets and financial assets at fair value through profit or loss are initially recognised at fair value and are subsequently measured at fair value. Initial transaction costs are expensed in the income statement for those assets at fair value through profit or loss. Loans and receivables and held-to-maturity financial assets are initially recognised at fair value plus transaction costs and are subsequently measured at amortised cost using the effective interest method.

The fair values of the various derivative instruments used for hedging purposes are disclosed in note 30. Movements on the hedging reserve are disclosed in note 29.

#### (ii) Financial liabilities

Borrowings and other financial liabilities (including trade payables but excluding derivative liabilities) are recognised initially at fair value, net of transaction costs incurred, and are subsequently measured at amortised cost.

The Group participates in supply chain finance arrangements whereby vendors may elect to receive early payment of their invoice from a bank by factoring their receivable from Rio Tinto. These arrangements do not modify the terms of the original liability and therefore, financial liabilities subject to supply chain finance continue to be classified as trade payables.

#### (q) Share-based payments (note 43)

The fair value of the Group's share plans is recognised as an expense over the expected vesting period with an offset to retained earnings for Rio Tinto plc plans and to other reserves for Rio Tinto Limited plans.

The Group uses fair values provided by independent actuaries calculated using either a lattice-based option valuation model or a Monte Carlo simulation model.

The terms of each plan are considered at the balance sheet date to determine whether the plan should be accounted for as equity or cash settled. The Group does not operate any plans as cash-settled. However the Performance Share Plan can, at the discretion of the directors, offer employees an equivalent amount in cash. This is not standard practice. In some jurisdictions, employees are granted cash-settled awards where equity-settled awards are prohibited by local laws and regulations. The value of these awards is immaterial.

The Group's equity-settled share plans are settled either by: the issuance of shares by the relevant parent company, the purchase of shares on market, or the use of shares held in treasury which were previously acquired as part of a share buy-back. If the cost of shares acquired to satisfy the plans differs from the expense charged, the difference is taken to retained earnings or other reserves, as appropriate.

#### (r) Share capital (notes 27 and 28)

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of new shares are shown in equity as a deduction, net of tax, from the proceeds.

Where any Group company purchases the Group's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs (net of income taxes) is deducted from equity attributable to owners of Rio Tinto. Where such shares are

subsequently reissued, any consideration received, net of any directly-attributable incremental costs and the related income tax effects, is included in equity attributable to owners of Rio Tinto. If purchased Rio Tinto plc shares are cancelled, an amount equal to the nominal value of the cancelled share is credited to the capital redemption reserve.

#### (s) Segment reporting (notes 2 and 3)

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision maker (CODM). The Group considers that Rio Tinto's chief executive is the CODM, who is responsible for allocating resources and assessing performance of the operating segments.

#### Critical accounting policies and estimates

##### *(i) Determination of CGUs, assessment of indicators of impairment, review of asset carrying values, impairment charges and reversals and the recoverability of goodwill (notes 6, 12 and 13)*

Impairment is assessed at the Cash Generating Unit (CGU) level. A CGU is the smallest identifiable asset or group of assets that generates independent cash inflows. Judgment is applied to identify the Group's CGUs, particularly when assets belong to integrated operations, and changes in CGUs could impact impairment charges and reversals.

External and internal factors are monitored for indicators of impairment and include an annual internal review of asset values as described in note (i) above. Judgment is required to determine whether the impact of adverse spot commodity price movements is significant and structural in nature. There were no material instances of this judgment as at 31 December 2017.

Generally, discounted cash flow models are used to determine the recoverable amount of CGUs. In this case, significant judgment is required to determine the appropriate estimates and assumptions used and there is significant estimation uncertainty. In particular, for fair value less costs of disposal valuations, judgment is required to determine the estimates a market participant would use. The discounted cash flow model is most sensitive to the following estimates: the timing of project expansions, the cost to complete asset construction, long-term commodity prices, production timing and recovery rates, exchange rates, operating costs, reserve estimates, closure costs and discount rates and, in some instances, the renewal of mining licences. Some of these variables are unique to an individual CGU. Future changes in these variables may differ from management's expectations and may materially alter the recoverable amounts of the CGUs.

Note (i) above also describes the Group's methodology for estimating long-term commodity prices, exchange rates and discount rates for impairment testing purposes. Note 6 outlines the significant judgments, assumptions and sensitivities made for both measuring the impairments recorded and for determining whether a reversal of part or all of previous impairment was appropriate. Judgments, assumptions and sensitivities in relation to the testing of CGUs containing goodwill and indefinite-life intangible assets are outlined in notes 12 and 13 respectively.

##### *(ii) Estimation of asset lives*

Intangible assets are considered to have indefinite lives (and therefore no related depreciation or amortisation charge) if, in the Group's judgment, there is no foreseeable limit to the period over which the asset is expected to generate cash flows. Factors that are considered in making this judgment include the existence of contractual rights for unlimited terms; or evidence that renewal of the contractual rights without significant incremental costs can be expected for indefinite periods into the future in view of the Group's investment intentions.

The useful lives of the major assets of a CGU are often dependent on the life of the orebody to which they relate. The life of the orebody will be determined on the basis of the life-of-mine plan which is based on the estimates of ore reserves, and in some cases, mineral resources as described on page 234.



### (iii) Provision for onerous contracts

Provision for an onerous contract is made only when the assets dedicated to that contract are fully impaired or the contract becomes stranded as a result of a business decision. Judgment is required in determining which assets are considered dedicated to a contract when there is optionality as to how the contract obligations can be settled. Key estimates are the cash flows associated with the contract and the discount rate assumption. The Group has made provision in past periods for rail infrastructure take or pay contracts in the Coal business which were considered stranded. As at 31 December 2017 the balance of the provision was US\$407 million.

### (iv) Close-down, restoration and environmental obligations (note 26)

Provision is made for close-down, restoration and environmental costs when the obligation occurs, based on the net present value of estimated future costs required to satisfy the obligation. Management uses its judgment and experience to determine the potential scope of closure rehabilitation work required to meet the Group's legal, statutory and constructive obligations, and any other commitments made to stakeholders, and the options and techniques available to meet those obligations and estimate the associated costs and the likely timing of those costs. Significant judgment is also required to determine both the costs associated with that work and the other assumptions used to calculate the provision. External experts support the cost estimation process where appropriate but there remains significant estimation uncertainty.

The key judgment in applying this accounting policy is determining when an estimate is sufficiently reliable to make or adjust a closure provision.

Closure provisions are not made for those operations that have no known restrictions on their lives as the closure dates cannot be reliably estimated. This applies primarily to certain Canadian smelters which have indefinite-lived water rights or power agreements for renewably sourced power with local governments.

Cost estimates are updated throughout the life of the operation; generally cost estimates must comply with the Group's Capital Project Framework once the operation is ten years from expected closure. This means, for example, that where an Order of Magnitude (OoM) study is required for closure it must be of the same standard as an OoM study for a new mine, smelter or refinery. As at 31 December 2017, there are ten operations with remaining lives of under ten years before taking into account unapproved extensions; the largest of these is Rio Tinto Kennecott for which a pre-feasibility study is expected to be concluded in the next 24 months. Adjustments are made to provisions when the range of possible outcomes becomes sufficiently narrow to permit reliable estimation. Depending on the materiality of the change, adjustments may require review and endorsement by the Group's Closure Steering Committee before the provision is updated.

In some cases, the closure study may indicate that monitoring and, potentially, remediation will be required in perpetuity. In this case, the provision may be restricted to a period for which the costs can be reliably estimated; on average this is around 30 years for operations in closure.

The most significant assumptions and estimates used in calculating the provision are:

- The weighted average remaining lives of operations is shown in note 26 c). Some expenditure may be incurred before closure whilst the operation as a whole is in production. The length of any post closure monitoring period will depend on the specific site requirements; some expenditure can continue into perpetuity.
- The probability weighting of possible closure scenarios. The most significant impact of probability weighting is at the Pilbara operations (Iron Ore) relating to infrastructure and incorporates the possibility that some infrastructure may be retained by the relevant State authorities post closure. The assignment of probabilities to this scenario reduces the closure provision by US\$0.7 billion.
- Appropriate sources on which to base the calculation of the risk-free discount rate. At 31 December 2017 the carrying value of the close-down, restoration and environmental provision was US\$9,983 million. The change in carrying value of the provision which would

result if the real discount rate was 0.5 per cent lower than that assumed by management is shown in note 26.

There is significant estimation uncertainty in the calculation of the provision and cost estimates can vary in response to many factors including:

- Changes to the relevant legal or local/national government requirements and any other commitments made to stakeholders;
- Review of remediation and relinquishment options;
- Additional remediation requirements identified during the rehabilitation;
- The emergence of new restoration techniques;
- Change in the expected closure date;
- Change in the discount rate and;
- The effects of inflation.

Experience gained at other mine or production sites may also change expected methods or costs of closure, although elements of the restoration and rehabilitation of each site are relatively unique to a site. Generally, there is relatively limited restoration and rehabilitation activity and historical precedent elsewhere in the Group, or in the industry as a whole, against which to benchmark cost estimates.

The expected timing of expenditure can also change for other reasons, for example because of changes to expectations around ore reserves and mineral resources, production rates, renewal of operating licences or economic conditions.

As noted in note (k) above, changes in closure and restoration provisions for ongoing operations (other than the impact relating to current year production) are capitalised and therefore will impact assets and liabilities but have no impact on equity at the time the change is made. However, these changes will impact depreciation and the unwind of discount in future years. Changes in closure estimates at the Group's ongoing operations could result in a material adjustment to assets and liabilities in the next 12 months.

Changes to closure cost estimates for closed operations, and changes to environmental cost estimates at any operation, would impact equity, however, the Group does not consider that there is significant risk of a change in estimates for these liabilities causing a material adjustment to equity in the next twelve months. Any new environmental incidents may require a material provision but cannot be predicted.

Cash flow estimates must be discounted at the risk free interest rate if this has a material effect on the provision. The selection of appropriate sources on which to base the calculation of the risk-free discount rate requires judgment. The two per cent real rate currently used by the Group is based on a number of inputs including observable historic yields on 30 year US Treasury Inflation Protected Securities ("TIPS"), and recommendations by independent valuation experts. These inputs are considered in the broader global context that spot yields remain volatile and somewhat depressed in response to macroeconomic turbulence in recent years.

### (v) Deferral of stripping costs (note 14)

Stripping of waste materials takes place throughout the production phase of a surface mine or pit. The identification of components within a mine and of the life of component strip ratios requires judgment and is dependent on an individual mine's design and the estimates inherent within that. Changes to that design may introduce new components and/or change the life of component strip ratios. Changes in other technical or economic parameters that impact ore reserves may also have an impact on the life of component strip ratios, even if they do not affect the mine's design. Changes to the life of component strip ratios are accounted for prospectively.

The Group's judgment as to whether multiple pit mines are considered separate or integrated operations determines whether initial stripping of a pit is deemed to be pre-production or production phase stripping and, therefore, the amortisation base for those costs. The analysis depends on each mine's specific circumstances and requires judgment: another mining company could make a different judgment even when the fact pattern appears to be similar.



# Notes to the 2017 financial statements

continued

## 1 Principal accounting policies continued

### (vi) Uncertain tax positions

The Group operates across a large number of jurisdictions and is subject to periodic challenges by local tax authorities on a range of tax matters during the normal course of business, including transfer pricing, indirect taxes and transaction related issues. Where the amount of tax payable or recoverable is uncertain, the Group establishes provisions based on the Group's interpretation of tax law and judgment of the most likely amount of the liability, or recovery. An alternative approach under current standards is to use a weighted average of various possible scenarios. The weighted average approach is required under IFRIC 23 "Uncertainty over Income Tax Treatments" which is mandatory in 2019 although for issues with a binary outcome, the most likely amount method can continue to be applied. The Group is currently evaluating the impact of IFRIC 23 as noted on page 120. Further information on uncertain tax positions is given in note 9.

### (vii) Recoverability of potential deferred tax assets (note 17)

The Group has tax losses, and other deductible temporary differences, mainly in Australian, Canadian, French, US and Mongolian taxable entities, that have the potential to reduce tax payments in future years. Deferred tax assets have been recognised to the extent that their recovery is probable, having regard to the availability of sufficient taxable temporary differences relating to the same taxation authority and the same taxable entity, the estimates of projected future taxable income of these taxable entities and after taking account of specific risk factors that are expected to affect the recovery of these assets including the risk of expiry of losses. Further information on deferred tax assets is given in note 17.

In addition to the risk of expiry of losses the projections on which recovery of tax losses are based are subject to the same estimation uncertainty as noted in (i) above in relation to impairment. The key judgment in the application of this accounting policy is the recognition of deferred tax assets for losses where the operation is not currently profitable for tax purposes.

### (viii) Identification of functional currencies

The functional currency for each subsidiary, unincorporated arrangement, joint operation and equity accounted unit, is the currency of the primary economic environment in which it operates. Determination of functional currency involves significant judgment and other companies may make different judgments based on similar facts. For many of Rio Tinto's businesses, their functional currency is the currency of the country in which they operate. The Group reconsiders the functional currency of its businesses if there is a change in the underlying transactions, events or conditions which determine their primary economic environment.

The determination of functional currency is a key judgment which affects the measurement of non-current assets included in the balance sheet and, as a consequence, the amortisation of those assets included in the income statement. It also impacts exchange gains and losses included in the income statement and in equity. The Group applies judgment to determine whether or not certain intragroup loans are likely to be repaid in the foreseeable future and therefore whether the associated exchange gains and losses can be taken to equity. During 2017, A\$21 billion of intragroup loans continued to meet these criteria and associated exchange gains were taken to equity.

### (ix) Estimation of obligations for post-employment costs (note 44)

The value of the Group's obligations for post-employment benefits is dependent on the amount of benefits that are expected to be paid out,

discounted to the balance sheet date. The discount rate is a key assumption and is based upon the yields on high quality corporate bonds in the relevant currency which have durations consistent with the term of the obligations. The discount rate will vary from one period to another in line with movements in corporate bond yields, but at any given measurement date there is relatively little estimation uncertainty. This rate is also used to calculate the interest cost on obligations and interest income on plan assets.

The following key assumptions are used to calculate the estimated benefit: future pay increases to be received by members of final pay plans, the level of inflation (for those benefits that are subject to some form of inflation protection), current mortality rates and future improvements in mortality rates:

- The assumption regarding future inflation is based on market yields on inflation linked instruments, where possible, combined with consensus views.
- The Group reviews the actual mortality rates of retirees in its major pension plans on a regular basis and uses these rates to set its current mortality assumptions. It also uses its judgment with respect to allowances for future improvements in longevity having regard to standard improvement scales in each relevant country and after taking external actuarial advice.

Most of the Group's defined benefit pension plans are closed to new entrants and the majority of the obligations relate to former employees. The carrying value of the Group's post-employment obligations is therefore less sensitive to assumptions about future salary increases than it is to assumptions regarding future inflation.

Details of the key assumptions, how they have moved since the previous balance sheet date and the sensitivity of the carrying value to changes in the assumptions are set out in note 44.

### (x) Contingencies (note 31)

Disclosure is made of material contingent liabilities unless the possibility of any loss arising is considered remote based on the Group's judgment and legal advice. Contingent liabilities are quantified unless, in the Group's judgment, the amount cannot be reliably estimated.

### (xi) Basis of consolidation (notes 33 to 36)

Judgment is sometimes required to determine whether after considering all relevant factors, the Group has control, joint control or significant influence over an entity or arrangement. Other companies may make different judgments regarding the same entity or arrangement. Significant influence includes situations of collective control (see note 36a).

### (xii) Exclusions from underlying earnings (note 2)

As set out in note 2), certain items are excluded from net earnings/(loss) in arriving at underlying earnings in each period irrespective of materiality. In addition, there is a final judgmental category which includes, where applicable, other credits and charges that, individually or in aggregate if of a similar type, are of a nature or size to require exclusion in order to provide additional insight into underlying business performance. The exclusion of the impact of the remeasurement of deferred tax assets in the US and other jurisdictions for rate changes, of the derecognition of deferred tax assets related to expected divestments and of an element of the insurance proceeds received in relation to the Manefay slide were the only judgments in this respect in 2017; the treatment of the insurance proceeds was consistent with prior years.

## 2 Operating segments

Rio Tinto's management structure is based on the principal product groups in the tables below together with the global functions that support the business, which include Growth & Innovation. Certain comparative amounts have been reallocated to appropriately represent changes in management responsibility. The chief executive of each product group reports to the chief executive of Rio Tinto. The chief executive of Rio Tinto monitors the performance of each product group based on a number of measures, including EBITDA, capital expenditure and operating cash flows, with underlying earnings and free cash flow being the key financial performance indicators. Finance costs and net debt are managed on a Group basis.

Generally, business units are allocated to product groups based on their primary product. The Energy & Minerals product group includes businesses with products such as uranium, borates, salt and titanium dioxide feedstock together with coal operations, Iron Ore Company of Canada and the Simandou iron ore project, which is the responsibility of the Energy & Minerals product group chief executive. The Copper & Diamonds product group also produces gold, silver, molybdenum and other by-products.

The financial information by business unit provided on pages 206 to 208 of these financial statements provides additional voluntary disclosure which the Group considers useful to the users of the financial statements.

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Gross sales revenue</b>			
Iron Ore	18,251	14,605	13,952
Aluminium	11,005	9,458	10,117
Copper & Diamonds	4,842	4,524	5,592
Energy & Minerals	7,764	6,734	7,140
Other Operations	10	8	18
<b>Reportable segments total</b>	<b>41,872</b>	<b>35,329</b>	<b>36,819</b>
Inter-segment transactions	(15)	(11)	(34)
<b>Product group total</b>	<b>41,857</b>	<b>35,318</b>	<b>36,785</b>
Items excluded from underlying earnings	10	18	(1)
<b>Gross sales revenue</b>	<b>41,867</b>	<b>35,336</b>	<b>36,784</b>
Share of equity accounted units and adjustments for inter-subsidiary/equity accounted units sales	(1,837)	(1,555)	(1,955)
<b>Consolidated sales revenue per income statement</b>	<b>40,030</b>	<b>33,781</b>	<b>34,829</b>

Gross sales revenue includes the Group's proportionate share of sales revenue of equity accounted units (after adjusting for sales to subsidiaries) of US\$1,859 million (2016: US\$1,585 million; 2015: US\$1,987 million) which are not included in consolidated sales revenue. Consolidated sales revenue includes subsidiary sales of US\$22 million (2016: US\$30 million; 2015: US\$32 million) to equity accounted units which are not included in gross sales revenue.

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Capital expenditure</b>			
Iron Ore	1,201	868	1,608
Aluminium	1,436	916	1,682
Copper & Diamonds	1,622	1,441	1,576
Energy & Minerals	467	141	552
Other Operations	(35)	(11)	(36)
<b>Reportable segments total</b>	<b>4,691</b>	<b>3,355</b>	<b>5,382</b>
Other items	70	(46)	65
Less: capital expenditure of equity accounted units	(417)	(651)	(859)
<b>Capital expenditure per financial information by business units</b>	<b>4,344</b>	<b>2,658</b>	<b>4,588</b>
Add: proceeds from disposal of property, plant and equipment	138	354	97
<b>Capital expenditure per cash flow statement</b>	<b>4,482</b>	<b>3,012</b>	<b>4,685</b>

Capital expenditure for reportable segments comprises the net cash outflow on purchases less disposals of property, plant and equipment, capitalised evaluation costs and purchases less disposals of other intangible assets. The details provided include 100 per cent of subsidiaries' capital expenditure and Rio Tinto's share of the capital expenditure of joint operations and equity accounted units.

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Depreciation and amortisation</b>			
Iron Ore	1,645	1,645	1,744
Aluminium	1,199	1,250	1,172
Copper & Diamonds	1,452	1,601	1,261
Energy & Minerals	652	739	830
Other Operations	32	34	32
<b>Reportable segments total</b>	<b>4,980</b>	<b>5,269</b>	<b>5,039</b>
Other items	42	51	68
Less: depreciation and amortisation of equity accounted units	(647)	(526)	(462)
<b>Depreciation and amortisation per note 4</b>	<b>4,375</b>	<b>4,794</b>	<b>4,645</b>

# Notes to the 2017 financial statements

continued

## 2 Operating segments continued

Product group depreciation and amortisation for reportable segments totals include 100 per cent of subsidiaries' depreciation and amortisation and Rio Tinto's share of the depreciation and amortisation of equity accounted units. Rio Tinto's share of the depreciation and amortisation charge of equity accounted units is deducted to arrive at depreciation and amortisation, excluding equity accounted units, as shown in note 4. These figures exclude impairment charges and reversals, which are excluded from underlying earnings.

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Tax charge/(credit)</b>			
Iron Ore	2,871	2,005	1,747
Aluminium	543	171	303
Copper & Diamonds	48	(320)	(77)
Energy & Minerals	652	331	122
Other Operations	(84)	(73)	(73)
<b>Reportable segments total</b>	<b>4,030</b>	<b>2,114</b>	<b>2,022</b>
Other items	(261)	(191)	(192)
Exploration and evaluation not attributed to product groups	(36)	(27)	(25)
Net finance costs	(364)	(484)	(245)
	<b>3,369</b>	<b>1,412</b>	<b>1,560</b>
Tax charge/(credit) excluded from underlying earnings	596	155	(567)
<b>Tax charge per income statement</b>	<b>3,965</b>	<b>1,567</b>	<b>993</b>

Tax charge/(credit) excludes amounts relating to equity accounted units. Further information on the tax charge/(credit) excluded from underlying earnings is provided below in the section "Underlying earnings".

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Underlying earnings (Refer overleaf)</b>			
Iron Ore	6,692	4,611	3,940
Aluminium	1,583	947	1,118
Copper & Diamonds	263	(18)	370
Energy & Minerals	1,242	612	177
Other Operations	(138)	(88)	(90)
<b>Reportable segments total</b>	<b>9,642</b>	<b>6,064</b>	<b>5,515</b>
Other items	(483)	(241)	(375)
Exploration and evaluation not attributed to product groups	(178)	(147)	(211)
Net finance costs	(354)	(576)	(389)
<b>Underlying earnings</b>	<b>8,627</b>	<b>5,100</b>	<b>4,540</b>
Items excluded from underlying earnings (Refer overleaf)	135	(483)	(5,406)
<b>Net earnings/(loss) attributable to owners of Rio Tinto per income statement</b>	<b>8,762</b>	<b>4,617</b>	<b>(866)</b>

Underlying earnings is reported by Rio Tinto to provide greater understanding of the underlying business performance of its operations and to enhance comparability of reporting periods.

The measure of underlying earnings, in conjunction with net cash generated from operating activities and capital expenditure (net of proceeds on disposals), is used by the chief executive of Rio Tinto to assess the performance of the product groups. Underlying earnings and net earnings/(loss) both represent amounts net of tax attributable to owners of Rio Tinto.

The following items are excluded from net earnings/(loss) in arriving at underlying earnings in each period irrespective of materiality:

- Net gains/(losses) on disposal of interests in businesses.
- Impairment charges and reversals.
- Profit/(loss) after tax from discontinued operations.
- Exchange and derivative gains and losses. This exclusion includes exchange gains/(losses) on US dollar net debt and intragroup balances, gains/(losses) on currency and interest rate derivatives not qualifying for hedge accounting and gains/(losses) on embedded commodity derivatives not qualifying for hedge accounting.

In addition, there is a final judgmental category which includes, where applicable, other credits and charges that, individually or in aggregate if of a similar type, are of a nature or size to require exclusion in order to provide additional insight into underlying business performance.

Product group earnings include earnings of subsidiaries and the Group's share of the underlying earnings of equity accounted units stated before finance items but after the amortisation of discount on provisions.

Rio Tinto's share of the underlying earnings of equity accounted units amounted to US\$332 million in 2017 (2016: US\$309 million; 2015: US\$390 million). This amount is attributable as follows: US\$295 million profit to the Copper & Diamonds product group and US\$37 million profit to other product groups (2016: US\$272 million profit to the Copper & Diamonds product group and US\$37 million profit to other product groups; 2015: US\$307 million profit to the Copper & Diamonds product group and US\$83 million profit to other product groups). These amounts are included in underlying earnings and include the underlying earnings of the Group's tolling entities which process alumina. Tolling entities recharge the majority of their costs and generally have minimal earnings.

## Reconciliation of net earnings/(losses) to underlying earnings

	Pre-tax (1) 2017 US\$m	Taxation 2017 US\$m	Non- controlling interests 2017 US\$m	Net amount 2017 US\$m	Net amount 2016 US\$m	Net amount 2015 US\$m
<b>Exclusions from underlying earnings</b>						
Impairment charges (note 6)	(796)	141	174	(481)	(183)	(1,802)
Net gains on disposal of interests in businesses (a)	2,344	(322)	-	2,022	382	48
Exchange and derivative (losses)/gains:						
– Exchange (losses)/gains on external US dollar net debt and intragroup balances (b)	(613)	113	12	(488)	516	(3,282)
– Gain/(losses) on currency and interest rate derivatives not qualifying for hedge accounting (c)	33	(5)	2	30	(12)	(88)
– (Losses)/gains on embedded commodity derivatives not qualifying for hedge accounting (d)	(498)	146	-	(352)	32	88
Changes in corporate tax rates in the US and France (e)	-	(439)	-	(439)	-	-
Onerous port and rail contracts (f)	-	-	-	-	(329)	-
Restructuring costs and global headcount reductions	-	-	-	-	(177)	(258)
Increased closure provision for non-operating and legacy operations (g)	-	-	-	-	(282)	(233)
Rio Tinto Kennecott insurance settlement (h)	73	(28)	-	45	-	18
Tax provision (i)	-	-	-	-	(380)	-
Adjustment to deferred tax assets relating to expected divestments (j)	-	(202)	-	(202)	-	234
Other exclusions (k)	-	-	-	-	(50)	(131)
<b>Total excluded from underlying earnings</b>	<b>543</b>	<b>(596)</b>	<b>188</b>	<b>135</b>	<b>(483)</b>	<b>(5,406)</b>
<b>Net earnings/(loss)</b>	<b>12,816</b>	<b>(3,965)</b>	<b>(89)</b>	<b>8,762</b>	<b>4,617</b>	<b>(866)</b>
<b>Underlying earnings</b>	<b>12,273</b>	<b>(3,369)</b>	<b>(277)</b>	<b>8,627</b>	<b>5,100</b>	<b>4,540</b>

- (a) Net gains on disposal of interests in businesses in 2017 relate mainly to the sale of Coal & Allied Industries Limited which completed on 1 September 2017. In 2016, the net gain related mainly to the sale of Rio Tinto's 40 per cent interest in the Bengalla Joint Venture on 1 March 2016 and the sale of the Lochaber assets in Scotland on 23 November 2016. This was partially offset by a loss on disposal of the 100 per cent interest in Carbone Savoie on 31 March 2016.
- (b) Exchange (losses)/gains on external US dollar net debt and intragroup balances comprise of post-tax foreign exchange gains on US dollar denominated net debt in non-US dollar functional currency companies of US\$420 million and post-tax losses of US\$908 million on intragroup balances. Net exchange gains in 2016 comprise post-tax foreign exchange gains of US\$123 million on external US dollar denominated net debt, and US\$393 million gains on intragroup balances, mainly as the Canadian dollar strengthened against the US dollar.
- (c) Valuation changes on currency and interest rate derivatives, which are ineligible for hedge accounting, other than those embedded in commercial contracts, and the currency revaluation of embedded US dollar derivatives contained in contracts held by entities whose functional currency is not the US dollar.
- (d) Valuation changes on commodity derivatives, embedded in commercial contracts and other financial commodity derivatives, that are ineligible for hedge accounting, but for which there will be an offsetting change in future Group earnings.
- (e) Deferred tax assets have been re-measured to reflect lower corporate income tax rates in the US and France as a result of tax legislation changes substantively enacted in December 2017.
- (f) In 2016, a review of the infrastructure capacity requirements in Queensland, Australia confirmed that it was no longer likely that Rio Tinto would utilise the Abbot Point Coal Terminal and associated rail infrastructure capacity contracted under take or pay arrangements and agreement was reached with Adani, the owner of the port, to relinquish that capacity. Accordingly, an onerous contract provision was recognised based on the net present value of expected future cash flows for the port and rail capacity discounted at a post-tax real rate of two per cent, resulting in a post-tax onerous contract charge of US\$329 million.
- (g) In 2016, the closure provision for non-operating and legacy operations increased mainly due to the Gove alumina refinery in Northern Territory, Australia where operations have been curtailed since May 2014. The provision was updated based on the cost estimates from the studies. Future revisions to the closure cost estimate during the study periods (including the next stage of feasibility study) will continue to be excluded from underlying earnings as the site operating assets have been fully impaired.
- (h) In 2017, Rio Tinto received the final settlement on the insurance claims related to the 2013 slide at Rio Tinto Kennecott's Bingham Canyon mine. The amounts excluded from underlying earnings are consistent with the previous excluded losses to which they relate, in line with the treatment of the 2013 and 2015 settlement payments.
- (i) Tax provision includes amounts provided for specific tax matters for which the timing of resolution and potential economic outflow are uncertain. During 2016, provision was made in relation to matters under discussion with the Australian Taxation Office (ATO) in relation to the transfer pricing of certain transactions between Rio Tinto entities based in Australia and the Group's commercial centre in Singapore for the period since 2009.
- (j) Deferred tax assets have been derecognised as a result of revised profit forecasts in France due to expected divestments.
- (k) Other credits and charges that, individually, or in aggregate if of similar type, are of a nature or size to require exclusion in order to provide additional insight into underlying business performance. In 2016, other exclusions included costs related to multiple transformation projects and the recuperation of capital losses against capital gains on divestment. In 2015, other exclusions included a provision relating to the incomplete divestment of Carbone Savoie within the Aluminium product group, divestment costs and an increase in provision relating to the Gove refinery.
- (l) Exclusions from underlying earnings relating to equity accounted units are stated after tax and are included in the column "Pre-tax".

# Notes to the 2017 financial statements

continued

## 3 Operating segments – additional information

	2017	Adjusted <sup>(b)</sup>	Adjusted <sup>(b)</sup>	2017	Adjusted <sup>(b)</sup>	Adjusted <sup>(b)</sup>
	%	2016	2015	US\$m	2016	2015
Consolidated sales revenue by destination <sup>(a)</sup>		%	%		US\$m	US\$m
China	44.2	43.6	42.2	17,706	14,742	14,701
Asia (excluding China and Japan)	12.8	13.9	12.9	5,108	4,692	4,499
United States of America	14.3	13.9	15.3	5,716	4,709	5,321
Japan	11.7	11.3	11.4	4,701	3,809	3,974
Europe (excluding UK)	7.5	7.6	8.4	3,015	2,579	2,909
Canada	2.8	3.0	3.8	1,111	1,024	1,322
Australia	1.8	2.0	2.4	710	675	830
UK	1.1	1.2	0.9	449	391	330
Other countries	3.8	3.5	2.7	1,514	1,160	943
<b>Consolidated sales revenue</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>40,030</b>	<b>33,781</b>	<b>34,829</b>

(a) Consolidated sales revenue by geographical destination is based on the ultimate country of destination of the product, if known. If the eventual destination of the product sold through traders is not known then revenue is allocated to the location of the product at the time when the risks and rewards of ownership are transferred. Rio Tinto is domiciled in both the UK and Australia.

(b) The 2016 and 2015 comparatives above have been amended to correct the allocation of revenues by region. The most significant impacts are an increase in the amounts allocated to China (2016: US\$337 million; 2015: US\$135 million) and Canada (2015: US\$155 million) and a decrease in amounts allocated to Asia (excluding China and Japan) (2016: US\$319 million; 2015: US\$263 million). There is no impact on the total consolidated sales revenue.

### Consolidated sales revenue by product

Consolidated sales revenues of the Group are derived from the following products sold to external customers:

	2017	2016	2015
	US\$m	US\$m	US\$m
Iron ore	20,010	15,855	15,239
Aluminium	10,864	9,342	9,904
Copper	1,760	1,609	1,577
Coal	2,822	2,567	2,703
Industrial minerals	2,060	1,954	2,155
Gold	378	608	1,063
Diamonds	706	613	698
Other	1,430	1,233	1,490
<b>Consolidated sales revenue</b>	<b>40,030</b>	<b>33,781</b>	<b>34,829</b>

### Non-current assets other than excluded items

The total of non-current assets other than items excluded is shown by location below. This is allocated based on the location of the business units holding the assets.

	2017	2016
	US\$m	US\$m
<b>Non-current assets other than excluded items<sup>(a)</sup></b>		
Australia	32,890	30,602
Canada	14,640	14,362
Mongolia	8,582	7,743
United States of America	4,812	4,958
Africa	3,781	3,882
South America	3,304	3,785
Indonesia	1,458	1,482
Europe (excluding France and the UK)	362	429
UK	66	66
France	276	251
Other countries	892	891
	<b>71,063</b>	<b>68,451</b>

### Non-current assets excluded from analysis above:

Deferred tax assets	3,395	3,728
Other financial assets (including loans to equity accounted units)	510	822
Quasi equity loans to equity accounted units <sup>(b)</sup>	159	163
Tax recoverable	30	38
Trade and other receivables	1,397	975
<b>Total non-current assets per balance sheet</b>	<b>76,554</b>	<b>74,177</b>

(a) Allocation of non-current assets by country is based on the location of the business units holding the assets. It includes investments in equity accounted units totalling US\$4,327 million (2016: US\$4,856 million) which represents the Group's share of net assets excluding quasi equity loans shown separately within "Loans to equity accounted units" above.

(b) Loans to equity accounted units comprise quasi equity loans of US\$159 million (2016: US\$163 million) included in "Investments in equity accounted units" on the face of the balance sheet and non-current non-quasi equity loans of US\$39 million (2016: US\$39 million) shown within "Other financial assets".



## 4 Net operating costs (excluding items shown separately)

			Adjusted <sup>(a)</sup>	
	Note	2017 US\$m	2016 US\$m	2015 US\$m
Raw materials, consumables, repairs and maintenance <sup>(a)</sup>		<b>9,286</b>	8,760	8,966
Amortisation of intangible assets	13	<b>177</b>	227	207
Depreciation of property, plant and equipment	14	<b>4,198</b>	4,567	4,438
Employment costs	5	<b>4,765</b>	4,881	5,446
Shipping and other freight costs <sup>(c)</sup>		<b>2,338</b>	1,454	2,165
(Increase)/decrease in finished goods and work in progress <sup>(a)</sup>		<b>(82)</b>	87	558
Royalties		<b>2,228</b>	1,889	1,863
Amounts charged by equity accounted units <sup>(b)</sup>		<b>980</b>	1,184	1,246
Net foreign exchange losses/(gains)		<b>61</b>	38	(263)
Other external costs <sup>(c) (d)</sup>		<b>3,935</b>	3,472	4,181
Provisions (including exchange differences on provisions)	26	<b>527</b>	1,404	731
Research and development		<b>58</b>	60	104
Costs included above qualifying for capitalisation		<b>(486)</b>	(521)	(661)
Other operating income		<b>(1,002)</b>	(703)	(1,062)
<b>Net operating costs (excluding items shown separately) <sup>(c)</sup></b>		<b>26,983</b>	26,799	27,919

- (a) The 2016 and 2015 comparatives have been amended to reclassify certain amounts between operating cost categories. The impact is to decrease the amount allocated to "(Increase)/decrease in finished goods and work in progress" (2016: US\$304 million; 2015: US\$143 million) and to increase "Raw materials, consumables, repairs and maintenance" by the same amount.
- (b) Amounts charged by equity accounted units relate to toll processing and also include purchases from equity accounted units of bauxite and aluminium which are then processed by the product group or sold to third parties. Generally, purchases are in proportion to the Group's share of the equity accounted unit but in 2017, US\$229 million (2016: US\$383 million; 2015: US\$378 million) related to purchases of the other investors' share of production.
- (c) Net operating costs includes operating lease expense of US\$555 million (2016: US\$541 million). Costs for leases of dry bulk vessels (which include costs for crewing services) are included within "Shipping and other freight costs" and other lease costs are included within "Other external costs". The 2016 comparative has been amended to exclude certain contractual arrangements which do not qualify as leases in accordance with IAS 18.
- (d) Other external costs include a financial penalty of £27.4 million (US\$36.4 million) paid to the United Kingdom's Financial Conduct Authority (FCA) in relation to the timing of the impairment of the Group's former coal operations in Mozambique. Refer to note 31 for further detail.

## 5 Employment costs

	Note	2017 US\$m	2016 US\$m	2015 US\$m
Total employment costs				
– Wages and salaries		<b>4,129</b>	4,235	4,670
– Social security costs		<b>337</b>	429	430
– Net post-retirement charge	44	<b>500</b>	522	439
– Share option charge	43	<b>91</b>	116	128
		<b>5,057</b>	5,302	5,667
Less: charged within provisions <sup>(a)</sup>	26	<b>(292)</b>	(421)	(221)
<b>Employment costs</b>	4	<b>4,765</b>	4,881	5,446

- (a) Amounts included above in respect of provisions for pensions, post-retirement healthcare, long service leave and other employee entitlements which are included in 'Provisions (including exchange differences on provisions)' in note 4.

# Notes to the 2017 financial statements

continued

## 6 Impairment charges and reversals

		Pre-tax 2017 US\$m	Taxation 2017 US\$m	Non- controlling interests 2017 US\$m	Net amount 2017 US\$m	Pre-tax amount 2016 US\$m	Pre-tax amount 2015 US\$m
	Note						
Energy & Minerals – Roughrider		(357)	100	-	(257)	-	(229)
Energy & Minerals – Rössing		(267)	7	83	(177)	-	-
Energy & Minerals – Simandou		-	-	91	91	-	(2,039)
Energy & Minerals – Energy Resources of Australia		-	-	-	-	-	(260)
Copper & Diamonds – Argyle		(172)	34	-	(138)	(241)	-
Copper & Diamonds – Molybdenum Autoclave Process		-	-	-	-	-	(17)
Aluminium – Other		-	-	-	-	-	(179)
Other		-	-	-	-	(8)	(67)
<b>Total impairment charge net of reversals</b>		<b>(796)</b>	<b>141</b>	<b>174</b>	<b>(481)</b>	<b>(249)</b>	<b>(2,791)</b>
<b>Allocated as:</b>							
Goodwill	12	-				-	(116)
Intangible assets	13	(357)				(1)	(1,833)
Property, plant and equipment	14	(435)				(248)	(652)
Other assets and liabilities		(4)				-	(190)
<b>Total impairment charge net of reversals</b>		<b>(796)</b>				<b>(249)</b>	<b>(2,791)</b>
<b>Comprising:</b>							
<b>Total impairment charge net of reversals in the financial information by business unit (page 206)</b>					<b>(796)</b>	<b>(249)</b>	<b>(2,791)</b>
Taxation (including related to EAUs)					<b>141</b>	66	(57)
Non-controlling interests					<b>174</b>	-	1,046
<b>Total impairment in the income statement</b>					<b>(481)</b>	<b>(183)</b>	<b>(1,802)</b>

### Energy & Minerals

#### Roughrider, Canada

Following a reassessment of planned exploration spend in the six months ended 30 June 2017, substantive expenditure to evaluate the Roughrider deposit is neither budgeted nor planned. These circumstances were identified as an impairment indicator under IFRS 6 and the recoverable amount for the evaluation and exploration assets was determined to be US\$nil due to the significant uncertainty over whether commercially viable quantities of mineral resources could be identified at a future date. Accordingly an impairment charge of US\$357 million was recorded in 2017 to fully write-off the mineral interests recognised on acquisition.

In 2015, a pre-tax impairment charge of US\$116 million to fully write-off goodwill and a pre-tax impairment charge of US\$113 million to exploration and evaluation intangible assets was recognised in relation to the Roughrider deposit. The recoverable amount for Roughrider was determined by reference to a fair value less cost of disposal (FVLCD) model in line with the accounting policy set out in note 1(i).

#### Rössing, Namibia

An impairment indicator was identified at the Rössing Uranium cash-generating unit as a result of structural changes in the forecast prices for uranium due to oversupply in the market. In assessing the recoverable amount of the assets, it was determined that the property, plant and equipment and certain other non-current assets were fully impaired resulting in a pre-tax impairment charge of US\$267 million.

#### Simandou, Guinea

In 2015, a pre-tax impairment charge of US\$1,655 million to exploration and evaluation intangible assets and a pre-tax impairment charge of US\$194 million to property, plant and equipment were recognised to fully write-down the long-term assets of the Simandou project. In addition a pre-tax charge of US\$7 million was recognised in relation to inventories and a pre-tax charge of US\$183 million was also recognised as a financial liability for contractual arrangements. This liability was settled during 2017 by the Group's subsidiary Simfer Jersey Limited from the proceeds of a share issue. The non-controlling interest component of this transaction (US\$91 million) has been accounted for as an impairment reversal consistent with the original accounting treatment.

#### Energy Resources of Australia (ERA), Australia

In 2015, a pre-tax write-down to property, plant and equipment and intangible assets of US\$260 million to fully write off these long-term assets was recognised. Deferred tax assets of US\$123 million were also fully written off.

### Copper & Diamonds

#### Argyle Diamond Mine, Australia

In 2016, an impairment trigger assessment at the Argyle cash-generating unit resulted in the identification of impairment indicators as a result of lower production volumes compared with forecast and lower prices achieved for bulk diamonds. The recoverable amount for Argyle was determined to be US\$191 million, resulting in a pre-tax impairment charge of US\$241 million to property, plant and equipment and intangible assets.

In 2017, an impairment trigger assessment at the Argyle cash-generating unit resulted in the identification of impairment indicators because of lower production volumes compared with forecast, a smaller than expected contribution from productivity improvements and lower realised prices. In assessing the recoverable amount of the assets, it was determined that the property, plant and equipment, including an updated closure asset, was fully impaired resulting in a pre-tax impairment charge of US\$172 million. The impairment charge resulted in the recognition of deferred tax assets of US\$34 million; these will be recovered by other business units in the same tax group.

#### Molybdenum Autoclave Process, US

In 2015, previously estimated net disposal proceeds for the Molybdenum Autoclave Process project were reduced resulting in a pre-tax impairment of US\$17 million recorded against property, plant and equipment.

### Aluminium

#### Other

In 2015, a pre-tax impairment charge of US\$147 million was recorded in relation to the Carbone Savoie cash-generating unit and US\$32 million was recorded in relation to other aluminium businesses which were subsequently disposed of.

## 7 Share of profit after tax of equity accounted units

	2017 US\$m	2016 US\$m	2015 US\$m
Sales revenue: Rio Tinto share <sup>(a)</sup>	1,960	1,727	2,149
Operating costs	(1,400)	(1,237)	(1,609)
Profit before finance items and taxation	560	490	540
Finance items	(47)	(33)	(37)
Share of profit after tax of equity accounted units	17	20	35
Profit before taxation	530	477	538
Taxation	(191)	(156)	(177)
<b>Profit for the year (Rio Tinto share)</b>	<b>339</b>	<b>321</b>	<b>361</b>

(a) Sales revenue of equity accounted units includes sales by equity accounted units to Group subsidiaries.

Further information relating to the Group's interests in joint ventures and associates is given in notes 35 and 36.

## 8 Finance income and finance costs

	Note	2017 US\$m	2016 US\$m	2015 US\$m
Finance income from equity accounted units (Rio Tinto share)		4	6	8
Other finance income (including bank deposits and other financial assets)		137	83	44
<b>Total finance income</b>		<b>141</b>	<b>89</b>	<b>52</b>
Interest on:				
– Financial liabilities at amortised cost and associated derivatives		(819)	(895)	(972)
– Finance leases		(3)	(3)	(4)
Fair value movements:				
– Bonds designated as hedged items in fair value hedges		28	89	(17)
– Derivatives designated as hedging instruments in fair value hedges		(22)	(89)	(11)
Loss on early redemption of bonds <sup>(a)</sup>		(256)	(324)	-
Amounts capitalised	14	224	111	254
<b>Total finance costs</b>		<b>(848)</b>	<b>(1,111)</b>	<b>(750)</b>

(a) In 2017, loss on early redemption of bonds includes a premium charge of US\$238 million; unamortised debt issuance costs and fees of US\$14 million and the write-off of the fair value hedge adjustment of US\$4 million (see note 30).  
In 2016, loss on early redemption of bonds included a premium charge of US\$441 million; unamortised debt issuance costs and fees of US\$42 million partially offset by the write-off of fair value hedge adjustments of US\$159 million (see note 30).

# Notes to the 2017 financial statements

continued

## 9 Taxation

	Note	2017 US\$m	2016 US\$m	2015 US\$m
<b>Taxation charge</b>				
– Current		<b>3,270</b>	2,115	1,132
– Deferred	17	<b>695</b>	(548)	(139)
		<b>3,965</b>	1,567	993
<b>Prima facie tax reconciliation</b>				
Profit/(loss) before taxation		<b>12,816</b>	6,343	(726)
Deduct: share of profit after tax of equity accounted units		<b>(339)</b>	(321)	(361)
Parent companies' and subsidiaries' profit/(loss) before tax		<b>12,477</b>	6,022	(1,087)
Prima facie tax payable/(receivable) at UK rate of 19 per cent (2016: 20 per cent; 2015: 20 per cent)		<b>2,371</b>	1,204	(217)
Higher rate of taxation on Australian underlying earnings		<b>1,069</b>	604	506
Impact of items excluded in arriving at underlying earnings <sup>(a)</sup> :				
– Impairment charges net of reversals		<b>10</b>	(16)	615
– Gains and losses on disposal of businesses		<b>(123)</b>	30	(11)
– Exchange and gains/losses on derivatives		<b>(48)</b>	(33)	481
– Onerous port and rail contracts		-	(46)	-
– Closure provision for legacy operations		-	(40)	-
– Tax provision <sup>(b)</sup>		-	380	-
– Adjustment to deferred tax assets relating to expected divestments <sup>(c)</sup>		<b>202</b>	-	(250)
– Changes in corporate tax rates in the US and France <sup>(d)</sup>		<b>439</b>	-	-
– Other exclusions		<b>14</b>	(48)	(17)
Impact of changes in tax rates and laws		<b>21</b>	(9)	(3)
Other tax rates applicable outside the UK and Australia on underlying earnings		<b>(92)</b>	(283)	(68)
Resource depletion and other depreciation allowances		<b>(33)</b>	(15)	(15)
Research, development and other investment allowances		<b>(13)</b>	(15)	(21)
Recognition of previously unrecognised deferred tax assets		<b>(40)</b>	(154)	(40)
Write-down of previously recognised deferred tax assets <sup>(e)</sup>		<b>160</b>	-	-
Unrecognised current year operating losses		<b>26</b>	25	45
Other items <sup>(f)</sup>		<b>2</b>	(17)	(12)
<b>Total taxation charge <sup>(g)</sup></b>		<b>3,965</b>	1,567	993

(a) The impact for each item includes the effect of tax rates applicable outside the UK.

(b) Tax provision includes amounts provided for specific tax matters for which the timing of resolution and potential economic outflow are uncertain. During 2016 provision was made in relation to matters under discussion with the Australian Taxation Office (ATO) in relation to the transfer pricing of certain transactions between Rio Tinto entities based in Australia and the Group's commercial centre in Singapore for the period since 2009.

(c) Deferred tax assets have been derecognised as a result of revised profit forecasts in France due to expected divestments.

(d) Deferred tax assets have been re-measured to reflect lower corporate income tax rates in the US and France as a result of tax legislation changes substantively enacted in December 2017.

(e) The write-down of previously recognised deferred tax assets in 2017 primarily relates to a reduction in recognised deferred tax assets on brought forward losses in Grasberg.

(f) Other items include various adjustments to provisions for taxation of prior periods.

(g) This tax reconciliation relates to the Group's parent companies, subsidiaries and joint operations. The Group's share of profit of equity accounted units is net of tax charges of US\$191 million (2016: US\$156 million; 2015: US\$177 million).

	2017 Total US\$m	2016 Total US\$m	2015 Total US\$m
Tax (charge)/credit on actuarial gains and losses on post-retirement benefit plans	<b>(12)</b>	29	(175)
Adjustments to deferred tax on post-retirement benefit plans due to changes in corporate tax rates in the US and France	<b>(140)</b>	-	-
Other	<b>(1)</b>	4	(3)
<b>Tax relating to components of other comprehensive income/(loss) for the year <sup>(a)</sup></b>	<b>(153)</b>	33	(178)

(a) This comprises a deferred tax charge of US\$153 million (2016: credit of US\$33 million; 2015: charge of US\$174 million) and a current tax charge of US\$nil (2016: US\$nil; 2015: charge of US\$4 million), plus a share of tax on other comprehensive income of equity accounted units shown separately (see note 17).

## 10 Earnings/(loss) per ordinary share

	2017 Earnings US\$m	2017 Weighted average number of shares (millions)	2017 Per share amount (cents)	2016 Earnings US\$m	2016 Weighted average number of shares (millions)	2016 Per share amount (cents)
Basic earnings per share attributable to ordinary shareholders of Rio Tinto <sup>(a)</sup>	8,762	1,786.7	490.4	4,617	1,797.3	256.9
Diluted earnings per share attributable to ordinary shareholders of Rio Tinto <sup>(b)</sup>	8,762	1,799.5	486.9	4,617	1,808.6	255.3
	2015 Loss US\$m	2015 Weighted average number of shares (millions)	2015 Per share amount (cents)			
Basic loss per share attributable to ordinary shareholders of Rio Tinto <sup>(a)</sup>	(866)	1,824.7	(47.5)			
Diluted loss per share attributable to ordinary shareholders of Rio Tinto <sup>(b)</sup>	(866)	1,824.7	(47.5)			

- (a) The weighted average number of shares is calculated as the average number of Rio Tinto plc shares outstanding not held as treasury shares of 1,364.5 million (2016: 1,373.7 million; 2015: 1,398.1 million) plus the average number of Rio Tinto Limited shares outstanding of 422.3 million (2016: 423.6 million; 2015: 426.6 million) over the relevant period. No Rio Tinto Limited ordinary shares were held by Rio Tinto plc in any of the periods presented.
- (b) For the purposes of calculating diluted earnings per share, the effect of dilutive securities of 12.8 million shares in 2017 and 11.3 million shares in 2016 is added to the weighted average number of shares described in (a) above. This effect is calculated under the treasury stock method. In accordance with IAS 33 "Earnings per share", for the purposes of calculating diluted loss per share, the effect of potentially dilutive securities has not been taken into account for the year ended 31 December 2015. The Group's only potential dilutive ordinary shares are share options for which terms and conditions are described in note 43.

## 11 Dividends

	2017 US\$m	2016 US\$m	2015 US\$m
Rio Tinto plc previous year final dividend paid	1,725	1,443	1,642
Rio Tinto plc interim dividend paid	1,530	604	1,476
Rio Tinto Limited previous year final dividend paid	523	473	520
Rio Tinto Limited interim dividend paid	472	205	438
<b>Dividends paid during the year</b>	<b>4,250</b>	<b>2,725</b>	<b>4,076</b>
<b>Dividends per share: paid during the year</b>	<b>235.0c</b>	<b>152.5c</b>	<b>226.5c</b>
<b>Dividends per share: proposed in the announcement of the results for the year</b>	<b>180.0c</b>	<b>125.0c</b>	<b>107.5c</b>
	Dividends per share 2017	Dividends per share 2016	Dividends per share 2015
Rio Tinto plc previous year final (pence)	100.56p	74.21p	77.98p
Rio Tinto plc interim (pence)	83.13p	33.80p	68.92p
Rio Tinto Limited previous year final – fully franked at 30% (Australian cents)	163.62c	151.89c	152.98c
Rio Tinto Limited interim – fully franked at 30% (Australian cents)	137.72c	59.13c	144.91c
	Number of shares 2017 (millions)	Number of shares 2016 (millions)	Number of shares 2015 (millions)
Rio Tinto plc previous year final	1,374.6	1,373.9	1,412.7
Rio Tinto plc interim	1,366.1	1,374.4	1,395.2
Rio Tinto Limited previous year final	424.0	423.5	435.0
Rio Tinto Limited interim	424.0	424.0	423.7

The dividends paid in 2017 are based on the following US cents per share amounts: 2016 final – 125.0 cents, 2017 interim – 110.0 cents (2016 dividends paid: 2015 final – 107.5 cents, 2016 interim – 45.0 cents; 2015 dividends paid: 2014 final – 119.0 cents, 2015 interim – 107.5 cents).

The number of shares on which Rio Tinto plc dividends are based excludes those held as treasury shares and those held by employee share trusts which waived the right to dividends. Employee share trusts waived dividends on 277,946 Rio Tinto plc ordinary shares and 22,021 American Depository Receipts (ADRs) for the 2016 final dividend and on 173,297 Rio Tinto plc ordinary shares and 24,377 ADRs for the 2017 interim dividend (2016: 428,529 Rio Tinto plc ordinary shares and 13,881 ADRs

for the 2015 final dividend and on 217,661 Rio Tinto plc ordinary shares and 31,604 ADRs for the 2016 interim dividend; 2015: 342,902 Rio Tinto plc ordinary shares and 24,582 ADRs for the 2014 final dividend and on 237,266 Rio Tinto plc ordinary shares and 27,050 ADRs for the 2015 interim dividend). In 2017, 2016 and 2015, no Rio Tinto Limited shares were held by Rio Tinto plc.



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## 11 Dividends continued

The number of shares on which Rio Tinto Limited dividends are based excludes those held by shareholders who have waived the rights to dividends. Employee share trusts waived dividends on 214,278 Rio Tinto Limited ordinary shares for the 2016 final dividend and on 274,899 shares for the 2017 interim dividend (2016: 681,818 shares for the 2015 final dividend and on 152,834 shares for the 2016 interim dividend; 2015: 727,676 shares for the 2014 final dividend and on 474,665 shares for the 2015 interim dividend).

In addition, the directors of Rio Tinto announced a final dividend of 180 cents per share on 7 February 2018. This is expected to result in payments of US\$3,158 million (Rio Tinto plc: US\$2,416 million, Rio Tinto Limited US\$742 million). The dividends will be paid on 12 April 2018

to Rio Tinto plc and Rio Tinto Limited shareholders on the register at the close of business on 2 March 2018.

The proposed Rio Tinto Limited dividends will be franked out of existing franking credits or out of franking credits arising from the payment of income tax during 2018.

The approximate amount of the Rio Tinto Limited consolidated tax group's retained profits and reserves that could be distributed as dividends and franked out of available credits that arose from net payments of income tax in respect of periods up to 31 December 2017 (after deducting franking credits expected to be utilised on the 2017 final dividend declared) is US\$8,542 million.

## 12 Goodwill

	2017 US\$m	2016 US\$m
<b>Net book value</b>		
At 1 January	951	892
Adjustment on currency translation	86	59
At 31 December	1,037	951
– cost	17,942	17,144
– accumulated impairment	(16,905)	(16,193)
At 1 January		
– cost	17,144	17,120
– accumulated impairment	(16,193)	(16,228)
At 31 December, goodwill has been allocated as follows:		
	2017 US\$m	2016 US\$m
<b>Net book value</b>		
Richards Bay Minerals	552	502
Pilbara	389	360
Dampier Salt	96	89
	1,037	951

### Impairment tests for goodwill

#### Richards Bay Minerals

Richards Bay Minerals' annual impairment review resulted in no impairment charge for 2017 (2016: no impairment charge). The recoverable amount has been assessed by reference to FVLCD, in line with the policy set out in note 1(i) and classified as level 3 under the fair value hierarchy. FVLCD was determined by estimating cash flows until the end of the life-of-mine plan including anticipated expansions. In arriving at FVLCD, a post-tax discount rate of 8.7 per cent (2016: 9.0 per cent) has been applied to the post-tax cash flows expressed in real terms.

The key assumptions to which the calculation of FVLCD for Richards Bay Minerals is most sensitive and the corresponding decrease in FVLCD are set out below:

	US\$ million
5% decrease in the titanium slag price	165
1% increase in the discount rate applied to post-tax cash flows	226
10% strengthening of the South African rand	603

Other assumptions include the long-term pig iron and zircon prices and operating costs. Future selling prices and operating costs have been estimated in line with the policy set out in note 1(i). The recoverable amount of the cash-generating unit exceeds the carrying value for each of these sensitivities applied in isolation.

#### Pilbara

The annual impairment review of the Pilbara cash-generating unit has been assessed by reference to FVLCD using discounted cash flows, which is in line with the policy set out in note 1(i) and is classified as level 3 under the fair value hierarchy. In arriving at FVLCD, a post-tax discount rate of 6.7 per cent (2016: 7.0 per cent) has been applied to the post-tax cash flows expressed in real terms. The recoverable amount was determined to be significantly in excess of carrying value, and there are not considered to be any reasonably possible changes in key assumptions that would cause the remaining goodwill to be impaired.

## 13 Intangible assets

	Exploration and evaluation <sup>(a)</sup> US\$m	Trademarks, patented and non-patented technology US\$m	Contract based intangible assets <sup>(b)</sup> US\$m	Other intangible assets US\$m	Total US\$m
<b>Year ended 31 December 2017</b>					
<b>Net book value</b>					
At 1 January 2017	711	78	2,103	387	3,279
Adjustment on currency translation	27	10	150	29	216
Expenditure during the year	57	-	-	65	122
Amortisation for the year <sup>(c)</sup>	-	(13)	(67)	(97)	(177)
Impairment charges <sup>(d)</sup>	(357)	-	-	-	(357)
Disposals, transfers and other movements <sup>(e)</sup>	(45)	-	2	79	36
At 31 December 2017	393	75	2,188	463	3,119
- cost	2,658	224	3,438	1,537	7,857
- accumulated amortisation and impairment	(2,265)	(149)	(1,250)	(1,074)	(4,738)
<b>Year ended 31 December 2016</b>					
<b>Net book value</b>					
At 1 January 2016	706	94	2,138	398	3,336
Adjustment on currency translation	14	(3)	47	-	58
Expenditure during the year	8	-	-	23	31
Amortisation for the year <sup>(c)</sup>	-	(13)	(87)	(127)	(227)
Impairment charges <sup>(d)</sup>	-	-	-	(1)	(1)
Disposals, transfers and other movements <sup>(e)</sup>	(17)	-	5	94	82
At 31 December 2016	711	78	2,103	387	3,279
- cost	2,588	199	3,897	1,329	8,013
- accumulated amortisation and impairment	(1,877)	(121)	(1,794)	(942)	(4,734)

(a) Exploration and evaluation assets' useful lives are not determined until transferred to property, plant and equipment.

(b) The Group benefits from certain intangible assets acquired with Alcan, including power supply contracts, customer contracts and water rights. The water rights are expected to contribute to the efficiency and cost effectiveness of operations for the foreseeable future: accordingly, these rights are considered to have indefinite lives and are not subject to amortisation but are tested annually for impairment. These water rights constitute the majority of the amounts in "Contract based intangible assets".

The remaining carrying value of the water rights (US\$1,824 million) as at 31 December 2017 relates wholly to the Quebec smelters cash-generating unit. The Quebec smelters cash-generating unit was tested for impairment by reference to FVLCD using discounted cash flows, which is in line with the policy set out in note 1(i). The recoverable amount of the Quebec smelters is classified as level 3 under the fair value hierarchy. In arriving at FVLCD, post-tax cash flows expressed in real terms have been estimated over the expected useful economic lives of the underlying smelting assets and discounted using a real post-tax discount rate of 6.7 per cent (2016: 7.0 per cent).

The recoverable amounts were determined to be significantly in excess of carrying value, and there are no reasonably possible changes in key assumptions that would cause the remaining water rights to be impaired.

(c) Finite life intangible assets are amortised over their useful economic lives on a straight-line or units of production basis, as appropriate. Where amortisation is calculated on a straight-line basis, the following useful lives have been determined:

*Trademarks, patented and non-patented technology*

Trademarks: 14 to 20 years

Patented and non-patented technology: ten to 20 years

*Contract-based intangible assets*

Power contracts / water rights: two to 45 years

Other purchase and customer contracts: five to 15 years

*Other intangible assets*

Internally generated intangible assets and computer software: two to five years

Other intangible assets: two to 20 years

(d) Impairment charges in 2017 relate to the full write-off of the Roughrider deposit in Canada (see note 6). Impairment charges in 2016 related to the full write-off of the intangible assets of the Argyle cash-generating unit (see note 6).

(e) Disposals, transfers and other movements for Exploration and Evaluation includes US\$34 million transferred to Mining Property in relation to the Kemano tunnel project following approval of the project. Disposals, transfers and other movements for exploration and evaluation in 2016 included the disposal of the Mount Pleasant thermal coal project in New South Wales, Australia.

## Notes to the 2017 financial statements

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### 13 Intangible assets continued

#### Exploration and evaluation expenditure

The charge for the year and the net amount of intangible assets capitalised during the year are as follows:

	2017 US\$m	2016 US\$m	2015 US\$m
Net expenditure in the year (net of proceeds of US\$3 million (2016: US\$208 million; 2015: US\$nil) on disposal of undeveloped projects)	(493)	(284)	(705)
Non-cash movements and non-cash proceeds on disposal of undeveloped projects	(24)	(177)	(15)
Amount capitalised during the year	57	8	152
Net charge for the year	(460)	(453)	(568)
<b>Reconciliation to income statement</b>			
Exploration and evaluation costs	(445)	(497)	(576)
Profit relating to interests in undeveloped projects	(15)	44	8
Net charge for the year	(460)	(453)	(568)

At 31 December 2017, a total of US\$420 million had been capitalised related to projects which had not yet been approved to proceed. This comprised evaluation costs of US\$393 million included above and US\$27 million of early works expenditure within property, plant and equipment (31 December 2016: a total of US\$726 million had been capitalised comprising: evaluation costs of US\$711 million included above and US\$15 million of early works expenditure within property, plant and equipment).

## 14 Property, plant and equipment

Year ended 31 December 2017	Note	Mining properties and leases <sup>(a)</sup> US\$m	Land and buildings <sup>(b)</sup> US\$m	Plant and equipment US\$m	Capital works in progress US\$m	Total US\$m
<b>Net book value</b>						
At 1 January 2017		10,848	7,316	35,706	4,985	58,855
Adjustment on currency translation <sup>(c)</sup>		495	461	2,242	183	3,381
Adjustments to capitalised closure costs	26	710	-	-	-	710
Interest capitalised <sup>(d)</sup>	8	-	-	-	224	224
Additions		230	41	646	3,834	4,751
Depreciation for the year <sup>(a) (e)</sup>		(673)	(403)	(3,122)	-	(4,198)
Impairment charges, net of reversals <sup>(f)</sup>		(304)	(2)	(128)	(1)	(435)
Disposals		-	(57)	(40)	(26)	(123)
Subsidiaries no longer consolidated <sup>(g)</sup>		(211)	(95)	(417)	(26)	(749)
Transfers and other movements <sup>(h)</sup>		393	115	1,398	(2,229)	(323)
At 31 December 2017		11,488	7,376	36,285	6,944	62,093
– cost		24,691	12,029	71,903	7,266	115,889
– accumulated depreciation and impairment		(13,203)	(4,653)	(35,618)	(322)	(53,796)
Non-current assets held under finance leases <sup>(i)</sup>		-	-	37	-	37
Non-current assets pledged as security <sup>(j)</sup>		3,307	410	5,308	3,278	12,303
<b>Year ended 31 December 2016</b>						
	Note	Mining properties and leases <sup>(a)</sup> US\$m	Land and buildings <sup>(b)</sup> US\$m	Plant and equipment US\$m	Capital works in progress US\$m	Total US\$m
<b>Net book value</b>						
At 1 January 2016		11,146	7,571	37,900	4,440	61,057
Adjustment on currency translation		137	62	138	16	353
Adjustments to capitalised closure costs	26	(123)	-	-	-	(123)
Interest capitalised <sup>(d)</sup>	8	-	-	-	111	111
Additions		237	47	537	2,307	3,128
Depreciation for the year <sup>(a) (e)</sup>		(760)	(429)	(3,378)	-	(4,567)
Impairment charges, net of reversals <sup>(f)</sup>		(130)	-	(112)	(6)	(248)
Disposals		(3)	(169)	(86)	-	(258)
Subsidiaries no longer consolidated		(40)	(88)	(217)	(14)	(359)
Transfers and other movements <sup>(h)</sup>		384	322	924	(1,869)	(239)
At 31 December 2016		10,848	7,316	35,706	4,985	58,855
– cost		22,989	11,444	68,030	5,374	107,837
– accumulated depreciation and impairment		(12,141)	(4,128)	(32,324)	(389)	(48,982)
Non-current assets held under finance leases <sup>(i)</sup>		-	-	38	-	38
Non-current assets pledged as security <sup>(j)</sup>		3,310	423	5,332	2,104	11,169

- (a) At 31 December 2017, the net book value of capitalised production phase stripping costs totalled US\$1,815 million, with US\$1,374 million within Property, plant and equipment and a further US\$441 million within Investments in equity accounted units (2016 total of US\$1,967 million with US\$1,511 million in Property, plant and equipment and a further US\$456 million within Investments in equity accounted units). During the year capitalisation of US\$327 million was partly offset by depreciation of US\$299 million (including amounts recorded within equity accounted units). Depreciation of deferred stripping costs in respect of subsidiaries of US\$194 million (2016: US\$203 million; 2015: US\$173 million) is included within "Depreciation for the year".
- (b) At 31 December 2017, the net book value amount for land and buildings includes freehold US\$7,294 million (2016: US\$7,276 million) and long leasehold US\$82 million (2016: US\$40 million).
- (c) Adjustment on currency translation represents the impact of exchange differences arising on the translation of the assets of entities with functional currencies other than the US dollar, recognised directly in the currency translation reserve. The adjustment in 2017 arose from the weakening of the US dollar against other currencies.
- (d) Interest is capitalised at a rate based on the Group or relevant subsidiary's cost of borrowing or at the rate on project specific debt, where applicable. The Group's average borrowing rate used for capitalisation of interest is 4.45 per cent (2016: 4.2 per cent).
- (e) Assets within operations for which production is not expected to fluctuate significantly from one year to another or which have a physical life shorter than the related mine are depreciated on a straight-line basis as follows:  
*Land and buildings*  
Land: not depreciated  
Buildings: five to 50 years  
*Plant and equipment*  
Other plant and equipment: three to 50 years  
Power assets: 25 to 50 years  
Capital work in progress: not depreciated
- (f) During 2017, impairment charges primarily related to Argyle Diamonds and Rössing Uranium (see note 6). During 2016, impairment charges primarily related to Argyle Diamonds.
- (g) During 2017, "Subsidiaries no longer consolidated" relates primarily to the disposal of Coal & Allied Industries Limited which completed on 1 September 2017 (see note 37).
- (h) "Transfers and other movements" includes reclassifications between categories, including transfers to assets of disposal groups held for sale.
- (i) The finance leases under which these assets are held are disclosed in note 23.
- (j) Excludes assets held under finance leases. Non-current assets pledged as security represent amounts pledged as collateral against US\$4,677 million (2016: US\$4,783 million) of loans, which are included in note 22.

# Notes to the 2017 financial statements

continued

## 15 Investments in equity accounted units

	2017 US\$m	2016 US\$m
<b>Summary balance sheet (Rio Tinto share)</b>		
Rio Tinto's share of assets		
– Non-current assets	5,913	6,686
– Current assets	990	832
	6,903	7,518
Rio Tinto's share of liabilities		
– Current liabilities	(654)	(612)
– Non-current liabilities	(1,763)	(1,887)
	(2,417)	(2,499)
Rio Tinto's share of net assets	4,486	5,019

Further details of investments in equity accounted units are set out in notes 35 and 36.

At 31 December 2017 and 2016, the Group had no investments in equity accounted units with shares listed on recognised stock exchanges.

At 31 December 2017, net debt of equity accounted units, excluding amounts due to Rio Tinto, was US\$1,244 million (2016: US\$1,338 million).

## 16 Inventories

	2017 US\$m	2016 US\$m
Raw materials and purchased components	648	470
Consumable stores	875	840
Work in progress	1,082	970
Finished goods and goods for resale	1,027	800
	3,632	3,080
Comprising:		
Expected to be used within one year	3,472	2,937
Expected to be used after more than one year	160	143
	3,632	3,080

During 2017, the Group recognised a net inventory write-back of US\$7 million. This comprised a US\$81 million write-back of amounts previously written down due to an increase in realisable values, offset by inventory write offs of US\$74 million. In 2016, inventory write-downs, net of reversals, amounted to US\$51 million and in 2015 US\$192 million.

At 31 December 2017, US\$611 million (2016: US\$564 million) of inventories were pledged as security for liabilities.

## 17 Deferred taxation

	2017 US\$m	2016 US\$m
At 1 January - deferred tax asset	(607)	(23)
Adjustment on currency translation	53	58
Charged/(credited) to the income statement	695	(548)
Charged/(credited) to statement of comprehensive income <sup>(a)</sup>	153	(33)
Disposals	-	(8)
Other movements <sup>(b)</sup>	(61)	(53)
At 31 December - deferred tax liability/(asset)	233	(607)
Comprising:		
– deferred tax liabilities <sup>(c) (d)</sup>	3,628	3,121
– deferred tax assets <sup>(c) (e) (f)</sup>	(3,395)	(3,728)



Deferred tax balances for which there is a right of offset within the same tax jurisdiction are presented net on the face of the balance sheet as permitted by IAS 12. The closing deferred tax liabilities and assets, prior to this offsetting of balances, are shown below.

	Total 2017 US\$m	Total 2016 US\$m
<b>Deferred tax liabilities arising from:</b>		
Capital allowances	5,208	4,937
Unremitted earnings <sup>(d)</sup>	588	659
Capitalised interest	391	403
Unrealised exchange gains	31	40
Other temporary differences	222	301
	<b>6,440</b>	<b>6,340</b>
<b>Deferred tax assets arising from:</b>		
Tax losses <sup>(e)</sup>	(2,282)	(2,246)
Provisions	(1,731)	(2,040)
Capital allowances	(579)	(883)
Post-retirement benefits	(616)	(888)
Unrealised exchange losses	(317)	(342)
Other temporary differences	(682)	(548)
	<b>(6,207)</b>	<b>(6,947)</b>
<b>Charged/(credited) to the income statement</b>		
Unrealised exchange losses	36	156
Tax losses	12	(122)
Provisions	451	(279)
Capital allowances	278	(441)
Tax on unremitted earnings	4	(6)
Post-retirement benefits	149	(6)
Other temporary differences	(235)	150
	<b>695</b>	<b>(548)</b>

- (a) The amounts charged directly to the Statement of comprehensive income include provisions for tax on exchange differences on intragroup loans qualifying for reporting as part of the net investment in subsidiaries, on cash flow hedges and on actuarial gains and losses on pension schemes and on post-retirement healthcare plans.
- (b) "Other movements" include deferred tax relating to tax payable recognised by subsidiary holding companies on the profits of the equity accounted units to which it relates and, in 2016, amounts credited directly to the statement of changes in equity relating to the restructure of Coal & Allied Industries Limited.
- (c) The deferred tax liability of US\$3,628 million (2016: US\$3,121 million) includes US\$3,615 million (2016: US\$3,109 million) due in more than one year. The deferred tax asset of US\$3,395 million (2016: US\$3,728 million) includes US\$3,386 million (2016: US\$3,721 million) receivable in more than one year. All amounts are shown as non-current on the face of the balance sheet as required by IAS 12.
- (d) Deferred tax is not recognised on the unremitted earnings of subsidiaries and joint ventures totalling US\$3,242 million (2016: US\$2,523 million) where the Group is able to control the timing of the remittance and it is probable that there will be no remittance in the foreseeable future. If these earnings were remitted, tax of US\$131 million (2016: US\$125 million) would be payable.
- (e) There is a limited time period, the shortest of which is six years, for the recovery of US\$1,679 million (2016: US\$1,309 million) of tax losses and other tax assets which have been recognised as deferred tax assets in the financial statements.
- (f) Recognised and unrecognised deferred tax assets are shown in the table below and totalled US\$7,071 million at 31 December 2017 (2016: US\$7,170 million). Of this total, US\$3,395 million has been recognised as deferred tax assets (2016: US\$3,728 million), leaving US\$3,676 million (2016: US\$3,442 million) unrecognised, as recovery is not considered probable.

# Notes to the 2017 financial statements

continued

## 17 Deferred taxation continued

The recognised amounts do not include deferred tax assets that have been netted off against deferred tax liabilities.

	Recognised		Unrecognised	
	2017 US\$m	2016 US\$m	2017 US\$m	2016 US\$m
At 31 December				
France	-	330	1,163	1,077
Canada	546	470	674	707
US	877	1,239	7	6
Australia	1,055	1,072	257	446
Mongolia <sup>(a)</sup>	631	441	61	-
Other <sup>(b)</sup>	286	176	1,514	1,206
<b>Total</b>	<b>3,395</b>	<b>3,728</b>	<b>3,676</b>	<b>3,442</b>

- (a) Deferred tax assets in Mongolia include US\$432 million (2016: US\$365 million) from tax losses that expire if not recovered against taxable profits within eight years. Tax losses have been calculated in accordance with the provisions of the Oyu Tolgoi Investment Agreement and Mongolian laws. Recovery of the recognised deferred tax assets is expected to commence from 2023 based on projected cash flows in the latest life-of-mine plan, which includes delivery of the underground project. Tax law in Mongolia and its interpretation by the tax authority has been, and is expected to continue to be, subject to change. Such future changes could have a material impact on the amount and period of recovery of these deferred tax assets.
- (b) US\$777 million (2016: US\$964 million) of the unrecognised assets relate to realised or unrealised capital losses, the recovery of which depends on the existence of capital gains in future years. There is a time limit, the shortest of which is one year, for the recovery of US\$250 million of the unrecognised assets (2016: US\$105 million).

## 18 Trade and other receivables

	Non-current 2017 US\$m	Current 2017 US\$m	Total 2017 US\$m	Non-current 2016 US\$m	Current 2016 US\$m	Total 2016 US\$m
Trade receivables <sup>(a)</sup>	1	2,314	2,315	-	2,283	2,283
Other receivables	526	820	1,346	347	880	1,227
Prepayment of tolling charges to jointly controlled entities <sup>(b)</sup>	269	-	269	267	-	267
Pension surpluses (note 44)	871	-	871	625	-	625
Amounts due from equity accounted units	-	30	30	-	31	31
Other prepayments	57	279	336	103	266	369
	<b>1,724</b>	<b>3,443</b>	<b>5,167</b>	<b>1,342</b>	<b>3,460</b>	<b>4,802</b>

- (a) At 31 December 2017, trade and other receivables are stated net of provisions for doubtful debts of US\$55 million (2016: US\$66 million). Amounts of US\$38 million were impaired during the year, and US\$11 million of unused provision reversed.
- (b) These prepayments will be charged to Group operating costs as processing takes place.

There is no material element of trade and other receivables that is interest-bearing.

The fair value of current trade and other receivables and the majority of amounts classified as non-current trade and other receivables approximates to their carrying value.

As of 31 December 2017, trade receivables of US\$145 million (2016: US\$230 million) were past due but not impaired. The ageing of these receivables is as follows:

	2017 US\$m	2016 US\$m
less than 30 days overdue	122	196
between 30 and 60 days overdue	3	4
between 60 and 90 days overdue	17	7
more than 90 days overdue	3	23
	<b>145</b>	<b>230</b>

These relate to a number of customers for whom there is no recent history of default.

With respect to trade and other receivables that are neither impaired nor past due, there are no indications as of the reporting date that the debtors will not meet their payment obligations.

## 19 Assets and liabilities held for sale

As at 31 December 2017, assets and liabilities held for sale includes Rio Tinto's interest in the Dunkerque aluminium smelter (US\$355 million) and certain other separate assets.

At 31 December 2016, assets and liabilities held for sale included Blair Athol and certain other separate assets.

## 20 Other financial assets (including non-quasi equity loans to equity accounted units)

	Non-current 2017 US\$m	Current 2017 US\$m	Total 2017 US\$m	Non-current 2016 US\$m	Current 2016 US\$m	Total 2016 US\$m
Derivative financial instruments	238	29	267	508	24	532
Equity shares and quoted funds	45	91	136	73	83	156
Other investments, including loans <sup>(a)</sup>	188	964	1,152	202	252	454
Loans to equity accounted units	39	-	39	39	-	39
	510	1,084	1,594	822	359	1,181

(a) Current "Other investments, including loans" comprise US\$958 million (2016: US\$250 million) of highly liquid financial assets held in managed investment funds classified as held for trading.

Detailed information relating to other financial assets is given in note 30.

## 21 Cash and cash equivalents

	Note	2017 US\$m	2016 US\$m
Cash at bank and in hand		1,035	956
Money market funds and other cash equivalents		9,515	7,245
<b>Balance per Group balance sheet</b>		<b>10,550</b>	<b>8,201</b>
Bank overdrafts repayable on demand (unsecured)	22	(3)	(12)
<b>Balance per Group cash flow statement</b>		<b>10,547</b>	<b>8,189</b>

Cash and cash equivalents of US\$290 million (2016: US\$358 million) are held in countries where there are restrictions on remittances. Of this balance, US\$158 million (2016: US\$252 million) could be used to repay subsidiaries' third-party borrowings.

There are also restrictions on a further US\$1,089 million (2016: US\$1,051 million) of cash and cash equivalents, the majority of which

is held by partially owned subsidiaries and is not available for use in the wider Group due to legal and contractual restrictions currently in place. Of this balance US\$703 million (2016: US\$766 million) could be used to repay subsidiaries' third-party borrowings.

# Notes to the 2017 financial statements

continued

## 22 Borrowings and other financial liabilities

		Non-current 2017 US\$m	Current 2017 US\$m	Total 2017 US\$m	Non-current 2016 US\$m	Current 2016 US\$m	Total 2016 US\$m
<b>Borrowings at 31 December</b>	<b>Note</b>						
Rio Tinto Finance (USA) Limited Bonds 9.0% 2019 <sup>(a)</sup>		-	-	-	1,235	-	1,235
Rio Tinto Finance (USA) Limited Bonds 3.5% 2020		-	-	-	464	-	464
Rio Tinto Finance plc Euro Bonds 2.0% due 2020 <sup>(a) (b)</sup>		921	-	921	817	-	817
Rio Tinto Finance (USA) Limited Bonds 4.125% 2021 <sup>(a)</sup>		428	-	428	573	-	573
Rio Tinto Finance (USA) Limited Bonds 3.750% 2021 <sup>(a)</sup>		347	-	347	621	-	621
Rio Tinto Finance (USA) plc Bonds 3.5% 2022 <sup>(a)</sup>		227	-	227	459	-	459
Rio Tinto Finance (USA) plc Bonds 2.875% 2022 <sup>(a)</sup>		377	-	377	509	-	509
Rio Tinto Finance plc Euro Bonds 2.875% due 2024 <sup>(a) (b)</sup>		644	-	644	577	-	577
Rio Tinto Finance (USA) Limited Bonds 3.75% 2025 <sup>(a)</sup>		1,192	-	1,192	1,195	-	1,195
Rio Tinto Finance (USA) Limited Bonds 7.125% 2028 <sup>(a)</sup>		965	-	965	980	-	980
Alcan Inc. Debentures 7.25% due 2028		105	-	105	105	-	105
Rio Tinto Finance plc Sterling Bonds 4.0% due 2029 <sup>(a) (b)</sup>		669	-	669	609	-	609
Alcan Inc. Debentures 7.25% due 2031		422	-	422	425	-	425
Alcan Inc. Global Notes 6.125% due 2033		740	-	740	741	-	741
Alcan Inc. Global Notes 5.75% due 2035		287	-	287	287	-	287
Rio Tinto Finance (USA) Limited Bonds 5.2% 2040 <sup>(a)</sup>		1,102	-	1,102	1,103	-	1,103
Rio Tinto Finance (USA) plc Bonds 4.75% 2042 <sup>(a)</sup>		467	-	467	466	-	466
Rio Tinto Finance (USA) plc Bonds 4.125% 2042 <sup>(a)</sup>		691	-	691	690	-	690
Oyu Tolgoi LLC Secured Loan due 2027 <sup>(c)</sup>		2,262	-	2,262	2,259	-	2,259
Oyu Tolgoi LLC Secured Loan due 2028 <sup>(c)</sup>		255	-	255	247	-	247
Oyu Tolgoi LLC Secured Loan due 2029 <sup>(c)</sup>		869	-	869	866	-	866
Oyu Tolgoi LLC Secured Loan due 2030 <sup>(c)</sup>		761	-	761	754	-	754
Loans from equity accounting units		-	31	31	-	49	49
Other secured loans		451	79	530	530	127	657
Other unsecured loans		393	435	828	377	508	885
Finance leases	23	49	4	53	24	21	45
Bank overdrafts	21	-	3	3	-	12	12
<b>Total borrowings including overdrafts <sup>(d)</sup></b>		<b>14,624</b>	<b>552</b>	<b>15,176</b>	<b>16,913</b>	<b>717</b>	<b>17,630</b>

- (a) These borrowings are subject to the hedging arrangements summarised below. Fair value hedge accounting has been applied except for the Rio Tinto Finance plc Sterling Bonds 4.0% due 2029 which has cash flow hedge accounting applied.
- (b) Rio Tinto has a US\$10 billion (2016: US\$10 billion) European Debt Issuance Programme against which the cumulative amount utilised was US\$2.2 billion equivalent at 31 December 2017 (2016: US\$1.9 billion). The carrying value of these bonds after hedge accounting adjustments amounted to US\$2.2 billion (2016: US\$ 2.0 billion) in aggregate.
- (c) These borrowings relate to the Oyu Tolgoi LLC project finance facility. The project finance facility provides for interest-only payments for the first five years followed by minimum repayments according to a stepped amortisation schedule for the remaining life of the facility. The due dates stated represent the final repayment date. Further details are provided in note 30.
- (d) The Group's borrowings of US\$15.2 billion (2016: US\$17.6 billion) include US\$2.7 billion (2016: US\$2.8 billion) which relates to subsidiary entity borrowings that are without recourse to the Group, and US\$4.7 billion (2016: US\$4.8 billion) which is subject to various financial and general covenants with which the respective borrowers were in compliance as at 31 December 2017.

	Non-current 2017 US\$m	Current 2017 US\$m	Total 2017 US\$m	Non-current 2016 US\$m	Current 2016 US\$m	Total 2016 US\$m
<b>Other financial liabilities</b>						
Derivative financial instruments	481	50	531	517	6	523
Other financial liabilities	43	302	345	40	199	239
<b>Total other financial liabilities</b>	<b>524</b>	<b>352</b>	<b>876</b>	<b>557</b>	<b>205</b>	<b>762</b>
Total borrowings including overdrafts (as above)	14,624	552	15,176	16,913	717	17,630
<b>Total borrowings and other financial liabilities</b>	<b>15,148</b>	<b>904</b>	<b>16,052</b>	<b>17,470</b>	<b>922</b>	<b>18,392</b>

### Swap arrangements

At 31 December 2017, US\$5.7 billion (2016: US\$7.7 billion) US dollar notional of the fixed rate US dollar borrowings were swapped to floating US dollar rates and US\$1.5 billion (2016: US\$1.3 billion) US dollar notional equivalent of Euro borrowings were fully swapped to floating US dollar rates.

Hedge accounting has been applied to the full notional of items marked (a) in the above table except for: US\$75 million (2016: US\$75 million) of the Rio Tinto Finance (USA) Limited Bonds 7.125% due 2028. This portion is held at amortised cost.

The Rio Tinto Finance plc Sterling Bond 4.0% due 2029 at US\$0.7 billion (2016: US\$0.6 billion) US dollar notional equivalent of sterling was fully swapped to US dollar notional and fixed US dollar rates. Cash flow hedging was applied to the annual interest coupons and principal of this bond. The hedge was fully effective in 2017 and 2016 financial years.

The fair value of interest rate and cross currency interest rate swaps at 31 December 2017 was US\$99 million (2016: US\$108 million) asset and US\$276 million (2016: US\$516 million) liability, respectively. These are included within "Other financial assets" and "Other financial liabilities" in the balance sheet.

Details of the major interest rate and cross currency interest rate swaps are shown in note 30.

## 23 Capitalised finance leases

	Note	2017 US\$m	2016 US\$m
<b>Present value of minimum lease payments</b>			
Total minimum lease payments		57	45
Effect of discounting		(4)	-
	22	53	45
<b>Payments under capitalised finance leases</b>			
Due within 1 year		4	21
Between 1 and 3 years		14	8
Between 3 and 5 years		28	6
More than 5 years		11	10
		57	45

## 24 Consolidated net debt

	Financing liabilities <sup>(b)</sup>		Other assets			
	Borrowings (including finance leases) excluding Overdrafts <sup>(a)</sup>	Debt-related derivatives (included in Other financial assets/ liabilities)	Cash/ Overdrafts <sup>(b)</sup>	Other investments <sup>(c)</sup>	2017 Net debt US\$m	2016 Net debt US\$m
<b>Year ended 31 December</b>						
<b>Analysis of changes in consolidated net debt</b>						
Opening balance	(17,618)	(408)	8,189	250	(9,587)	(13,783)
Foreign exchange adjustment	(303)	245	(12)	-	(70)	90
Cash movements excluding exchange movements	2,777	7	2,370	705	5,859	3,915
Other non-cash movements	(29)	(21)	-	3	(47)	191
<b>Closing balance</b>	<b>(15,173)</b>	<b>(177)</b>	<b>10,547</b>	<b>958</b>	<b>(3,845)</b>	<b>(9,587)</b>

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Exchange gains/(losses) on US dollar net debt and intragroup balances</b>			
Exchange gains/(losses) on US dollar net debt	554	160	(1,578)
Exchange (losses)/gains on intragroup balances	(1,154)	449	(1,961)
Exchange (losses)/gains on settlement of dividends	(1)	2	1
<b>(Charged)/credited to income statement</b>	<b>(601)</b>	<b>611</b>	<b>(3,538)</b>

- (a) Borrowings (including finance leases) at 31 December 2017 differ from total borrowings on the balance sheet as they exclude overdrafts of US\$3 million (31 December 2016: US\$12 million), other current financial liabilities of US\$352 million (31 December 2016: US\$205 million) and other non-current financial liabilities US\$524 million (31 December 2016: US\$557 million).  
(b) Closing cash/overdrafts at 31 December 2017 differ from cash and cash equivalents on the balance sheet as they include overdrafts of US\$3 million which have been classified as a financial liability (31 December 2016: US\$12 million).  
(c) Other investments comprise US\$958 million (2016: US\$250 million) of highly liquid financial assets held in managed investment funds classified as held for trading.

Further information relating to the currency and interest rate exposures arising from net debt and related derivatives is given in note 30.

## 25 Trade and other payables

	Non-current 2017 US\$m	Current 2017 US\$m	Total 2017 US\$m	Non-current 2016 US\$m	Current 2016 US\$m	Total 2016 US\$m
Trade payables	-	3,255	3,255	-	2,787	2,787
Deferred income	246	246	492	234	197	431
Accruals	13	1,347	1,360	1	973	974
Other payables	352	964	1,316	309	1,072	1,381
Employee entitlements	-	734	734	-	720	720
Royalties and mining taxes	4	492	496	3	516	519
Amounts owed to equity accounted units	156	19	175	151	92	243
Government grants deferred	85	4	89	91	4	95
	856	7,061	7,917	789	6,361	7,150

The fair value of trade payables and financial instruments within other payables approximates their carrying value.



# Notes to the 2017 financial statements

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## 26 Provisions (including post-retirement benefits)

	Note	Pensions and post-retirement healthcare <sup>(a)</sup> US\$m	Other employee entitlements <sup>(b)</sup> US\$m	Close-down and restoration/ environmental <sup>(c)</sup> US\$m	Other US\$m	Total 2017 US\$m	Total 2016 US\$m
At 1 January		3,167	450	8,722	1,455	13,794	13,066
Adjustment on currency translation		200	34	502	110	846	(56)
Adjustments to mining properties	14						
– changes in estimate		-	-	710	-	710	(123)
Charged/(credited) to profit:							
– increases to existing and new provisions		233	96	230	238	797	1,630
– unused amounts reversed		-	(37)	(61)	(89)	(187)	(239)
– exchange (gains)/losses on provisions		-	-	(40)	(43)	(83)	13
– amortisation of discount		-	-	348	35	383	338
Utilised in year		(339)	(84)	(268)	(362)	(1,053)	(997)
Actuarial losses recognised in equity		121	-	-	-	121	152
Subsidiaries no longer consolidated <sup>(d)</sup>		-	(69)	(102)	(451)	(622)	(63)
Transfers to assets held for sale		(13)	(4)	(47)	-	(64)	(4)
Transfers and other movements		1	3	(11)	7	-	77
<b>At 31 December</b>		<b>3,370</b>	<b>389</b>	<b>9,983</b>	<b>900</b>	<b>14,642</b>	<b>13,794</b>
<b>Balance sheet analysis:</b>							
Current		84	277	634	280	1,275	1,315
Non-current		3,286	112	9,349	620	13,367	12,479
<b>Total</b>		<b>3,370</b>	<b>389</b>	<b>9,983</b>	<b>900</b>	<b>14,642</b>	<b>13,794</b>

(a) The main assumptions used to determine the provision for pensions and post-retirement healthcare, and other information, including the expected level of future funding payments in respect of those arrangements, are given in note 44.

(b) The provision for other employee entitlements includes a provision for long service leave of US\$292 million (2016: US\$317 million), based on the relevant entitlements in certain Group operations and includes US\$24 million (2016: US\$59 million) of provision for redundancy and severance payments.

(c) The Group's policy on close-down and restoration costs is described in note 1(k) and in paragraph (iv) under "Critical accounting policies and estimates" on pages 126 and 129. Close-down and restoration costs are a normal consequence of mining, and the majority of close-down and restoration expenditure is incurred in the years following closure of the mine, refinery or smelter. Remaining lives of operations and infrastructure range from one to over 50 years with an average for all sites, weighted by present closure obligation, of around 20 years (2016: 16 years). Although the ultimate cost to be incurred is uncertain, the Group's businesses estimate their respective costs based on current restoration standards and techniques. Provisions of US\$9,983 million (2016: US\$8,722 million) for close-down and restoration costs and environmental clean-up obligations are based on risk-adjusted cash flows. These estimates have been discounted to their present value at a real risk free rate of 2 per cent per annum, based on an estimate of the long-term, risk-free, pre-tax cost of borrowing. If the risk free rate was decreased by 0.5 per cent then the provision would be US\$1,102 million higher.

Non-current provisions for close-down and restoration/environmental expenditure include amounts relating to environmental clean-up of US\$336 million (2016: US\$366 million) expected to take place between one and five years from the balance sheet date, and US\$839 million (2016: US\$727 million) expected to take place later than five years after the balance sheet date. Close-down and restoration/environmental liabilities at 31 December 2017 have not been adjusted for amounts of US\$75 million (2016: US\$110 million) relating to insurance recoveries and other financial assets held for the purposes of meeting these obligations.

(d) "Subsidiaries no longer consolidated" relates primarily to the disposal of Coal & Allied Industries Limited, which completed on 1 September 2017 (see note 37).

## 27 Share capital – Rio Tinto plc

	2017 Number (million)	2016 Number (million)	2015 Number (million)	2017 US\$m	2016 US\$m	2015 US\$m
<b>Issued and fully paid up share capital of 10p each</b>						
At 1 January	1,384.520	1,384.487	1,425.378	224	224	230
Ordinary shares issued <sup>(a) (c)</sup>	0.026	0.033	0.022	-	-	-
Shares purchased and cancelled <sup>(b)</sup>	(32.937)	-	(40.913)	(4)	-	(6)
At 31 December	1,351.609	1,384.520	1,384.487	220	224	224
<b>Shares held by public</b>						
At 1 January	1,374.822	1,374.046	1,414.147			
Shares reissued from treasury <sup>(a)</sup>	0.147	0.743	0.790			
Shares purchased and cancelled <sup>(b)</sup>	(32.937)	-	(40.913)			
Ordinary shares issued <sup>(a) (c)</sup>	0.026	0.033	0.022			
At 31 December	1,342.058	1,374.822	1,374.046			
Shares held in treasury	9.551	9.698	10.441			
Shares held by public	1,342.058	1,374.822	1,374.046			
<b>Total share capital</b>	1,351.609	1,384.520	1,384.487			
<b>Other share classes</b>						
Special Voting Share of 10p each <sup>(d)</sup>	1 only	1 only	1 only			
DLC Dividend Share of 10p each <sup>(d)</sup>	1 only	1 only	1 only			
Equalisation Share of 10p each <sup>(d)</sup>	1 only	1 only	1 only			

- (a) 26,241 ordinary shares were issued in 2017 under the Global Employee Share Plan (GESP). 147,126 ordinary shares were reissued from treasury during the year resulting from the vesting of awards and the exercise of options under Rio Tinto plc employee share-based payment plans, with exercise prices and market values between £28.63 and £37.78 per share (2016: 33,210 ordinary shares were issued under the GESP, and 743,380 ordinary shares were reissued from treasury with exercise prices and market values between £16.53 and £32.23 per share; 2015: 21,709 ordinary shares were issued under the GESP, and 789,887 ordinary shares reissued from treasury with exercise prices and market values between £15.09 and £32.37 per share).
- (b) The authority for the Company to buy back its ordinary shares was renewed at the 2017 annual general meeting. 32,937,109 shares were bought back and cancelled in 2017 under the on-market buy-back programme. No shares were bought back in 2016. 40,912,881 shares were bought back and cancelled in 2015 under the on-market buy-back programme.
- (c) The aggregate consideration for new shares issued under the GESP was US\$1.0 million (2016: US\$0.9 million; 2015: US\$0.9 million). The difference between the nominal value and the issue price of the shares issued was credited to the share premium account. The aggregate consideration received for treasury shares reissued was US\$2 million (2016: US\$4 million; 2015: US\$13 million). No new shares were issued as a result of the exercise of options under Rio Tinto plc employee share-based payment plans in 2017, 2016 and 2015.
- (d) The "Special Voting Share" was issued to facilitate the joint voting by shareholders of Rio Tinto plc and Rio Tinto Limited on Joint Decisions, following the DLC Merger. The "DLC Dividend Share" was issued to facilitate the efficient management of funds within the DLC structure. Directors have the ability to issue an Equalisation Share if that is required under the terms of the DLC Merger Sharing Agreement.

During 2017, US\$38.9 million of shares and ADRs (2016: US\$40.1 million; 2015: US\$34.1 million) were purchased by employee share ownership trusts on behalf of Rio Tinto plc to satisfy future share options and awards as they vest. At 31 December 2017, 835,062 shares and 38,849 ADRs were held in the employee share ownership trusts on behalf of Rio Tinto plc.

Information relating to share options and other share-based incentive schemes is given in note 43.

## 28 Share capital – Rio Tinto Limited

	2017 Number (million)	2016 Number (million)	2015 Number (million)	2017 US\$m	2016 US\$m	2015 US\$m
<b>Issued and fully paid up share capital</b>						
At 1 January	424.19	424.19	435.76	3,915	3,950	4,535
Adjustment on currency translation				310	(35)	(503)
Ordinary shares purchased and cancelled <sup>(a) (b)</sup>	(11.78)	-	(11.57)	(85)	-	(82)
At 31 December	412.41	424.19	424.19	4,140	3,915	3,950
– Special Voting Share <sup>(c)</sup>	1 only	1 only	1 only			
– DLC Dividend Share <sup>(c)</sup>	1 only	1 only	1 only			
<b>Total share capital</b>	412.41	424.19	424.19			

- (a) In November 2017, 11,778,064 Rio Tinto Limited ordinary shares were purchased at A\$63.67 per share and cancelled under an off-market share buy-back programme carried out pursuant to the shareholder approval granted at Rio Tinto Limited's 2017 annual general meeting for off-market and on-market buy-backs of up to 42.4 million Rio Tinto Limited ordinary shares.
- (b) In April 2015, 11,566,308 Rio Tinto Limited ordinary shares were purchased at A\$48.44 per share and cancelled under an off-market share buy-back programme carried out pursuant to the shareholder approval granted at Rio Tinto Limited's 2015 annual general meeting for off-market and on-market buy-backs of up to 43.5 million Rio Tinto Limited ordinary shares.
- (c) The "Special Voting Share" was issued to facilitate the joint voting by shareholders of Rio Tinto Limited and Rio Tinto plc on Joint Decisions following the DLC Merger. The "DLC Dividend Share" was issued to facilitate the efficient management of funds within the DLC structure. Directors have the ability to issue an Equalisation Share if that is required under the terms of the DLC Merger Sharing Agreement.

During 2017, US\$37.5 million of shares (2016: US\$48.5 million; 2015: US\$37.0 million) were purchased by employee share ownership trusts on behalf of Rio Tinto Limited to satisfy future share options and awards as they vest. At 31 December 2017, 757,450 shares were held in the employee share ownership trusts on behalf of Rio Tinto Limited.

Information relating to share options and other share-based incentive schemes is given in note 43.

# Notes to the 2017 financial statements

continued

## 29 Other reserves and retained earnings

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Capital redemption reserve <sup>(a)</sup></b>			
At 1 January	34	34	28
Own shares purchased and cancelled	4	-	6
At 31 December	38	34	34
<b>Hedging reserves</b>			
At 1 January	32	-	12
Parent and subsidiaries' net cash flow hedge fair value gains/(losses)	62	(88)	(41)
Parent and subsidiaries' net cash flow hedge (gains)/losses transferred to the income statement	(62)	116	32
Tax on the above	-	4	(3)
At 31 December	32	32	-
<b>Available for sale revaluation reserves</b>			
At 1 January	(126)	(139)	(130)
Gains/(losses) on available for sale securities	19	13	(16)
Losses on available for sale securities transferred to the income statement	6	-	7
Tax on the above	(1)	-	-
Transfers and other movements	122	-	-
At 31 December	20	(126)	(139)
<b>Other reserves <sup>(b)</sup></b>			
At 1 January	11,861	11,735	11,704
Change in equity interest held by Rio Tinto	-	108	-
Own shares purchased from Rio Tinto Limited shareholders to satisfy share options	(64)	(43)	(25)
Employee share options: value of services	31	58	58
Deferred tax on share options	10	3	(2)
Companies no longer consolidated	(124)	-	-
At 31 December	11,714	11,861	11,735
<b>Foreign currency translation reserve <sup>(c)</sup></b>			
At 1 January	(2,585)	(2,491)	(492)
Parent and subsidiaries currency translation and exchange adjustments	2,942	(204)	(1,940)
Equity accounted units currency translation adjustments	34	11	(57)
Currency translation reclassified on disposal	78	99	(2)
Transfers and other movements	11	-	-
At 31 December	480	(2,585)	(2,491)
<b>Total other reserves per balance sheet</b>	<b>12,284</b>	<b>9,216</b>	<b>9,139</b>

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Retained earnings <sup>(d)</sup></b>			
At 1 January	21,631	19,736	26,110
Parent and subsidiaries' profit/(loss) for the year	8,423	4,298	(1,218)
Equity accounted units' profit after tax for the year	339	319	352
Actuarial gains/(losses) <sup>(e)</sup>	1	(94)	616
Tax relating to components of other comprehensive income	(150)	30	(173)
Total comprehensive income/(loss) for the year	8,613	4,553	(423)
Share buy-back programme	(2,312)	-	(1,946)
Dividends paid	(4,250)	(2,725)	(4,076)
Change in equity interest held by Rio Tinto	43	40	20
Companies no longer consolidated	130	-	-
Own shares purchased/treasury shares reissued for share options and other movements	(18)	(37)	(27)
Employee share options and other IFRS 2 charges taken to the income statement	57	64	78
Transfer and other movements	(133)	-	-
At 31 December	23,761	21,631	19,736

- (a) The capital redemption reserve was set up to comply with section 733 of the UK Companies Act 2006 (previously section 170 of the UK Companies Act 1985) when shares of a company are redeemed or purchased wholly out of the company's profits. Balances reflect the amount by which the Company's issued share capital is diminished in accordance with this section.
- (b) Other reserves includes US\$11,936 million which represents the difference between the nominal value and issue price of the shares issued arising from Rio Tinto plc's rights issue completed in July 2009. No share premium was recorded in the Rio Tinto plc financial statements through the operation of the merger relief provisions of the UK Companies Act 1985. Other reserves also include the cumulative amount recognised under IFRS 2 in respect of options granted but not exercised to acquire shares in Rio Tinto Limited, less, where applicable, the cost of shares purchased to satisfy share options exercised. The cumulative amount recognised under IFRS 2 in respect of options granted but not exercised to acquire shares in Rio Tinto plc is recorded in retained earnings.
- (c) Exchange differences arising on the translation of the Group's net investment in foreign controlled companies are taken to the foreign currency translation reserve, as described in note 1(d). The cumulative differences relating to an investment are transferred to the income statement when the investment is disposed of.
- (d) Retained earnings and movements in reserves of subsidiaries include those arising from the Group's share of joint operations.
- (e) There were no actuarial losses relating to equity accounted units in 2017, 2016 or 2015.

## 30 Financial instruments and risk management

Except where stated, the information given below relates to the financial instruments of the parent companies and their subsidiaries and joint operations, and excludes those of equity accounted units. The information is grouped in the following sections:

A – Financial assets and liabilities by categories

B – Derivative financial instruments

C – Fair values

### A (a) Financial assets and liabilities by categories

	Note	Total US\$m	Loans and receivables US\$m	Available for sale securities US\$m	Held at fair value US\$m	Held to maturity assets/Other financial liabilities US\$m
<b>At 31 December 2017</b>						
<b>Financial assets</b>						
Cash and cash equivalents	21	10,550	10,550	-	-	-
Trade and other receivables <sup>(a)</sup>		2,985	2,895	-	90	-
Equity shares and quoted funds	20	136	-	136	-	-
Other investments, including loans <sup>(b)</sup>	20	1,152	15	-	1,125	12
Derivatives and embedded derivatives not related to net debt: not designated as hedges <sup>(c)</sup>	20	168	-	-	168	-
Derivatives related to net debt <sup>(c)</sup>	20,24	99	-	-	99	-
Loans to equity accounted units including quasi equity loans		198	198	-	-	-
<b>Total financial assets</b>		<b>15,288</b>	<b>13,658</b>	<b>136</b>	<b>1,482</b>	<b>12</b>
<b>Financial liabilities</b>						
Trade and other payables <sup>(d)</sup>		(5,922)			(15)	(5,907)
Short term borrowings and bank overdrafts	22	(552)			-	(552)
Medium and long-term borrowings	22	(14,624)			-	(14,624)
Derivatives related to net debt <sup>(c)</sup>	22,24	(276)			(276)	-
Other derivatives and embedded derivatives: not designated as hedges <sup>(c)</sup>	22	(255)			(255)	-
Other financial liabilities	22	(345)			-	(345)
<b>Total financial liabilities</b>		<b>(21,974)</b>			<b>(546)</b>	<b>(21,428)</b>

	Note	Total US\$m (Adjusted) <sup>(e)(f)</sup>	Loans and receivables US\$m (Adjusted) <sup>(e)</sup>	Available for sale securities US\$m	Held at fair value US\$m	Held to maturity assets/other financial liabilities US\$m (Adjusted) <sup>(f)</sup>
<b>At 31 December 2016</b>						
<b>Financial assets</b>						
Cash and cash equivalents	21	8,201	8,201	-	-	-
Trade and other receivables <sup>(a)(e)</sup>		3,047	2,904	-	143	-
Equity shares and quoted funds	20	156	-	156	-	-
Other investments, including loans <sup>(b)</sup>	20	454	14	-	431	9
Currency and commodity derivatives: designated as hedges <sup>(c)</sup>	20	1	-	-	1	-
Derivatives and embedded derivatives not related to net debt: not designated as hedges <sup>(c)</sup>	20	423	-	-	423	-
Derivatives related to net debt <sup>(c)</sup>	20,24	108	-	-	108	-
Loans to equity accounted units including quasi equity loans		202	202	-	-	-
<b>Total financial assets</b>		<b>12,592</b>	<b>11,321</b>	<b>156</b>	<b>1,106</b>	<b>9</b>
<b>Financial liabilities</b>						
Trade and other payables <sup>(d) (f)</sup>		(5,209)			(5)	(5,204)
Short term borrowings and bank overdrafts	22	(717)			-	(717)
Medium and long-term borrowings	22	(16,913)			-	(16,913)
Derivatives related to net debt <sup>(c)</sup>	22,24	(516)			(516)	-
Other derivatives and embedded derivatives: not designated as hedges <sup>(c)</sup>	22	(7)			(7)	-
Other financial liabilities	22	(239)			-	(239)
<b>Total financial liabilities</b>		<b>(23,601)</b>			<b>(528)</b>	<b>(23,073)</b>

(a) Trade and other receivables exclude non-financial assets such as pension surpluses, prepayment of tolling charges to joint operations and other prepayments within other receivables and will therefore differ to the amounts shown in note 18.

(b) Other investments, including loans comprise US\$958 million (2016: US\$250 million) of highly liquid financial assets in managed investment funds classified as held for trading.

(c) These financial assets and liabilities in aggregate agree to total derivative financial instruments disclosed in notes 20 and 22.

(d) Trade and other payables excludes non-financial liabilities such as deferred income, Government grants, royalties, mining taxes and employee entitlements within other payables and will therefore differ to the amounts shown in note 25. The trade and other payables held at fair value are valued using Level 2 inputs.

(e) The 2016 comparative of trade and other receivables has been reduced by US\$385 million to remove other receivables, which were incorrectly classified as financial assets.

(f) The 2016 comparative of trade and other payables has been reduced by US\$177 million to remove other payables, which were incorrectly classified as financial liabilities.

# Notes to the 2017 financial statements

continued

## 30 Financial instruments and risk management continued

### A (b) Financial risk management

#### *Funding and exposure management*

The Group is exposed to a number of financial risks which are considered within the overall Group Risk management framework described on pages 19. The key financial risks are capital and liquidity, commodity price, credit, foreign exchange and interest rate which are discussed in detail below.

The Group's policies on financial risk management are clearly defined and consistently applied. The policies look to ensure that the Group has an appropriate capital structure which enables it to manage the risks faced by the organisation through the commodities cycle. The general approach to financial risks is to ensure that the business is robust enough to enable exposures to float with the market. However, the Group may choose to fix some financial exposures when it is deemed appropriate to do so.

The Group has a diverse portfolio of commodities and operates in a number of markets, which have varying responses to the economic cycle. This diversity also provides some naturally offsetting long-term positions, for example Australian and Canadian currencies tend to strengthen when commodity prices are high and vice versa.

#### *Treasury operations*

Treasury is a centralised support and service function that acts as the custodian of the Group's cash and balance sheet and its key financial risks. It performs its activities in a strong control environment, within board approved limits. It is not a profit centre. It is responsible for managing liquidity through funding and investments as well as financial risks such as commodity, financial counterparty credit, foreign exchange and interest risk. It is also responsible for managing banking relationships across the Group along with the Group's insurance and pension arrangements.

#### *Treasury policy*

Rio Tinto does not acquire or issue derivative financial instruments for trading or speculative purposes; nor does it believe that it has material exposure to such trading or speculative holdings through its investments in joint arrangements and associates. However, derivatives are used as and when required in order to manage the Group's exposure in accordance with its underlying financial risk

management principles. Cash management and investment activities are managed and co-ordinated centrally by Treasury using only approved counterparties and within allocated credit limits which are reviewed and approved by the board at least annually.

#### *(i) Capital and liquidity risk management*

##### *Policy*

The Group's overriding objective when managing capital is to safeguard the business as a going concern whilst maximising returns for shareholders. In a cyclical and capital intensive industry such as the mining industry, maintaining a strong balance sheet and a sound financial risk management framework are desirable to preserve financial flexibility and generate shareholder value through the cycle. The board and senior management regularly review the capital structure and liquidity of the Group. These reviews take into account the Group's strategic priorities, economic and business conditions, and opportunities that are identified to invest through all points of the commodities cycle and focus on the dividend policy and other forms of shareholder return while also striving to maintain a strong balance sheet. In February 2016, the Group announced a change in its dividend policy, moving from a progressive dividend policy to a dividend determined by taking into account the results for the financial year, the outlook for the Group's major commodities, the board's view of the long-term growth prospects of the business and the Group's objective of maintaining a strong balance sheet. The board expects total cash returns to shareholders over the longer term to be in a range of 40 – 60 per cent of underlying earnings in aggregate throughout the cycle. Acknowledging the cyclical nature of the industry in periods of strong earnings and cash generation, it is the board's intention to supplement the ordinary dividends with additional returns to shareholders. The resulting capital structure provides the Group with a high degree of financial flexibility at a low cost of capital.

To maintain a strong balance sheet, the Group considers various financial metrics including net gearing, the overall level of borrowings and their maturity profile, liquidity levels, total capital, cash flow, EBITDA and interest cover ratios, either on a statutory reported basis or as expected to be adjusted by the credit rating agencies.

	Note	2017 US\$m	2016 US\$m
Total capital			
Equity attributable to owners of Rio Tinto (see Group balance sheet)		44,711	39,290
Equity attributable to non-controlling interests (see Group balance sheet)		6,404	6,440
Net debt	24	3,845	9,587
Total capital		54,960	55,317

Net debt is a measure used by management and the board to manage the Group's capital structure and liquidity risks. Net debt is disclosed in note 24. Net debt decreased from US\$9.6 billion at 31 December 2016 to US\$3.8 billion at 31 December 2017 as operating cash inflows and divestment proceeds were partly offset by capital expenditure and cash returns to shareholders. At 31 December 2017

net gearing was seven per cent (2016: 17 per cent) and interest cover was 14 times (2016: seven times).

The unified credit status of the Group is maintained through cross guarantees whereby contractual obligations of Rio Tinto plc and Rio Tinto Limited are automatically guaranteed by the other.



## Capital and liquidity risk management continued

The table below summarises the credit ratings attributed to the Group by Standard and Poor's and Moody's investor services as at 31 December.

	2017	2016
Long-term rating	<sup>(a)</sup> <b>A-/A3</b>	A-/Baa1
Short-term rating	<b>A-1/P-2</b>	A-1/P-2
Outlook	<sup>(a)</sup> <b>Positive/Stable</b>	Stable/ Stable

(a) On 12 February 2018, Standard and Poor's upgraded the Group's credit rating to A with a stable outlook.

The Group has access to various forms of financing including its US Shelf Programme, European Debt Issuance Programme, Commercial Paper and credit facilities. The Group did not issue any listed debt in 2017 under these programmes.

During 2017, the Group redeemed US\$2.5 billion (2016: US\$7.5 billion), in aggregate, principal value of bonds issued by Rio Tinto Finance (USA) plc and Rio Tinto Finance (USA) Limited as part of a liability management programme. Due to early redemption costs this led to an aggregate cash outflow on those redemptions of US\$2.7 billion (2016: US\$7.9 billion) before fees.

During 2016, Oyu Tolgoi LLC drew down US\$4.3 billion under the project finance facility signed in December 2015. The project finance facility provides for interest-only payments for the first five years followed by minimum repayments according to a stepped amortisation schedule for the remaining life of the facility. The due dates stated below represent the final repayment date. In 2017, a further US\$9 million was drawn down.

The facility is provided and funded by international financial institutions and export credit agencies representing the governments of the United States, Canada and Australia, along with 15 commercial banks.

Drawdowns comprised, in aggregate, US\$0.7 billion MIGA Insured Loan due 2027 (LIBOR plus 2.65% pre-completion, LIBOR plus 3.65% post-completion); US\$1.6 billion commercial banks "B Loan" due 2027 (LIBOR plus 3.4% pre-completion, LIBOR plus 4.4% post-completion); US\$0.3 billion Export Credit Agencies Loan due 2028 (fixed at 2.3%); US\$0.9 billion Export Credit Agencies Loan due 2029 (LIBOR plus 3.65% pre-completion, LIBOR plus 4.65% post-completion); and US\$0.9 billion International Financial Institutions "A Loan" due 2030 (LIBOR plus 3.78% pre-completion, LIBOR plus 4.78% post-completion).

In November 2015, Rio Tinto Finance plc and Rio Tinto Finance Limited amended and extended its, in aggregate, US\$7.5 billion multi-currency revolving credit facilities, originally signed in 2013, with a syndicate of banks. The facilities had two one-year extension options, the first of which was utilised in November 2016 and the second in November 2017. A US\$1.9 billion facility currently matures in November 2020 and a US\$5.6 billion facility (including a US\$ denominated same day access swing-line facility) matures in November 2022. The funds made available under the facility agreements may be used for the general corporate purposes of the Group.

Advances under the revolving facilities bear an interest rate per annum based on LIBOR (or EURIBOR, CDOR or BBSW in relation to any euro, Canadian dollar or Australian dollar loans respectively) plus a margin (which is dependent on the Group's long-term credit rating as determined by Moody's and Standard & Poor's and the level of drawdown). The facility agreements contain no financial covenants. At 31 December 2017 the facilities were undrawn.

### (ii) Commodity price risk

#### Policy

The Group's normal policy is to sell its products at prevailing market prices. Exceptions to this rule are subject to strict limits laid down by the board and to rigid internal controls.

The Group's products are sold to customers under contracts which vary in tenure and pricing mechanisms, including some volumes sold in the spot market. Sales revenue may be subject to adjustment if the product specification does not conform to the terms specified in the sales contract.

Pricing for iron ore is on a range of terms, the majority being either monthly or quarterly average pricing mechanisms, with a smaller proportion of iron ore volumes being sold on the spot market.

Copper and aluminium are generally sold under contracts which vary in tenure and pricing mechanisms, with some volumes sold in the spot market. The prices are determined by reference to prevailing market prices on terminal markets, such as the London Metal Exchange (LME) and the Commodities Exchange (COMEX) in New York. Prices fluctuate widely in response to changing levels of supply and demand but, in the long run, prices are related to the marginal cost of supply. Gold is also priced in an active market in which prices respond to daily changes in quantities offered and sought. Newly mined gold is only one source of supply; investment and disinvestment can be important elements of supply and demand.

Certain of the Group's products are provisionally priced at the date revenue is recognised, however, with the exception of copper, prices are generally finalised within the calendar quarter of the month of shipment. The final selling price is based on the price for the quotational period stipulated in the contract. Substantially all iron ore and aluminium sales are reflected at final prices in the results for the period. Final prices for copper concentrate are normally determined between 30 to 180 days after delivery to the customer. The change in value of the embedded pricing derivative included in the receivable is based on relevant forward market prices and is included in sales revenue.

As at 31 December 2017, the Group had 250 million pounds of copper sales (31 December 2016: 235 million pounds) that were provisionally priced at US 304 cents per pound (2016: US 250 cents per pound). The final price of these sales will be determined during the first half of 2018. A ten per cent change in the price of copper realised on the provisionally priced sales, all other factors held constant, would increase or reduce net earnings by US\$41 million (2016: US\$36 million).

## Notes to the 2017 financial statements

continued

### 30 Financial instruments and risk management

continued

#### *Hedging strategy*

Rio Tinto's exposure to commodity prices is diversified by virtue of its broad commodity base and the Group does not generally consider commodity price hedging would provide a long-term benefit to shareholders. The Group may hedge certain commitments with some of its customers or suppliers. Details of commodity derivatives held at 31 December 2017 are set out in section B.

#### *Sensitivities*

The Group's commodity derivatives are impacted by changes in market prices and include those aluminium forward and option contracts embedded in electricity purchase contracts outstanding at 31 December 2017. A ten per cent increase in market prices on the embedded derivatives in the power contracts would reduce net earnings by US\$221 million (2016: US\$144 million), and a ten per cent decrease in prices would increase net earnings by US\$212 million (2016: US\$139 million). There will be an offsetting change in future Group earnings with any changes in price.

The Group's "own use contracts" are excluded from the sensitivity analysis as they are outside the scope of IAS 39. Such contracts to buy or sell non-financial items can be net settled but were entered into and continue to be held for the purpose of the receipt or delivery of the non-financial item in accordance with the business unit's expected purchase, sale or usage requirements.

#### *(iii) Credit risk*

##### *Policy*

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Group is exposed to credit risk from its operating activities (primarily from customer receivables) and from its financing activities, including investments in treasury and liquidity funds, deposits with banks and financial institutions, other short-term investments, interest rate and currency derivative contracts and other financial instruments.

The maximum credit risk exposure of the Group's financial assets at the balance sheet date is as follows:

	Note	2017 US\$m	2016 US\$m (Adjusted) <sup>(a)</sup>
Cash and cash equivalents	21	10,550	8,201
Trade and other receivables <sup>(a)</sup>		2,985	3,047
Investments	20	1,152	454
Derivative assets	20	267	532
Loans to equity accounted units		39	39
<b>Total</b>		<b>14,993</b>	<b>12,273</b>

(a) The 2016 comparative of trade and other receivables has been reduced by US\$385 million to remove other receivables, which were incorrectly classified as financial assets.

#### *Credit risks related to receivables*

Customer credit risk is managed by each business unit subject to the Group's established policy, procedures and controls relating to customer credit risk management. Credit limits are established for all customers based on internal or external rating criteria. Where customers are rated by an independent credit rating agency, these ratings are used to set credit limits. In circumstances where no independent credit rating exists, the credit quality of the customer is assessed based on an extensive credit rating scorecard. Outstanding customer receivables are regularly monitored and any credit concerns highlighted to senior management. Shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

At 31 December 2017, the Group had approximately 115 customers (2016: 92 customers) that owed the Group more than US\$5 million each and these balances accounted for approximately 78 per cent (2016: 74 per cent) of all receivables owing. There were 23 customers (2016: 24 customers) with balances greater than US\$20 million accounting for just over 35 per cent (2016: 42 per cent) of total amounts receivable. Details of trade and other receivables past due but not impaired are provided in note 18.

#### *Credit risk related to financial instruments and cash deposits*

Credit risk from investments in government securities (primarily US Government), corporate and asset-backed securities or money market funds, and balances with banks and financial institutions is managed by Group Treasury in accordance with a board-approved policy. Investments of surplus funds are made only with approved investment grade (BBB- and above) counterparties who have been assigned specific credit limits. The board reviews these annually. The limits are set to minimise the concentration of credit risk and therefore mitigate the potential for financial loss through counterparty failure.

(iv) Foreign exchange risk

Policy

The Group's shareholders' equity, earnings and cash flows are influenced by a wide variety of currencies due to the geographic diversity of the Group's sales and the countries in which it operates. The US dollar is the currency in which the majority of the Group's sales are denominated. Operating costs are influenced by the currencies of those countries where the Group's mines and processing plants are located and also by those currencies in which the costs of imported equipment and services are determined. The Australian and Canadian dollars are the most important currencies (apart from the US dollar) influencing costs. In any particular year, currency fluctuations may have a significant impact on Rio Tinto's financial results. A strengthening of the US dollar against the currencies in which the Group's costs are partly denominated has a positive effect on Rio Tinto's underlying earnings. However, a strengthening of the US dollar does reduce the value of non US dollar-denominated net assets and therefore total equity.

The Group's financial statements are presented in US dollars, as it most reliably reflects the global business performance of the Group as a whole. It is also the most appropriate currency for financing the Group's operations. Borrowings and cash are predominantly denominated in US dollars, either directly or through the use of derivatives.

The majority of debt and other financial assets and liabilities including intragroup balances, are held in the functional currency of the relevant subsidiary. In a small number of instances, US dollar debt and other financial assets and liabilities, including intragroup balances, are held in currencies other than the functional currency of the relevant subsidiary. This results in an accounting exposure to exchange gains and losses as the financial assets and liabilities are translated into the functional currency of the subsidiary that holds those assets and liabilities. These exchange gains and losses are recorded in the Group's income statement except to the extent that they can be taken to equity under the Group's accounting policy which is explained in note 1(d). The Group's income statement includes realised and unrealised exchange gains/losses arising on US dollar external borrowings and intragroup balances in entities with a non US dollar functional currency. On translation to the Group's US dollar presentation currency there is a corresponding and offsetting exchange difference on translation of these balances which is recognised directly in the currency translation reserve. There is no impact on total equity. Gains and losses on US dollar net debt and on non-trading intragroup balances are excluded from underlying earnings. Other exchange gains and losses are included in underlying earnings.

See section B for the details of cross currency interest rate swaps relating to borrowings.

After taking into account relevant swap instruments, the majority of the Group's net debt is denominated in US dollars.

The table below summarises, by currency, the Group's net debt, after taking into account relevant cross currency interest rate swaps and foreign exchange contracts:

	Cash and cash equivalents	Other investments	Total borrowings in note 22	Derivatives related to net debt	Net funds/(debt) 2017	Net funds/(debt) 2016
	US\$m	US\$m	US\$m	US\$m	US\$m	US\$m
<b>Net funds/(debt) by currency</b>						
US dollar	9,950	958	(14,359)	(177)	<b>(3,628)</b>	(9,294)
Australian dollar	332	-	(540)	-	<b>(208)</b>	(313)
Euro	49	-	(107)	-	<b>(58)</b>	(62)
South African rand	59	-	-	-	<b>59</b>	103
Canadian dollar	18	-	(166)	-	<b>(148)</b>	(155)
Other	142	-	(4)	-	<b>138</b>	134
<b>Total</b>	<b>10,550</b>	<b>958</b>	<b>(15,176)</b>	<b>(177)</b>	<b>(3,845)</b>	<b>(9,587)</b>

Hedging strategy

Under normal market conditions, the Group does not consider that active currency hedging of transactions would provide long-term benefits to shareholders. The Group reviews its exposure on a regular basis and reserves the right to enter into hedges to maintain financial stability. Currency protection measures may be deemed appropriate in specific commercial circumstances, typically hedging of capital expenditures and other significant financial items such as acquisitions, disposals, tax and dividends, and are subject to strict limits laid down by the board. Refer to section B for the details of cross currency interest rate, currency forward and option contracts used to manage the currency risk exposures of the Group at 31 December 2017.

Sensitivities

The table below gives the estimated retranslation effect on financial assets and financial liabilities, including intragroup balances, of a ten per cent strengthening in the closing exchange rate of the US dollar against significant currencies. The sensitivity associated with a ten per cent weakening of a particular currency would be broadly equal and opposite within equity to the figures presented below. The impact is expressed in terms of the effect on net earnings and underlying earnings, assuming that each exchange rate moves in isolation. The sensitivities are based on financial assets and financial liabilities held at 31 December 2017, where balances are not denominated in the functional currency of the subsidiary or joint operation, and exclude financial assets and liabilities held by equity accounted units. These balances will not remain constant throughout 2018, and therefore the following information should be used with care.

At 31 December 2017

Gains/(losses) associated with ten per cent strengthening of the US dollar

	Closing exchange rate	Effect on net earnings	Of which amount impacting underlying earnings
	US cents	US\$m	US\$m
<b>Currency exposure</b>			
Australian dollar	78	608	47
Canadian dollar	79	(134)	3
Euro	120	165	(2)

# Notes to the 2017 financial statements

continued

## 30 Financial instruments and risk management continued

At 31 December 2016

Gains/(losses) associated with ten per cent strengthening of the US dollar

	Closing exchange rate US cents	Effect on net earnings US\$m	Of which amount impacting underlying earnings US\$m
Currency exposure			
Australian dollar	72	369	37
Canadian dollar	74	(159)	15
Euro	105	172	-

Ten per cent is the annual exchange rate movement that management deems to be reasonably probable (on an annual basis over the long run) for one of the Group's significant currencies and as such provides an appropriate representation.

### (v) Interest rate risk

#### Policy

Interest rate risk refers to the risk that the value of a financial instrument or cash flows associated with the instrument will fluctuate due to changes in market interest rates. The Group's interest rate management policy is generally to borrow and invest at floating interest rates. This approach is based on a historical correlation between interest rates and commodity prices. However, in certain circumstances the Group may elect to maintain a higher proportion of fixed-rate funding.

#### Hedging strategy

As noted above, the Group hedges its interest rate risk by entering into interest rate derivatives to achieve its policies. The Group reviews the positions on a regular basis. During 2017, in conjunction with its liability management programme, the Group closed out interest rate swaps with a notional principal amount of US\$2.0 billion, giving rise to a net cash outflow of US\$5 million, including accrued interest of US\$2 million. The interest rate swaps were in fair value hedge relationships prior to close out. See section B for details of currency and interest rate swaps relating to borrowings.

At the end of 2017, US\$12.5 billion (2016: US\$14.7 billion) of the Group's adjusted total borrowings was at floating rates after taking into account interest and currency interest rate swaps, resulting in a floating to fixed debt ratio of 82 per cent floating to 18 per cent fixed (2016: 81 per cent floating to 19 per cent fixed). On a net debt basis, the floating to fixed debt ratio was 26 per cent floating to 74 per cent fixed (2016: 65 per cent floating to 35 per cent fixed). These ratios were principally

impacted by the significant level of cash generated during the year. The weighted average interest rate on total adjusted borrowings as at 31 December 2017 was approximately 4.2 per cent (2016: approximately 4.0 per cent) and the weighted average maturity was approximately ten years (2016: ten years). The weighted average maturity and weighted average effective interest rate are based on current interest rates and the carrying value of gross borrowings at the year end.

See note 22 for the details of debt outstanding at 31 December 2017.

#### Sensitivities

Based on the Group's net debt (refer to note 24) and other floating rate financial instruments outstanding as at 31 December 2017, the effect on net earnings of a 100 basis point increase in US dollar LIBOR interest rates, with all other variables held constant, would be a charge of US\$8 million (2016: US\$44 million). The Group has an exposure to interest rate volatility within shareholders' equity arising from fair value movements on derivatives in the cash flow hedge reserve. These derivatives have an underlying exposure to sterling and US dollar rates. With all factors remaining constant and based on the composition of derivatives impacting the cash flow reserve at 31 December 2017, the sensitivity of a 100 basis point increase in interest rates in each of the currencies in isolation would impact equity, before tax, by a charge of US\$84 million (2016: US\$84 million charge) for sterling and a credit of US\$88 million (2016: US\$95 million credit) for US dollar. A 100 basis point decrease would have broadly the same impact in the opposite direction. These balances will not remain constant throughout 2018, and therefore this information should be used with care.

## A (c) Financial liability analysis

The table below analyses the Group's financial liabilities by relevant maturity groupings based on the remaining period from the balance sheet date to the contractual maturity date. As the amounts disclosed in the table are the contractual undiscounted cash flows, these balances will not necessarily agree with the amounts disclosed in the balance sheet.

### At 31 December 2017

	Within 1 year or on demand US\$m	Between 1 and 2 years US\$m	Between 2 and 3 years US\$m	Between 3 and 4 years US\$m	Between 4 and 5 years US\$m	After 5 years US\$m	Total US\$m
(Outflows) / inflows							
<b>Non-derivative financial liabilities</b>							
Trade and other payables	(5,488)	(434)	-	-	-	-	<b>(5,922)</b>
Borrowings before swaps	(552)	(148)	(1,011)	(916)	(1,283)	(11,387)	<b>(15,297)</b>
Expected future interest payments <sup>(a)</sup>	(679)	(673)	(670)	(638)	(606)	(4,553)	<b>(7,819)</b>
Other financial liabilities	(302)	(43)	-	-	-	-	<b>(345)</b>
<b>Derivative financial liabilities <sup>(b)</sup></b>							
Derivatives related to net debt - net settled	10	10	14	11	7	36	<b>88</b>
Derivatives related to net debt - gross settled <sup>(a)</sup> :							
– gross inflows	62	62	958	44	44	1,493	<b>2,663</b>
– gross outflows	(82)	(82)	(1,051)	(55)	(55)	(1,741)	<b>(3,066)</b>
Derivatives not related to net debt - net settled	(43)	(36)	(33)	(24)	(21)	(138)	<b>(295)</b>
Derivatives not related to net debt - gross settled:							
– gross inflows	795	-	-	-	-	-	<b>795</b>
– gross outflows	(802)	-	-	-	-	-	<b>(802)</b>
<b>Total</b>	<b>(7,081)</b>	<b>(1,344)</b>	<b>(1,793)</b>	<b>(1,578)</b>	<b>(1,914)</b>	<b>(16,290)</b>	<b>(30,000)</b>

### At 31 December 2016

	Within 1 year or on demand US\$m (Adjusted) <sup>(c)</sup>	Between 1 and 2 years US\$m (Adjusted) <sup>(d)</sup>	Between 2 and 3 years US\$m	Between 3 and 4 years US\$m	Between 4 and 5 years US\$m	After 5 years US\$m	Total US\$m (Adjusted) <sup>(c)(d)</sup>
(Outflows) / inflows							
<b>Non-derivative financial liabilities</b>							
Trade and other payables <sup>(c)(d)</sup>	(4,814)	(395)	-	-	-	-	<b>(5,209)</b>
Borrowings before swaps	(704)	(191)	(1,330)	(1,347)	(1,317)	(12,806)	<b>(17,695)</b>
Expected future interest payments <sup>(a)</sup>	(783)	(779)	(722)	(667)	(620)	(5,056)	<b>(8,627)</b>
Other financial liabilities	(199)	(41)	-	-	-	-	<b>(240)</b>
<b>Derivative financial liabilities <sup>(b)</sup></b>							
Derivatives related to net debt - net settled	29	29	27	25	23	25	<b>158</b>
Derivatives related to net debt - gross settled <sup>(a)</sup> :							
– gross inflows	55	55	55	842	40	1,377	<b>2,424</b>
– gross outflows	(73)	(73)	(73)	(1,045)	(51)	(1,785)	<b>(3,100)</b>
Derivatives not related to net debt - net settled	(2)	-	-	-	-	-	<b>(2)</b>
Derivatives not related to net debt - gross settled:							
– gross inflows	29	-	-	-	-	-	<b>29</b>
– gross outflows	(29)	-	-	-	-	-	<b>(29)</b>
<b>Total</b>	<b>(6,491)</b>	<b>(1,395)</b>	<b>(2,043)</b>	<b>(2,192)</b>	<b>(1,925)</b>	<b>(18,245)</b>	<b>(32,291)</b>

(a) Interest payments have been projected using interest rates applicable at the end of the applicable financial year. Where debt is subject to variable interest rates, future interest payments are subject to change in line with market rates.

(b) The maturity grouping is based on the earliest payment date.

(c) The 2016 comparative of trade and other payables due within 1 year or on demand has been reduced by US\$111 million to remove other payables, which were incorrectly classified as financial liabilities.

(d) The 2016 comparative of trade and other payables due between 1 and 2 years has been reduced by US\$66 million to remove other payables, which were incorrectly classified as financial liabilities.

The maximum carrying value of borrowings repayable, after the impact of swaps, maturing in any financial year is US\$1.7 billion (2016: US\$1.7 billion).

### Offsetting and enforceable master netting agreements

Financial assets and liabilities are offset and the net amount reported in the consolidated balance sheet when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously. There were no material amounts offset in the balance sheet and no material enforceable master netting agreements were identified.



## Notes to the 2017 financial statements

continued

### 30 Financial instruments and risk management continued

#### B Derivative financial instruments

The Group's derivatives, including embedded derivatives, as at 31 December 2017, are summarised below:

	Total fair value			
	2017		2016	
	Asset US\$m	Liability US\$m	Asset US\$m	Liability US\$m
<b>Derivatives designated as hedges</b>				
Interest rate swaps <sup>(a)</sup>	99	(127)	108	(134)
Cross currency interest rate swaps <sup>(b)</sup>	-	(149)	-	(382)
Currency forward contracts, options and swaps	-	-	1	-
<b>Total derivatives designated as hedges</b>	<b>99</b>	<b>(276)</b>	<b>109</b>	<b>(516)</b>
<b>Derivatives not designated as hedges</b>				
Currency forward contracts, options and swaps	7	(2)	1	-
Aluminium forward contracts <sup>(c)</sup>	21	(9)	6	(2)
Aluminium embedded derivatives <sup>(d)</sup>	140	(238)	411	(3)
Other embedded derivatives	-	(5)	5	-
Other commodity contracts	-	(1)	-	(2)
<b>Total derivatives not designated as hedges</b>	<b>168</b>	<b>(255)</b>	<b>423</b>	<b>(7)</b>
<b>Total derivative instruments</b>	<b>267</b>	<b>(531)</b>	<b>532</b>	<b>(523)</b>
<b>Analysed by maturity:</b>				
Less than 1 year	29	(50)	24	(6)
Between 1 and 5 years	31	(233)	110	(194)
More than 5 years	207	(248)	398	(323)
<b>Total</b>	<b>267</b>	<b>(531)</b>	<b>532</b>	<b>(523)</b>
<b>Total net derivative instruments</b>	<b>(264)</b>		<b>9</b>	
<b>Reconciliation to balance sheet</b>	Note	2017 US\$m	2016 US\$m	
– non-current assets	20	238	508	
– current assets	20	29	24	
– current liabilities	22	(50)	(6)	
– non-current liabilities	22	(481)	(517)	
<b>Total net derivatives instruments, detailed above</b>		<b>(264)</b>	<b>9</b>	

(a) The interest rate swaps are used to convert certain fixed rate borrowings to a floating rate. For further details, see note 22.

(b) The cross currency interest rate swaps are used to convert non US dollar denominated borrowings to either fixed or floating US dollar borrowings. For further details see note 22.

(c) The aluminium forward contracts are entered into to convert aluminium sales made at a fixed price to market price (LME cash). In 2016 and 2017 these contracts were not designated as hedges.

(d) Aluminium embedded derivatives (forward contracts and options) are contained within certain aluminium smelter electricity purchase contracts. These contracts reduce the Group's margin exposure to movements in the aluminium price.

#### C (a) Fair values

The carrying amounts and fair values of all of the Group's financial instruments which are not carried at an amount which approximates their fair value at 31 December 2017 and 31 December 2016 are shown in the following table. The fair values of the Group's cash equivalents and loans to equity accounted units approximate their carrying values as a result of their short maturity or because they carry floating rates of interest.

	Note	31 December 2017		31 December 2016	
		Carrying value US\$m	Fair value US\$m	Carrying value US\$m	Fair value US\$m
Short-term borrowings	22	(552)	(552)	(717)	(706)
Medium and long-term borrowings	22	(14,624)	(16,385)	(16,913)	(18,437)

Borrowings with a carrying value of US\$9.6 billion (2016: US\$11.9 billion) relate to listed bonds with a fair value of US\$10.9 billion (2016: US\$12.9 billion) and are categorised as level 1 in the fair value hierarchy. Borrowings with a carrying value of US\$4.1 billion (2016: US\$4.1 billion) relate to project finance draw down with a fair value of

US\$4.7 billion (2016: US\$4.6 billion) and are categorised as level 3 in the fair value hierarchy. The remaining borrowings have a fair value measured by discounting estimated cash flows with an applicable market quoted yield and are categorised as level 2 in the fair value hierarchy.

**C (b) Valuation hierarchy**

The table below shows the financial instruments carried at fair value by valuation method at 31 December 2017:

	Note	Total US\$m	Level 1 <sup>(a)</sup> US\$m	Level 2 <sup>(b)</sup> US\$m	Level 3 <sup>(c)</sup> US\$m	Not held at fair value US\$m
<b>Assets</b>						
Equity shares and quoted funds	20	136	88	-	3	45
Other investments, including loans <sup>(d)</sup>	20	1,152	1,037	-	88	27
Trade and other receivables <sup>(e)</sup>		2,985	-	90	-	2,895
		4,273	1,125	90	91	2,967
<b>Derivatives</b>						
Forward contracts and option contracts, not designated as hedges <sup>(f)</sup> (Section B)		(87)	-	11	(98)	-
Derivatives related to net debt (Section B) <sup>(g)</sup>		(177)	-	(177)	-	-
		4,009	1,125	(76)	(7)	2,967

The table below shows the financial instruments carried at fair value by valuation method at 31 December 2016:

	Note	Total US\$m	Level 1 <sup>(a)</sup> US\$m	Level 2 <sup>(b)</sup> US\$m	Level 3 <sup>(c)</sup> US\$m	Not held at fair value US\$m
<b>Assets</b>						
Equity shares and quoted funds	20	156	94	-	3	59
Other investments, including loans <sup>(d)</sup>	20	454	363	-	68	23
Trade and other receivables <sup>(e)</sup>		3,047	-	143	-	2,904
		3,657	457	143	71	2,986
<b>Derivatives</b>						
Forward contracts: designated as hedges (Section B)		1	-	1	-	-
Forward contracts and option contracts, not designated as hedges <sup>(f)</sup> (Section B)		416	-	8	408	-
Derivatives related to net debt (Section B) <sup>(g)</sup>		(408)	-	(408)	-	-
		3,666	457	(256)	479	2,986

- (a) Valuation is based on unadjusted quoted prices in active markets for identical financial instruments. This category includes listed equity shares and other quoted funds.
- (b) Valuation is based on inputs that are observable for the financial instruments which include quoted prices for similar instruments or identical instruments in markets which are not considered to be active, or inputs, either directly or indirectly based on observable market data.
- (c) Valuation is based on inputs for the asset or liability that are not based on observable market data (unobservable inputs).
- (d) Other investments, including loans, comprise: cash deposits in rehabilitation funds, government bonds, managed investment funds and royalty amounts receivable. The royalty receivables are valued based on an estimate of forward sales subject to the royalty agreement.
- (e) Trade receivables includes provisionally priced receivables relating to sales contracts where selling price is determined after delivery to the customer, based on the market price at the relevant quotation point stipulated in the contract. Revenue is recognised on provisionally priced sales based on the forward selling price for the period stipulated in the contract. At the end of December 2017, US\$90 million (2016: US\$143 million) of provisionally priced receivables were recognised.
- (f) Level 3 derivatives consist of derivatives embedded in electricity purchase contracts linked to the LME with terms expiring between 2018 and 2030 (2016: 2017 and 2030). The embedded derivatives are measured using discounted cash flows and option model valuation techniques. Long-term embedded derivatives with a fair value of US\$98 million at 31 December 2017 (2016: US\$408 million) are valued using significant unobservable inputs as the term of the derivative extends beyond the forward curve for aluminium. In valuing these derivatives, aluminium prices are flatlined beyond the market forward curve and increased by projected inflation up to the date of expiry of each contract. The range of market prices are US\$2,679 per metric tonne in 2028 to US\$2,848 in 2030 (2016: US\$2,136 per metric tonne in 2027 to US\$2,300 in 2030).
- (g) Interest rate and currency interest rate swaps are valued using applicable market quoted swap yield curves adjusted for relevant basis and credit default spreads. Currency interest rate swap valuations also use market quoted foreign exchange rates. A discounted cash flow approach is applied to the cash flows derived from the inputs to determine fair value.

There were no transfers between Level 1 and Level 2, or between Level 2 and Level 3 in the year ended 31 December 2017 or the year ended 31 December 2016.

## Notes to the 2017 financial statements

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### 30 Financial instruments and risk management continued

#### C (c) Level 3 financial assets and financial liabilities

The table below shows the summary of changes in the fair value of the Group's Level 3 financial assets and financial liabilities.

	2017 Level 3 financial assets and financial liabilities US\$m	2016 Level 3 financial assets and financial liabilities US\$m
<b>Opening balance</b>	<b>479</b>	<b>456</b>
Currency translation adjustments	8	(2)
Total realised gains/(losses) included in:		
– Consolidated sales revenue	1	1
– Net operating costs	(5)	(28)
Total unrealised (losses)/gains included in:		
– Consolidated sales revenue	17	-
– Net operating costs <sup>(a)</sup>	(508)	11
Additions	-	43
Impairment	-	(2)
Disposals/maturity of financial instruments	(5)	-
Transfers	6	-
<b>Closing balance</b>	<b>(7)</b>	<b>479</b>
<b>Total (losses)/gains for the year included in the income statement for assets and liabilities held at year end</b>	<b>(491)</b>	<b>11</b>

(a) (Losses)/gains on embedded commodity derivatives not qualifying for hedge accounting which are included within net operating costs.

#### Sensitivity analysis in respect of Level 3 derivatives

The values of forward contracts and options that are determined using unobservable inputs are calculated using appropriate discounted cash flow and option model valuation techniques. The most significant of these assumptions relate to long-term pricing wherein aluminium prices are flatlined beyond the market forward curve and increased by a projected inflation after the ten year LME curve. A ten per cent increase in long-term metal pricing assumptions would result in a US\$41 million (31 December 2016: US\$38 million) decrease in carrying value. A ten per cent decrease in long-term metal pricing assumptions would result in a US\$22 million (31 December 2016: US\$64 million) increase in carrying value.

### 31 Contingencies and commitments

	2017 US\$m	2016 US\$m
<b>Capital commitments excluding the Group's share of joint venture capital commitments</b>		
Within 1 year	2,052	1,588
Between 1 and 3 years	531	433
Between 3 and 5 years	58	194
After 5 years	-	15
<b>Total</b>	<b>2,641</b>	<b>2,230</b>
<b>Group's share of joint venture capital commitments</b>		
Within 1 year	29	113
<b>Total</b>	<b>29</b>	<b>113</b>

Capital commitments include open purchase orders for managed operations and expenditure on major projects authorised to date by the Rio Tinto Investment Committee for non-managed operations. On a legally enforceable basis capital commitments would be approximately US\$0.5 billion (2016: US\$0.6 billion) as many of the contracts relating to the Group's projects have various cancellation clauses.

#### Unrecognised commitments to contribute funding or resources to joint ventures

The Group has a commitment to purchase and market a portion (in excess of the Group's ownership interest) of the output of Sohar Aluminium Company L.L.C., an aluminium smelter in which the Group

is a joint venturer. The Group immediately sells the purchased products to third parties.

The Group, along with the other joint venturers, has certain commitments to provide emergency funding (ie funding required to preserve the life or assets of the company or to comply with applicable laws) that may be required by Sohar Aluminium Company L.L.C., subject to approved thresholds.

At 31 December 2017, Minera Escondida Limitada held an undrawn shareholder line of credit for US\$225 million (Rio Tinto share; 31 December: US\$225m). This has a three-year duration.

## Operating leases

The aggregate amount of minimum lease payments under non-cancellable operating leases are as follows:

	2017 US\$m	Adjusted <sup>(a)</sup> 2016 US\$m
Within 1 year	397	331
Between 1 and 3 years	542	463
Between 3 and 5 years	313	314
After 5 years	593	612
	1,845	1,720

Operating leases include leases of dry bulk vessels and offices as well as other property, plant and equipment. The terms of lease payments vary with a significant proportion being fixed rate and including renewal options. Leases for dry bulk vessels include costs for crewing services.

(a) The 2016 comparative has been amended to exclude net obligations of US\$125 million related to contractual arrangements which do not qualify as leases in accordance with IAS 18. These amounts have instead been included as purchase obligations.

## Purchase obligations

The aggregate amount of future payment commitments under purchase obligations outstanding at 31 December was:

	2017 US\$m	Adjusted <sup>(a)</sup> 2016 US\$m
Within 1 year	2,818	2,677
Between 1 and 2 years	1,664	1,711
Between 2 and 3 years	1,433	1,327
Between 3 and 4 years	1,318	1,207
Between 4 and 5 years	1,062	1,040
After 5 years	11,494	11,356
	19,789	19,318

(a) The 2016 comparative has been amended to include certain contractual arrangements previously categorised as operating leases (refer above).

Purchase obligations as disclosed above are agreements to purchase goods or services that are enforceable and legally binding and specify all significant terms, including: fixed or minimum quantities to be purchased or consumed; fixed, minimum or variable price provisions; and the approximate timing of the transactions.

Purchase obligations for goods primarily relate to purchases of raw materials and consumables and purchase obligations for services primarily relate to charges for use of infrastructure, commitments to purchase power and freight contracts. These goods and services are expected to be used in the business. To the extent that this changes, a provision for onerous obligations may be made as described in note 1(i).

Purchases from joint arrangements or associates are included to the extent that the quantity purchased is in excess of Rio Tinto's ownership interest in the entity. However, purchase obligations exclude contracted purchases of bauxite, alumina and aluminium from joint arrangements and associates and contracted purchases of alumina from third parties as the purchases are made for commercial reasons and the Group is, overall, a net seller of these commodities.

In addition, as explained above, the Group has a commitment to purchase and market a portion (in excess of the Group's ownership interest) of the output of Sohar Aluminium Company L.L.C.

# Notes to the 2017 financial statements

continued

## 31 Contingencies and commitments continued

	2017 US\$m	2016 US\$m
<b>Contingent liabilities (subsidiaries and joint operations)</b>		
Indemnities and other performance guarantees <sup>(a) (b)</sup>	<b>552</b>	<b>473</b>

(a) Indemnities and other performance guarantees represent the potential outflow of funds from the Group for the satisfaction of obligations including those under contractual arrangements (for example undertakings related to supplier agreements) not provided for in the balance sheet, where the likelihood of the guarantees or indemnities being called is assessed as possible rather than probable or remote.

(b) There were no material contingent liabilities arising in relation to the Group's joint ventures and associates.

### Contingent liabilities

In October 2017, Rio Tinto announced that it had been notified by the U.S. Securities and Exchange Commission (SEC) that the SEC had filed a complaint in relation to Rio Tinto's disclosures and timing of the impairment of Rio Tinto Coal Mozambique (RTCM). The impairment was reflected in Rio Tinto's 2012 year-end accounts. The SEC alleges that Rio Tinto, a former chief executive, Tom Albanese, and the previous chief financial officer, Guy Elliott, committed violations of the antifraud, reporting, books and records and internal control provisions of the federal securities law by not accurately disclosing the value of RTCM and not impairing it when Rio Tinto published its 2011 year-end accounts in February 2012 or its interim results in August 2012. Rio Tinto believes that the SEC case is unwarranted and that, when all the facts are considered by the court, or if necessary by a jury, the SEC's claims will be rejected. Rio Tinto will defend the allegations vigorously.

Separately, but at the same time, Rio Tinto reached a settlement with the UK's Financial Conduct Authority (FCA) in relation to the timing of the impairment of RTCM. The FCA determined that Rio Tinto should have carried out an impairment review in relation to RTCM for its 2012 interim results and, if it had done so, those results published in August 2012 would have reflected the impairment it recorded six months later. The FCA determined that Rio Tinto had breached the FCA's Disclosure and Transparency Rules and imposed a financial penalty on Rio Tinto of £27.4 million (US\$36.4 million). It is important to stress that the FCA made no findings of fraud, or of any systemic or widespread failure by Rio Tinto. This separate FCA case is now closed. The Australian Securities and Investments Commission is also reviewing the RTCM impairment.

In addition, Rio Tinto continues to co-operate fully with relevant authorities in connection with their investigations in relation to contractual payments totalling US\$10.5 million made to a consultant who had provided advisory services in 2011 on the Simandou project in Guinea.

The outcomes of these matters, and associated class actions that have been commenced on behalf of securities holders, remain uncertain, but they could ultimately expose the Group to material financial cost. The board is giving these matters its full and proper attention and a dedicated board committee continues to monitor the progress of these matters.

The Group is monitoring developments in relation to EU State Aid investigations including the EU Commissions State Aid investigation into the UK's Controlled Foreign Company regime. The Group does not currently consider that any provision is required in relation to EU State Aid.

### Guarantees by parent companies

Rio Tinto plc and Rio Tinto Limited have, jointly and severally, fully and unconditionally guaranteed the following securities issued by the following 100 per cent owned finance subsidiaries: US\$5.8 billion (31 December 2016: US\$8.3 billion) Rio Tinto Finance (USA) Limited and Rio Tinto Finance (USA) plc bonds with maturity dates up to 2042; and US\$2.1 billion (31 December 2016: US\$1.9 billion) on the European Debt Issuance Programme. In addition, Rio Tinto Finance plc and Rio Tinto Finance Limited have entered into facility arrangements for an aggregate amount of US\$7.5 billion (31 December 2016: US\$7.5 billion). The facilities are guaranteed by Rio Tinto plc and Rio Tinto Limited.

Rio Tinto plc has provided a guarantee, known as the completion support undertaking (CSU), in favour of the Oyu Tolgoi LLC project finance lenders. At 31 December 2017, US\$4.3 billion of project finance debt was outstanding under this facility (2016: US\$4.3 billion). Oyu Tolgoi LLC is jointly owned by Erdenes Oyu Tolgoi LLC (34 per cent), which is controlled by the Government of Mongolia, and Turquoise Hill Resources Ltd. (66 per cent, of which Rio Tinto owns 51 per cent). The project finance has been raised for development of the underground mine and the CSU will terminate on the completion of the underground mine according to a set of completion tests set out in the project finance facility.

The Rio Tinto guarantee applies to the extent that Turquoise Hill Resources Ltd cannot satisfy Oyu Tolgoi LLC's project finance debt servicing obligations under its own guarantee to the lenders, called the sponsor debt service undertaking (DSU). Both the CSU and DSU contain a carve-out for certain political risk events.

### Contingent assets

The Group has, from time to time, various insurance claims outstanding with reinsurers. At 31 December 2016 this included a claim relating to the Manefay slide at Rio Tinto Kennecott in April 2013. Interim progress payments were received on this claim in 2013 and 2015; the final payment was received in January 2017.



## 32 Average number of employees

	Subsidiaries and joint operations			Equity accounted units (Rio Tinto share)			Group total		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
<b>The principal locations of employment were:</b>									
Australia and New Zealand	<b>19,041</b>	20,489	22,125	<b>602</b>	849	863	<b>19,643</b>	21,338	22,988
Canada	<b>10,256</b>	10,239	11,113	-	-	-	<b>10,256</b>	10,239	11,113
UK	<b>309</b>	487	542	-	-	-	<b>309</b>	487	542
Europe	<b>1,505</b>	1,722	2,312	-	-	-	<b>1,505</b>	1,722	2,312
Africa	<b>3,461</b>	4,875	5,651	<b>1,269</b>	1,270	1,271	<b>4,730</b>	6,145	6,922
US	<b>3,429</b>	3,196	3,439	-	-	-	<b>3,429</b>	3,196	3,439
Mongolia	<b>2,861</b>	2,737	2,647	-	-	-	<b>2,861</b>	2,737	2,647
Indonesia	<b>1,642</b>	2,862	2,871	-	-	-	<b>1,642</b>	2,862	2,871
South America	<b>197</b>	166	192	<b>1,237</b>	1,388	1,317	<b>1,434</b>	1,554	1,509
Other countries <sup>(a)</sup>	<b>998</b>	749	595	-	-	-	<b>998</b>	749	595
	<b>43,699</b>	47,522	51,487	<b>3,108</b>	3,507	3,451	<b>46,807</b>	51,029	54,938

(a) "Other countries" primarily includes employees in the Middle East (excluding Oman which is included in Africa), India, Singapore and other countries in Asia which are not shown separately in the table above. For the year ended 31 December 2017, the average number of employees in Singapore was 434 (2016: 262) and the average number of employees in India was 310 (2016: 280).

Employee numbers, which represent the average for the year, include 100 per cent of employees of subsidiary companies. Employee numbers for joint operations and equity accounted units are proportional to the Group's interest under contractual agreements. Average employee numbers include a part-year effect for companies acquired or disposed of during the year.

Part-time employees are included on a full-time-equivalent basis. Temporary employees are included in employee numbers.

People employed by contractors are not included.

## Notes to the 2017 financial statements

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### 33 Principal subsidiaries

At 31 December 2017

Company and country of incorporation/ operation	Principal activities	Class of shares held	Proportion of class held (%)	Group interest (%)	Non- controlling interest (%)
Australia					
Argyle Diamonds Limited	Mining and processing of diamonds	Ordinary	100	100	-
Dampier Salt Limited	Salt and gypsum	Ordinary	68.36	68.36	31.64
Energy Resources of Australia Limited	Uranium mining	Ordinary	68.39	68.39	31.61
Hamersley Iron Pty Limited	Iron ore mining	Ordinary	100	100	-
North Mining Limited <sup>(a)</sup>	Iron ore mining	Ordinary	100	100	-
Queensland Coal Pty Limited <sup>(b)</sup>	Coal mining	Ordinary	100	100	-
Rio Tinto Aluminium (Holdings) Limited	Bauxite mining; alumina production; primary aluminium smelting	Ordinary	100	100	-
Robe River Mining Co Pty Ltd <sup>(a)</sup>	Iron ore mining	Class A Class B	40 76.36	60	40
Brazil					
Alcan Alumina Ltda. <sup>(c)</sup>	Alumina production and bauxite mining	Quota	100	100	-
Canada					
Iron Ore Company of Canada <sup>(d)</sup>	Iron ore mining; iron ore pellets	Common	58.72	58.72	41.28
Rio Tinto Fer et Titane Inc.	Titanium dioxide feedstock; high purity iron and steel	Common	100	100	-
		Class B preference	100	100	-
		CAD 0.01 preferred	100	100	-
					-
Rio Tinto Alcan Inc.	Bauxite mining; alumina refining; aluminium smelting	Common	100	100	-
Diavik Diamond Mines (2012) Inc. <sup>(e)</sup>	Diamond mining and processing	Common	100	100	-
Guinea					
Simfer Jersey Limited <sup>(f)</sup>	Iron ore project	Ordinary	53	53	47
Madagascar					
QIT Madagascar Minerals SA <sup>(g)</sup>	Ilmenite mining	Common	80	80	15
		Investment certificates	100	100	
		Voting certificates	80	80	20
Mongolia					
Turquoise Hill Resources Ltd (including Oyu Tolgoi LLC) <sup>(h)</sup>	Copper and gold mining	Common	50.79	50.79	49.21
Namibia					
Rössing Uranium Limited <sup>(i)</sup>	Uranium mining	B N\$1 C N10c	71.22 70.59	68.62	31.38
South Africa					
Richards Bay Titanium (Proprietary) Limited <sup>(j)</sup>	Titanium dioxide/high purity iron production	B Ordinary	100	74	26
		B preference	100		
		Parent Preference	100		
Richards Bay Mining (Proprietary) Limited <sup>(i)</sup>	Ilmenite, rutile and zircon mining	B Ordinary	100	74	26
		B preference	100		
		Parent Preference	100		
United States of America					
Kennecott Holdings Corporation (including Kennecott Utah Copper, Kennecott Land and Kennecott Exploration)	Copper and gold mining, smelting and refining, land development and exploration activities	Common US\$0.01	100	100	-
U.S. Borax Inc.	Mining, refining and marketing of borates	Common US\$0.10	100	100	-

This list includes only those companies that have a more significant impact on the profit or assets of the Group. Refer to note 46 for a list of related undertakings.

The Group's principal subsidiaries are mostly held by intermediate holding companies and not directly by Rio Tinto plc or Rio Tinto Limited.

- (a) Robe River Mining Co Pty Ltd (which is 60 per cent owned by the Group) holds a 30 per cent interest in Robe River Iron Associates (Robe River). North Mining Ltd (which is wholly owned by the Group) holds a 35 per cent interest in Robe River. Through these companies the Group recognises a 65 per cent share of the assets, liabilities, revenues and expenses of Robe River, with a 12 per cent non-controlling interest. The Group therefore has a 53 per cent beneficial interest in Robe River
- (b) Queensland Coal Pty Limited is the main legal entity that holds the Group's interests in Hail Creek (82 per cent) and Kestrel (80 per cent). These are unincorporated arrangements that are not entities; the Group recognises its share of assets, liabilities, revenues and expenses relating to these arrangements. Queensland Coal forms part of the Rio Tinto Coal Australia business unit.
- (c) Alcan Alumina Ltda holds the Group's 10 per cent interest in Consórcio De Alumínio Do Maranhão, a joint operation in which the Group participates but is not a joint operator. The Group recognises its share of assets, liabilities, revenues and expenses relating to this arrangement.
- (d) Iron Ore Company of Canada is incorporated in the United States of America, but operates in Canada.
- (e) Diavik Diamond Mines (2012) Inc. is the legal entity that owns the Group's 60 per cent interest in the Diavik Joint Venture, an unincorporated arrangement that is not an entity. The Group recognises its share of assets, liabilities, revenue and expenses relating to this arrangement.
- (f) Simfer Jersey Limited, a company incorporated in Jersey in which the Group has a 53 per cent interest, has an 85 per cent interest in Simfer S.A. the company that operates the Simandou mining project in Guinea. The Group therefore has a 45.05 per cent indirect interest in Simfer S.A. These entities are consolidated as subsidiaries and together referred to as the Simandou iron ore project.
- (g) The Group's shareholding in QIT Madagascar Minerals SA carries an 80 per cent economic interest and 80 per cent of the total voting rights; a further 5 per cent economic interest is held through non-voting investment certificates to give an economic interest of 85 per cent. The non-controlling interests have a 15 per cent economic interest and 20 per cent of the total voting rights.
- (h) The Group has a 50.79 per cent interest in Turquoise Hill Resources Ltd, which holds a 66 per cent interest in Oyu Tolgoi LLC (OT) which is subsidiary of Turquoise Hill Resources Ltd. The Group therefore has a 33.5 per cent indirect interest in OT. Turquoise Hill Resources Ltd is incorporated in Canada but operates principally in Mongolia.
- (i) The Group's shareholding in Rössing Uranium Limited entitles it to 35.57 per cent of the total voting rights; the non-controlling interests hold 64.43 per cent of the total voting rights. Rössing is consolidated by virtue of the Group's board control. The Government of Namibia has the ability to veto matters that are considered not to be in the interest of Namibia; this is considered to be a protective right. Rio Tinto therefore has control of Rössing and consolidates it as a subsidiary.
- (j) Additional classes of shares issued by Richards Bay Titanium (Proprietary) Limited and Richards Bay Mining (Proprietary) Limited representing non-controlling interests are not shown. The Group's total legal and beneficial interest in Richards Bay Titanium (Proprietary) Limited and Richards Bay Mining (Proprietary) Limited is 74 per cent.

#### Summary financial information for subsidiaries that have non-controlling interests that are material to the Group

This summarised financial information is shown on a 100 per cent basis. It represents the amounts shown in the subsidiaries' financial statements prepared in accordance with IFRS under Group accounting policies, including fair value adjustments, and before intercompany eliminations.

	<b>Iron Ore Company of Canada 2017 US\$m</b>	Iron Ore Company of Canada 2016 US\$m	<b>Energy Resources of Australia 2017 US\$m</b>	Energy Resources of Australia 2016 US\$m	<b>Turquoise Hill <sup>(a)</sup> 2017 US\$m</b>	Turquoise Hill <sup>(a)</sup> 2016 US\$m
Revenue	<b>1,867</b>	1,324	<b>157</b>	193	<b>940</b>	1,203
Profit/(loss) after tax	<b>377</b>	108	<b>(29)</b>	7	<b>22</b>	140
– attributable to non-controlling interests	<b>156</b>	44	<b>(9)</b>	2	<b>(49)</b>	37
– attributable to Rio Tinto	<b>221</b>	64	<b>(20)</b>	5	<b>71</b>	103
Other comprehensive income	<b>144</b>	56	<b>-</b>	-	<b>4</b>	2
Total comprehensive income/(loss)	<b>521</b>	164	<b>(29)</b>	7	<b>26</b>	142
Non-current assets	<b>2,535</b>	2,315	<b>57</b>	58	<b>9,008</b>	7,969
Current assets	<b>714</b>	627	<b>406</b>	383	<b>4,953</b>	5,702
Current liabilities	<b>(449)</b>	(348)	<b>(128)</b>	(96)	<b>(504)</b>	(316)
Non-current liabilities	<b>(838)</b>	(755)	<b>(356)</b>	(336)	<b>(4,311)</b>	(4,257)
Net assets/(liabilities)	<b>1,962</b>	1,839	<b>(21)</b>	9	<b>9,146</b>	9,098
– attributable to non-controlling interests	<b>809</b>	759	<b>(7)</b>	2	<b>3,982</b>	4,073
– attributable to Rio Tinto	<b>1,153</b>	1,080	<b>(14)</b>	7	<b>5,164</b>	5,025
Cash flow from operations	<b>840</b>	302	<b>(2)</b>	18	<b>295</b>	387
Dividends paid to non-controlling interests	<b>(162)</b>	(31)	<b>-</b>	-	<b>-</b>	-

(a) Turquoise Hill Resources Ltd holds controlling interests in Oyu Tolgoi.

(b) Under the terms of the project finance facility held by Oyu Tolgoi there are certain restrictions on the ability of Oyu Tolgoi to make shareholder distributions.

## Notes to the 2017 financial statements

continued

### 33 Principal subsidiaries continued

	Robe River Mining Co Pty 2017 US\$m	Robe River Mining Co Pty 2016 US\$m	Other companies and eliminations (c) 2017 US\$m	Other companies and eliminations (c) 2016 US\$m	Robe River 2017 US\$m	Robe River 2016 US\$m
Revenue	1,164	982	1,351	1,139	2,515	2,121
Profit after tax	617	482	637	517	1,254	999
– attributable to non-controlling interests	242	193	-	-	242	193
– attributable to Rio Tinto	375	289	637	517	1,012	806
Other comprehensive income/(loss)	238	(23)	158	(20)	396	(43)
Total comprehensive income/(loss)	855	459	795	497	1,650	956
Non-current assets	2,927	2,797	4,187	3,976	7,114	6,773
Current assets <sup>(d)</sup>	1,453	1,122	571	801	2,024	1,923
Current liabilities <sup>(d)</sup>	(186)	(92)	(1,357)	(1,350)	(1,543)	(1,442)
Non-current liabilities	(752)	(666)	(1,666)	(1,546)	(2,418)	(2,212)
Net assets	3,442	3,161	1,735	1,881	5,177	5,042
– attributable to non-controlling interests	1,375	1,263	-	-	1,375	1,263
– attributable to Rio Tinto	2,067	1,898	1,735	1,881	3,802	3,779
Cash flow from operations <sup>(d)</sup>	1,048	824	1,207	817	2,255	1,641
Dividends paid to non-controlling interests	(230)	(268)	-	-	(230)	(268)

(c) "Other companies and eliminations" includes North Mining Limited, a wholly owned subsidiary of the Group which accounts for its interest in Robe River and goodwill of US\$389 million (2016: US\$360 million) that arose on acquisition of the Group's interest in Robe River.

(d) The 2016 comparative has been adjusted to more appropriately classify certain balances.

### 34 Principal joint operations

Company and country of incorporation/operation	Principal activities	Group interest (%)
<b>Australia</b>		
Tomago Aluminium Joint Venture	Aluminium smelting	51.6
Kestrel <sup>(a)</sup>	Coal mining	80
Gladstone Power Station	Power generation	42.1
Hope Downs Joint Venture	Iron ore mining	50
Queensland Alumina Limited <sup>(b) (c)</sup>	Alumina production	80
Pilbara Iron arrangement	Infrastructure, corporate and mining services	<sup>(d)</sup>
<b>New Zealand</b>		
New Zealand Aluminium Smelters Limited <sup>(b) (c)</sup>	Aluminium smelting	79.36
<b>Canada</b>		
Aluminerie Alouette Inc.	Aluminium production	40
<b>Indonesia</b>		
Grasberg expansion <sup>(e)</sup>	Copper and gold mining	40
<b>United States of America</b>		
Pechiney Reynolds Quebec Inc <sup>(c) (f)</sup>	Aluminium smelting	50.2

This list includes only those joint operations that have a more significant impact on the profit or operating assets of the Group. Refer to note 46 for a list of related undertakings.

The Group's joint operations are held by intermediate holding companies and not directly by Rio Tinto plc or Rio Tinto Limited.

- (a) Although the Group has an 80 per cent interest in the Kestrel Joint Venture, decisions about activities that significantly affect the returns that are generated require agreement of both parties to the Joint Venture Agreement, giving rise to joint control.
- (b) Although the Group has a 79.4 per cent interest in New Zealand Aluminium Smelters Limited and an 80 per cent interest in Queensland Alumina Limited, decisions about activities that significantly affect the returns that are generated require agreement of both parties to the arrangements, giving rise to joint control.
- (c) Queensland Alumina Limited, New Zealand Aluminium Smelters Limited and Pechiney Reynolds Quebec Inc. are joint arrangements that are primarily designed for the provision of output to the parties sharing joint control; this indicates that the parties have rights to substantially all the economic benefits of the assets. The liabilities of the arrangements are in substance satisfied by cash flows received from the parties; this dependence indicates that the parties in effect have obligations for the liabilities. It is these facts and circumstances that give rise to the classification of these entities as joint operations.
- (d) A number of arrangements are in place between the Australian Iron Ore operations managed by Rio Tinto which allow their respective assets to be operated as a single integrated network across the Pilbara region. The arrangements are managed through two wholly owned subsidiaries: Pilbara Iron (Company) Services Pty Ltd and Pilbara Iron Pty Ltd. In assessing the Pilbara Iron arrangements it has been concluded that they collectively constitute a joint operation on the basis that decisions about relevant activities require unanimous consent, the resulting efficiencies are shared between Rio Tinto and Robe River Iron Associates (Robe River), and the parties fund all of the cash flow requirements of Pilbara Iron (Company) Services Pty Ltd and Pilbara Iron Pty Ltd.
- (e) Under the terms of a contractual agreement, Rio Tinto is entitled to 40 per cent of production above specified levels until the end of 2021 and 40 per cent of all production thereafter under the Participation Agreement. This date is subject to extension under certain conditions.
- (f) Pechiney Reynolds Quebec Inc. has a 50.1 per cent interest in the Aluminerie de Bécancour, Inc. aluminium smelter, which is located in Canada.

## 35 Principal joint ventures

### At 31 December 2017

Company and country of incorporation/operation	Principal activities	Number of shares held	Class of shares held	Proportion of class held (%)	Group interest (%)
<b>Chile</b>					
Minera Escondida Limitada <sup>(a)</sup>	Copper mining and refining	-	-	30	30
<b>Oman</b>					
Sohar Aluminium Co. L.L.C. <sup>(b)</sup>	Aluminium smelting/power generation	37,500	Ordinary	20	20

This list includes only those joint ventures that have a more significant impact on the profit or operating assets of the Group. Refer to note 46 for a list of related undertakings.

The Group's principal joint ventures are held by intermediate holding companies and not directly by Rio Tinto plc or Rio Tinto Limited.

- (a) Although the Group has a 30 per cent interest in Minera Escondida Limitada, participant and management agreements provide for an Owners' Council whereby significant commercial and operational decisions about the relevant activities that significantly affect the returns that are generated in effect require the joint approval of both Rio Tinto and BHP Billiton (holders of a 57.5 per cent interest). It is therefore determined that Rio Tinto has joint control. The year-end of Minera Escondida Limitada is 30 June. The amounts included in the consolidated financial statements of Rio Tinto are, however, based on accounts of Minera Escondida Limitada that are coterminous with those of the Group.
- (b) Although the Group holds a 20 per cent interest in Sohar Aluminium Co. L.L.C., decisions about relevant activities that significantly affect the returns that are generated require agreement of all parties to the arrangement. It is therefore determined that Rio Tinto has joint control.

#### Summary information for joint ventures that are material to the Group

This summarised financial information is shown on a 100 per cent basis. It represents the amounts shown in the joint ventures' financial statements prepared in accordance with IFRS under Group accounting policies, including fair value adjustments and amounts due to and from Rio Tinto.

	Minera Escondida Limitada <sup>(a)</sup> 2017 US\$m	Minera Escondida Limitada <sup>(a)</sup> 2016 US\$m	Sohar Aluminium Company LLC <sup>(b)</sup> 2017 US\$m	Sohar Aluminium Company LLC <sup>(b)</sup> 2016 US\$m
Revenue	6,037	4,883	460	610
Depreciation and amortisation	(1,690)	(1,213)	(145)	(130)
Other operating costs	(2,617)	(2,199)	(205)	(425)
Operating profit	1,730	1,471	110	55
Finance expense	(120)	(47)	(35)	(25)
Income tax	(627)	(517)	-	-
Profit after tax	983	907	75	30
Total comprehensive income	983	907	75	30
Non-current assets	13,814	14,947	3,230	3,275
Current assets	2,760	2,257	305	255
Current liabilities	(1,727)	(1,403)	(205)	(45)
Non-current liabilities	(4,617)	(4,112)	(1,270)	(1,505)
Net assets	10,230	11,689	2,060	1,980
Assets and liabilities above include:				
Cash and cash equivalents	460	443	95	20
Current financial liabilities <sup>(c)</sup>	(330)	(467)	(130)	(100)
Non-current financial liabilities <sup>(c)</sup>	(2,840)	(2,643)	(1,120)	(1,230)
Dividends received from joint venture (Rio Tinto share) <sup>(c)</sup>	780	210	-	-

#### Reconciliation of the above amounts to the investment recognised in the Consolidated Statement of Financial Position

	30%	30%	20%	20%
Group interest	30%	30%	20%	20%
Net assets	10,230	11,689	2,060	1,980
Group's ownership interest	3,069	3,507	412	396
Other adjustments	4	(3)	(3)	(2)
Carrying value of Group's interest	3,073	3,504	409	394

- (a) In addition to its "Investment in equity accounted units", the Group recognises deferred tax liabilities of US\$500 million (2016: US\$579 million) relating to tax on unremitted earnings of equity accounted units.
- (b) Under covenants stipulated in the agreement to Sohar Aluminium's secured loan facilities, Sohar Aluminium is currently restricted from making any shareholder distributions until 2021 unless a specified amount of the loan facilities is funded.
- (c) The 2016 comparative has been adjusted to more appropriately classify certain balances.



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## 36 Principal associates

At 31 December 2017

Company and country of incorporation/operation	Principal activities	Number of shares held	Class of shares held	Proportion of class held (%)	Group interest (%)
<b>Australia</b>					
Boyne Smelters Limited <sup>(a)</sup>	Aluminium smelting	153,679,560	Ordinary	59.4	59.4
<b>Brazil</b>					
Mineração Rio do Norte S.A. <sup>(b)</sup>	Bauxite mining	25,000,000,000 47,000,000,000	Ordinary Preferred	12.5 11.75	12
<b>United States of America</b>					
Halco (Mining) Inc	(c)	4,500	Common	45	45

This list includes only those associates that have a more significant impact on the profit or operating assets of the Group. Refer to note 46 for a list of related undertakings.

The Group's principal associates are held by intermediate holding companies and not directly by Rio Tinto plc or Rio Tinto Limited.

- (a) The parties that collectively control Boyne Smelters Limited do so through decisions that are determined on an aggregate voting interest that can be achieved by several combinations of the parties. Although each combination requires Rio Tinto's approval, this is not joint control as defined under IFRS 11. Rio Tinto is therefore determined to have significant influence over this company.
- (b) Although the Group holds only 12 per cent of Mineração Rio do Norte S.A., it has representation on its board of directors and a consequent ability to participate in the financial and operating policy decisions. It is therefore determined that Rio Tinto has significant influence.
- (c) Halco (Mining) Inc has a 51 per cent indirect interest in Compagnie des Bauxites de Guinée, a bauxite mine, the core assets of which are located in Guinea.

### Summary information for associates that are material to the Group

This summarised financial information is shown on a 100 per cent basis. It represents the amounts shown in the associate's financial statements prepared in accordance with IFRS under Group accounting policies, including fair value adjustments and amounts due to and from Rio Tinto.

	<b>Boyne Smelters Limited <sup>(a)</sup> 2017 US\$m</b>	Boyne Smelters Limited <sup>(a)</sup> 2016 US\$m
Revenue	-	-
Profit after tax	5	12
Other comprehensive income/(loss) <sup>(b)</sup>	56	(4)
Total comprehensive income	61	8
Non-current assets	1,468	1,465
Current assets	88	66
Current liabilities	(99)	(121)
Non-current liabilities	(996)	(987)
Net assets	461	423

(a) Boyne Smelters Limited is a tolling operation; as such it is dependent on its participants for funding which is provided through cash calls. Rio Tinto Aluminium has made certain prepayments to Boyne for toll processing of alumina. These are charged to Group operating costs as processing takes place.

(b) "Other comprehensive income/(loss)" is net of amounts recognised by subsidiaries in relation to quasi equity loans.

Group interest	59.4%	59.4%
Net assets	461	423
Group's ownership interest	274	251
Loans to equity accounted units	159	163
Carrying value of Group's interest	433	414

### Summary information for joint ventures and associates that are not individually material to the Group

	<b>Joint ventures 2017 US\$m</b>	Joint ventures 2016 US\$m	<b>Associates 2017 US\$m</b>	Associates 2016 US\$m
Carrying value of Group's interest	-	-	571	707
Profit after tax	-	-	25	36
Other comprehensive income/(loss)	-	-	14	13
Total comprehensive income	-	-	39	49

## 37 Purchases and sales of subsidiaries, joint ventures, associates and other interests in businesses

### Acquisitions

There were no material acquisitions during the years ended 31 December 2017, 2016 and 2015.

In May 2017, the Group's subsidiary, Simfer Jersey Limited (Rio Tinto share: 53 per cent) purchased a 4.25 per cent interest in Simfer SA from International Finance Corporation (IFC) for US\$194 million in accordance with a put option exercised by IFC. Consequently, the Group's share of Simfer SA increased from 42.80 per cent to 45.05 per cent.

### 2017 disposals

On 1 September 2017, Rio Tinto disposed of its 100 per cent shareholding in Coal & Allied Industries Limited to Yancoal Australia Limited for total consideration of US\$2.69 billion (before working capital adjustments). The US\$2.69 billion comprises US\$2.45 billion in cash paid on the closing date and a further US\$240 million of unconditional guaranteed royalty payments. During 2017, US\$110 million has been received; total net cash proceeds received in 2017, net of working capital adjustments, transaction costs and cash transferred, were US\$2.54 billion. Rio Tinto expects to receive the remaining US\$130 million of unconditional guaranteed royalty payments between 2018 and 2021.

### 2016 disposals

On 1 March 2016, Rio Tinto disposed of its 40 per cent interest in the Bengalla Joint Venture to New Hope Corporation Limited for US\$616.7 million (before finalisation of net debt and working capital adjustments).

On 31 March 2016, Rio Tinto disposed of its 100 per cent interest in Carbone Savoie to Alandia Industries.

Rio Tinto transferred its 53.83 per cent shareholding in Bougainville Copper Limited ("BCL") to Equity Trustees Limited (independent trustee) on 30 June 2016 for nil consideration. Equity Trustees Limited subsequently distributed the shares in accordance with the trust deed to nominees of each of the Autonomous Bougainville Government (36.4 per cent) and the Independent State of Papua New Guinea (17.4 per cent) such that each party now controls an equal share of BCL (36.4 per cent). The Group did not previously consolidate

BCL as it was determined that in accordance with IFRS, as defined in note 1, that the Group does not control the relevant activities, being the mining of copper at the Panguna mine, which was brought to a halt by militant activity in 1989. The carrying value had previously been fully impaired and therefore the transfer resulted in no financial impact for the year ended 31 December 2016.

On 20 July 2016, a tranche of 7.5 per cent non-contributory shares in Simfer S.A. was transferred free of charge to the Government of Guinea as per the terms of the Simandou project agreement signed in 2014, further diluting the ownership percentage of Rio Tinto and its partners in the project. Under the agreement, a second tranche comprising 10 per cent Ordinary Contributory Shares may be acquired at any time for a pro rata share of historical mining cost. The remaining two tranches of 5 per cent ordinary contributing shares may be acquired by the Government of Guinea at market value at any time after 22 April 2026 and 22 April 2031 respectively.

On 2 September 2016, Rio Tinto disposed of its interest in Zululand Anthracite Colliery.

On 23 November 2016, Rio Tinto disposed of its 100 per cent interest in Lochaber to SIMEC for US\$410 million (before finalisation of closing adjustments and transaction costs) of which US\$224 million was received in December 2016. The second and final instalment of funds was received during April 2017.

### 2015 disposals

On 23 April 2015, Turquoise Hill Resources Ltd completed the block sale of 48.7 million common shares in SouthGobi Resources Ltd and with further divestments has reduced its interest to below 20 per cent. As at 31 December 2015 Turquoise Hill Resources Ltd's interest in SouthGobi Resources Ltd was no longer consolidated as a subsidiary and had been classified as an available for sale investment.

On 17 June 2015, Rio Tinto disposed of its 77.8 per cent interest in Murowa Diamonds and 50 per cent interest in Sengwa Colliery Ltd (Sengwa) to RZ Murowa Holdings Limited.

Rio Tinto completed the sale of ECL to Fives on 9 July 2015 and the sale of Alesa to Groupe Reel on 24 November 2015.

## 38 Directors' and key management remuneration

Aggregate remuneration, calculated in accordance with the UK Companies Act 2006, of the directors of the parent companies was as follows:

	2017 US\$'000	2016 US\$'000	2015 US\$'000
Emoluments	8,339	9,186	10,590
Long-term incentive plans	4,685	3,071	2,118
	13,024	12,257	12,708
Pension contributions: defined contribution plans	135	69	52
Gains made on exercise of share options	-	-	1

The Group defines key management personnel as the directors and members of the Executive Committee. The Executive Committee comprises the executive directors, product group chief executive officers and Group executives.

The aggregate remuneration incurred by Rio Tinto plc in respect of its directors was US\$12,624,000 (2016: US\$10,630,000; 2015: US\$6,385,000). The aggregate pension contribution to defined contribution plans was US\$135,000 (2016: US\$69,000; 2015: US\$52,000). The aggregate remuneration, including pension contributions and other retirement benefits, incurred by Rio Tinto Limited in respect of its directors was US\$535,000 (2016: US\$1,696,000; 2015: US\$6,375,000). The aggregate pension contribution to defined contribution plans was US\$nil (2016: US\$nil; 2015: US\$nil).

During 2017, no director (2016: one; 2015: one) accrued retirement benefits under defined benefit arrangements, and two directors (2016: two; 2015: one) accrued retirement benefits under defined contribution arrangements.

Emoluments included in the table above have been translated from local currency at the average exchange rate for the year with the exception of bonus payments which, together with amounts payable under long-term incentive plans, have been translated at the year-end rate.

Detailed information concerning directors' remuneration, shareholdings and options is shown in the Remuneration Report, including tables 1 to 3, on pages 70 to 105.

## Notes to the 2017 financial statements

continued

### 38 Directors' and key management remuneration continued

Aggregate compensation, representing the expense recognised under IFRS, as defined in note 1, of the Group's key management, including directors, was as follows:

	2017 US\$'000	2016 US\$'000	2015 US\$'000
Short-term employee benefits and costs	23,095	22,269	25,616
Post-employment benefits	415	3,461	1,049
Employment termination benefits	-	2,682	-
Share-based payments	8,033	15,806	17,566
	31,543	44,218	44,231

The figures shown above include employment costs which comprise social security and accident premiums in Canada, the UK and US and payroll taxes in Australia paid by the employer as a direct additional cost of hire. In total, they amount to US\$2,122,000 (2016: US\$2,295,000; 2015: US\$2,320,000) and although disclosed here, are not included in table 1 of the Remuneration Report.

More detailed information concerning the remuneration of key management is shown in the Remuneration report, including tables 1 to 3 on pages 70 to 105.

### 39 Auditors' remuneration

	2017 US\$m	2016 US\$m	2015 US\$m
<b>Group Auditors' remuneration <sup>(a)</sup></b>			
Audit of the company	6.2	4.5	4.3
Audit of subsidiaries	8.1	9.0	10.1
Total audit	14.3	13.5	14.4
Audit related assurance service	1.0	0.9	0.9
Other assurance services <sup>(b)</sup>	2.3	0.6	0.9
Total assurance services	3.3	1.5	1.8
Tax compliance <sup>(c)</sup>	0.3	0.5	0.5
Tax advisory services <sup>(c)</sup>	0.2	0.1	0.4
Services related to corporate finance transactions not covered above			
– services in connection with bond issues/capital raising	-	-	0.2
Other non-audit services not covered above	0.7	1.8	1.1
Total non-audit services	4.5	3.9	4.0
<b>Total Group Auditors' remuneration</b>	<b>18.8</b>	<b>17.4</b>	<b>18.4</b>
<b>Audit fees payable to other accounting firms</b>			
Audit of the financial statements of the Group's subsidiaries	2.0	2.1	1.9
Fees in respect of pension scheme audits	0.5	0.3	0.2
<b>Total audit fees payable to other accounting firms</b>	<b>2.5</b>	<b>2.4</b>	<b>2.1</b>

(a) The remuneration payable to PwC, the Group Auditors, is approved by the Audit committee. The committee sets the policy for the award of non-audit work to the auditors and approves the nature and extent of such work, and the amount of the related fees, to ensure that independence is maintained. The fees disclosed above consolidate all payments made to member firms of PwC by the Companies and their subsidiaries, together with the Group's share of the payments made by joint operations. Non-audit services arise largely from assurance and/or regulation related work.

(b) Other assurance services are mainly related to carve-out financial statements and sustainability assurance.

(c) "Taxation services" includes tax compliance and advisory services. Tax compliance involves the review of returns for corporation, income, sales and excise taxes. Tax advisory services include advice on non-recurring acquisitions and disposals, advice on transfer pricing and advice on employee global mobility.

## 40 Related-party transactions

Information about material related-party transactions of the Rio Tinto Group is set out below:

### Subsidiary companies and joint operations

Details of investments in principal subsidiary companies are disclosed in note 33. Information relating to joint operations can be found in note 34.

### Equity accounted units

Transactions and balances with equity accounted units are summarised below. Purchases, trade and other receivables, and trade and other payables relate largely to amounts charged by equity accounted units for toll processing of alumina and purchasing of bauxite and aluminium. Sales relate largely to sales of alumina to equity accounted units for smelting into aluminium.

	Note	2017 US\$m	2016 US\$m	2015 US\$m
<b>Income statement items</b>				
Purchases from equity accounted units		(993)	(1,216)	(1,249)
Sales to equity accounted units		210	248	307
<b>Cash flow statement items</b>				
Dividends from equity accounted units		817	253	210
Net funding of equity accounted units		(3)	(12)	11
<b>Balance sheet items</b>				
Investments in equity accounted units <sup>(a)</sup>	15	4,486	5,019	4,941
Loans to equity accounted units	20	39	39	42
Loans from equity accounted units	22	(31)	(49)	(37)
Trade and other receivables: amounts due from equity accounted units <sup>(b)</sup>	18	299	298	315
Trade and other payables: amounts due to equity accounted units	25	(175)	(243)	(231)

(a) Investments in equity accounted units include quasi equity loans. Further information about investments in equity accounted units is set out in notes 35 and 36.

(b) This includes prepayments of tolling charges.

### Pension funds

Information relating to pension fund arrangements is set out in note 44.

### Directors and key management

Details of directors' and key management remuneration are set out in note 38 and in the Remuneration Report on pages 70 to 105.

## 41 Exchange rates in US\$

The principal exchange rates used in the preparation of the 2017 financial statements were:

	Full-year average			Year-end		
	2017	2016	2015	2017	2016	2015
Sterling	1.29	1.36	1.53	1.34	1.22	1.48
Australian dollar	0.77	0.74	0.75	0.78	0.72	0.73
Canadian dollar	0.77	0.76	0.78	0.79	0.74	0.72
Euro	1.13	1.11	1.11	1.20	1.05	1.09
South African rand	0.075	0.068	0.079	0.081	0.073	0.064

## 42 Events after the balance sheet date

On 10 January 2018, the Group announced it had received a binding offer from Liberty House to acquire the Group's Aluminium Dunkerque smelter in northern France for US\$500 million, subject to final adjustments. In accordance with French law, the Group will launch a consultation process with employees, relevant European works councils and other stakeholders in relation to the bid. Subject to satisfactory completion of these consultations, the Group expects to complete the sale of Aluminium Dunkerque in the second quarter of 2018. As at 31 December 2017 Rio Tinto's interest in the Aluminium Dunkerque smelter was classified as held for sale.

On 7 February 2018, the Group announced an on-market share buy-back programme of US\$1.0 billion Rio Tinto plc shares; this is in addition to US\$1.925 billion under the US\$2.5 billion programme announced on 21 September 2017, which started on 27 December 2017. Rio Tinto plc shares that have been bought back under these

programmes during 2018 have been cancelled and announcements have been made to the relevant stock exchanges.

On 26 February 2018, the Group announced it had received a binding offer from Hydro to acquire its aluminium assets in Northern Europe for US\$345 million, subject to final adjustments. The transaction includes the Group's ISAL smelter in Iceland, its 53.3 per cent share in the Aluchemie anode plant in the Netherlands and its 50 per cent share in the Alufloor aluminium fluoride plant in Sweden. In accordance with the applicable laws, the Group will launch a consultation process with employees, relevant European works councils and other stakeholders. Subject to satisfactory completion of these consultations and certain other conditions, the Group expects to conclude the sale in the second quarter of 2018.

Except as disclosed above, no significant events were identified after the balance sheet date.

# Notes to the 2017 financial statements

continued

## 43 Share-based payments

Rio Tinto plc and Rio Tinto Limited have a number of share-based incentive plans, which are described in detail in the Remuneration Report. These plans have been accounted for in accordance with the fair value recognition provisions of IFRS 2 "Share-based Payment".

The charge that has been recognised in the income statement for Rio Tinto's share-based incentive plans, and the related liability (for cash-settled plans), is set out in the table below.

	Charge recognised for the year			Liability at the end of the year	
	2017 US\$m	2016 US\$m	2015 US\$m	2017 US\$m	2016 US\$m
Equity-settled plans	88	116	128	-	-
Cash-settled plans	3	-	-	15	1
<b>Total</b>	<b>91</b>	<b>116</b>	<b>128</b>	<b>15</b>	<b>1</b>

The main Rio Tinto plc and Rio Tinto Limited plans are as follows:

### Share Savings Plans

Awards under these plans are settled in equity and accounted for accordingly. The fair value of each award on the day of grant was estimated using a lattice-based option valuation model, including allowance for the exercise price being at a discount to market price.

Awards are no longer granted under the Share Savings Plans as these plans were replaced by the Global Employee Share Plans in 2012. All charges have been incurred as the remaining unvested awards vested during 2017. No outstanding awards remain under these plans.

### Share Option Plans

Awards are no longer granted under the Share Option Plans and all charges have been incurred as the remaining awards all vested before 2017, although there remain outstanding vested options under these plans.

### UK Share Plan (formerly the Share Ownership Plan)

The fair values of Matching and Free Shares made by Rio Tinto plc are taken to be the market value of the shares on the date of purchase. These awards are settled in equity.

### Performance Share Plans

Participants are generally assigned shares in settlement of their awards on vesting and therefore the awards are accounted for in accordance with the requirements applying to equity-settled share-based payment transactions, including the dividends accumulated from date of award to vesting.

For the parts of awards with Total Shareholder Return (TSR) performance conditions, the fair value of the awards was calculated using a Monte Carlo simulation model taking into account the TSR performance conditions. One-third of the awards granted since 2013 are subject to an earnings performance target relative to ten global mining comparators. As this is a non-market related performance condition, under IFRS 2, the fair value recognised is reviewed at each accounting date based on the directors' expectations for the proportion vesting. Forfeitures prior to vesting are assumed at five per cent per annum of outstanding awards (2016: five per cent per annum).

### Management Share Plans

The Management Share Plans were introduced in 2007 (and re-adopted in 2017) to provide conditional share-based awards to management. The vesting of these awards is dependent on service conditions being met. In general, the awards will be settled in equity, including the dividends accumulated from date of award to vesting. The awards are accounted for in accordance with the requirements applying to equity-settled share-based payment transactions.

The fair value of each award on the day of grant is equal to the share price on the day of grant less a small adjustment for the timing of dividends. For awards granted in 2017 this adjustment is negligible and therefore the fair value of each award is equal to the share price on the day of grant. Forfeitures prior to vesting are assumed at seven

per cent per annum of outstanding awards (2016: seven per cent per annum).

### Bonus Deferral Plans

The Bonus Deferral Plans were introduced in 2009 for the mandatory deferral of 50 per cent of the bonuses for executive directors and product group executives and 25 per cent of the bonuses for other executives.

The vesting of these awards is dependent only on service conditions being met. In general, the awards will be settled in equity including the dividends accumulated from date of award to vesting. The awards are accounted for in accordance with the requirements applying to equity-settled share-based payment transactions. The fair value of each award on the day of grant is equal to the share price on the day of grant less a small adjustment for the timing of dividends. For awards granted in 2017 this adjustment is negligible and therefore the fair value of each award is equal to the share price on the day of grant. Forfeitures prior to vesting are assumed at three per cent per annum of outstanding awards (2016: three per cent per annum).

### Global Employee Share Plans

The Global Employee Share Plans were introduced in 2012. The Companies provide matching shares for each investment share purchased by a participant. The vesting of these matching awards is dependent on service conditions being met. These awards are settled in equity including the dividends accumulated from date of award to vesting. The fair value of each matching share on the day of grant is equal to the share price on the date of purchase less a deduction of 15 per cent for cancellations (caused by employees electing to withdraw their investment shares before vesting of their matching shares). Forfeitures prior to vesting are assumed at five per cent per annum of outstanding awards (2016: five per cent per annum).



## Summary of options outstanding and exercisable

A summary of the status of the Companies' equity-settled share option plans at 31 December 2017 is presented below.

	Number	Weighted average exercise price per option £/A\$	Weighted average remaining contractual life Years	Aggregate intrinsic value 2017 US\$m
<b>Options outstanding and exercisable at 31 December 2017</b>				
Rio Tinto plc Share Option Plan (exercise price £16 - £43)	164,119	32	2.56	2
Rio Tinto Limited Share Option Plan (exercise price A \$33)	24,647	33	1.21	1
	188,766			3

As at 31 December 2017 there were no options outstanding under either the Rio Tinto plc or the Rio Tinto Limited Share Savings Plans.

As at 31 December 2016 there were 567,598 options outstanding with an aggregate intrinsic value of US\$3 million.

The Management Share Plans, Performance Share Plans, Bonus Deferral Plans, Global Employee Share Plans and UK Share Plan together represent 100 per cent (2016: 100 per cent) of the total IFRS 2 charge for Rio Tinto plc and Rio Tinto Limited plans in 2017.

## Performance Share Plans

	Rio Tinto plc awards				Rio Tinto Limited awards			
	Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date	
	2017 Number	2017 £	2016 Number	2016 £	2017 Number	2017 A\$	2016 Number	2016 A\$
Non-vested shares at 1 January	2,883,053	18.27	2,988,454	21.29	1,590,957	37.52	2,048,823	41.13
Awarded	1,198,677	24.64	1,085,974	12.81	529,776	45.84	535,418	28.66
Forfeited	(199,435)	16.28	(603,871)	17.22	(36,716)	36.59	(526,212)	36.18
Failed performance conditions	(161,966)	16.25	(203,491)	24.61	(113,857)	30.89	(161,937)	44.71
Vested	(165,055)	21.51	(384,013)	24.61	(84,284)	40.79	(305,135)	44.71
Transfers from equity to cash-settled <sup>(a)</sup>	-	-	-	-	(276,722)	40.11	-	-
Non-vested shares at 31 December	3,555,274	20.47	2,883,053	18.27	1,609,154	40.13	1,590,957	37.52

	Weighted average share price		Weighted average share price		Weighted average share price		Weighted average share price	
	2017 Number	2017 £	2016 Number	2016 £	2017 Number	2017 A\$	2016 Number	2016 A\$
Vested awards settled in shares during the year (including dividend shares applied on vesting)	188,383	31.04	368,623	19.08	73,311	63.09	284,507	42.99
Vested awards settled in cash during the year (including dividend shares applied on vesting)	-	-	486	19.00	5,010	62.81	847	43.47

(a) In 2017, an agreement was reached between the Group and a former director to settle any of their future vested awards in cash rather than equity.

In addition to the equity-settled awards shown above, there were 26,590 Rio Tinto plc and 276,722 Rio Tinto Limited cash-settled awards outstanding at 31 December 2017 (2016: 22,010 Rio Tinto plc cash-settled awards outstanding). The total liability for these awards at 31 December 2017 was US\$9 million (2016: less than US\$1 million).

# Notes to the 2017 financial statements

continued

## 43 Share-based payments continued

### Management Share Plans, Bonus Deferral Plans, Global Employee Share Plans and UK Share Plan (combined)

	Rio Tinto plc awards <sup>(a)</sup>				Rio Tinto Limited awards			
	Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date	
	2017 Number	2017 £	2016 Number	2016 £	2017 Number	2017 A\$	2016 Number	2016 A\$
Non-vested awards at 1 January	3,305,966	26.00	3,211,727	29.70	2,986,080	53.32	2,993,396	58.09
Awarded	1,499,374	32.50	1,673,017	20.62	1,156,078	61.05	1,405,348	45.27
Forfeited	(159,669)	29.46	(246,806)	23.02	(127,905)	53.61	(164,020)	54.48
Cancelled	(51,773)	25.82	-	-	(95,203)	51.18	-	-
Vested	(1,120,806)	30.41	(1,331,972)	28.72	(985,813)	60.06	(1,248,644)	55.54
Non-vested shares at 31 December	3,473,092	27.23	3,305,966	26.00	2,933,237	54.15	2,986,080	53.32
Comprising:								
- Management Share Plan	1,897,318	27.99	1,668,590	25.79	1,617,838	55.42	1,530,814	53.88
- Bonus Deferral Plan	281,994	25.53	312,767	23.24	153,966	52.83	148,158	50.25
- Global Employee Share Plan	1,196,937	26.42	1,223,144	26.90	1,161,433	52.54	1,307,108	53.03
- UK Share Plan	96,843	27.14	101,465	27.00	-	-	-	-

	Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date		Weighted average fair value at grant date	
	2017 Number	2017 £	2016 Number	2016 £	2017 Number	2017 A\$	2016 Number	2016 A\$
Vested awards settled in shares during the year (including dividend shares applied on vesting)								
- Management Share Plan	653,776	35.33	758,776	20.07	577,083	67.93	701,965	43.93
- Bonus Deferral Plan	170,036	34.44	112,623	30.36	88,644	69.98	113,407	56.78
- Global Employee Share Plan	382,585	33.56	344,072	24.33	466,308	65.10	332,010	48.69
- UK Share Plan	11,120	34.56	21,082	21.92	-	-	-	-

(a) Awards of Rio Tinto American Depositary Receipts (ADRs) under the Global Employee Share Plan are included within the totals for Rio Tinto plc awards for the purpose of these tables

In addition to the equity-settled awards shown above, there were 33,443 Rio Tinto plc and 87,019 Rio Tinto Limited cash-settled awards outstanding at 31 December 2017 (2016: 34,517 Rio Tinto plc and 15,239 Rio Tinto Limited cash-settled awards outstanding). The total liability for these awards at 31 December 2017 was US\$6 million (2016: less than US\$1 million).

## 44 Post-retirement benefits

### Description of plans

The Group operates a number of pension and post-retirement healthcare plans around the world. Some of these plans are defined contribution and some are defined benefit, with assets held in separate trusts, foundations and similar entities.

Defined benefit pension and post-retirement healthcare plans expose the Group to a number of risks:

<b>Uncertainty in benefit payments</b>	The value of the Group's liabilities for post-retirement benefits will ultimately depend on the amount of benefits paid out. This in turn will depend on the level of future pay increases, the level of inflation (for those benefits that are subject to some form of inflation protection) and how long individuals live.
<b>Volatility in asset values</b>	The Group is exposed to future movements in the values of assets held in pension plans to meet future benefit payments.
<b>Uncertainty in cash funding</b>	Movements in the values of the obligations or assets may result in the Group being required to provide higher levels of cash funding, although changes in the level of cash required can often be spread over a number of years. In some countries control over the rate of cash funding or over the investment policy for pension assets might rest to some extent with a trustee body or other body that is not under the Group's direct control. In addition the Group is also exposed to adverse changes in pension regulation.

For these reasons the Group has a policy of moving away from defined benefit pension provision and towards defined contribution arrangements instead. The defined benefit pension plans for salaried employees are closed to new entrants in almost all countries. For unionised employees, some plans remain open.

The Group does not usually participate in multi-employer plans in which the risks are shared with other companies using those plans. The Group's participation in such plans is immaterial and consequently no detailed disclosures are provided in this note.

### Pension plans

The majority of the Group's defined benefit pension obligations are in Canada, the UK, the US, Switzerland and the Eurozone.

In Canada the benefits for salaried staff are generally linked to final average pay and are closed to new entrants. Benefits for bargaining employees are reviewed in negotiation with unions and are typically either linked to final average pay or to a flat monetary amount per year of service. Most of these plans have been closed to new entrants. New employees join arrangements which are defined contribution from the

Group's perspective, with any required additional funding being provided by employees. The plans are subject to the regulatory requirements that apply to Canadian pension plans in the relevant provinces and territories (predominantly Quebec). Pension Committees are responsible for ensuring that the plans operate in a manner that is compliant with the relevant regulations. The Pension Committees generally have a number of members appointed by the sponsor and a number appointed by the plan participants. In some cases there is also an independent Committee member.

The defined benefit sections of the UK arrangements are linked to final pay and are closed to new members. New employees are admitted to defined contribution sections. The plans are subject to the regulatory requirements that apply to UK pension plans. Trustees are responsible for ensuring that the plans operate in a manner that is compliant with UK regulations. The trustee board governing the main UK plans has a number of directors appointed by the sponsor, a number appointed by the plan participants and an independent trustee director.

A number of defined benefit pension plans are sponsored by the US entities. Benefits for salaried staff are generally linked to final average pay and closed to new entrants, while benefits for bargaining employees are reviewed in negotiation with unions and are typically a flat monetary amount per year of service and are closed to new entrants. New employees are admitted to defined contribution plans. A Benefits Governance Committee is responsible for ensuring that the plans are compliant with US regulations. Members of that Committee are appointed by the sponsor.

In Europe, there are defined benefit plans in Switzerland, Germany and France. The largest single plan is in Switzerland and provides benefits linked to final average pay. The Swiss plan is overseen by a foundation board which is responsible for ensuring that the plan complies with Swiss regulations. Foundation board members are appointed by the plan sponsor, by employees and by retirees.

In Australia, the main arrangements are principally defined contribution in nature but there are sections providing defined

benefits linked to final pay, typically paid in lump sum form. The defined benefit sections are closed to new entrants.

The Group also operates a number of unfunded defined benefit plans, which are included in the figures below.

#### Post-retirement healthcare plans

Certain subsidiaries of the Group, mainly in the US and Canada, provide health and life insurance benefits to retired employees and in some cases to their beneficiaries and covered dependants. Eligibility for cover is dependent upon certain age and service criteria. These arrangements are generally unfunded, and are included in the figures below.

#### Plan assets

The assets of the pension plans are invested predominantly in a diversified range of equities, bonds and property. Consequently, the funding level of the pension plans is affected by movements in the level of equity markets and also by movements in interest rates. The Group monitors its exposure to changes in interest rates and equity markets and also measures its balance sheet pension risk using a value at risk approach. These measures are considered when deciding whether significant changes in investment strategy are required. Asset-liability studies are conducted on a periodic basis for the main pension plans to determine the optimal investment mix bearing in mind the Group's tolerance for risk, the risk tolerance of the local sponsor companies and the views of the pension committees and trustee boards who are legally responsible for the investments of the plans. In Canada, the UK and Switzerland, the Group works with the trustees to ensure that the investment policy adopted is consistent with the Group's tolerance for risk. In the US the Group has direct control over the investment policy, subject to local investment regulations.

The proportions of the total fair value of assets in the pension plans for each asset class at the balance sheet date were:

	2017		2016	
Equities	32.4%		36.8%	
– Quoted		28.6%		32.5%
– Private		3.8%		4.3%
Bonds	53.2%		47.9%	
– Government fixed income		14.3%		11.3%
– Government inflation-linked		13.1%		12.0%
– Corporate and other publicly quoted		23.5%		22.3%
– Private		2.3%		2.3%
Property	11.2%		11.0%	
– Quoted property funds		5.8%		5.8%
– Unquoted property funds		5.4%		5.2%
Qualifying insurance policies	0.2%		0.6%	
Cash & other	3.0%		3.7%	
	100.0%		100.0%	

The assets of the plans are managed on a day-to-day basis by external specialist fund managers. These managers may invest in the Group's securities subject to limits imposed by the relevant fiduciary committees and local legislation. The approximate total holding of Group securities within the plans is US\$13 m (2016: US\$16 million).

The holdings of quoted equities are invested either in pooled funds or segregated accounts held in the name of the relevant pension funds. These equity portfolios are well diversified in terms of the geographic distribution and market sectors.

The holdings of government bonds are generally invested in the debt of the country in which a pension plan is situated. Corporate and other quoted bonds are usually of investment grade. Private debt is mainly in North America.

The quoted property funds are invested in a diversified range of properties.

The holdings of cash & other are predominantly cash and short-term money market instruments.

Investments in private equity, private debt, and property are less liquid than the other investment classes listed above and therefore the Group's investment in those asset classes is restricted to a level that does not endanger the liquidity of the pension plans.

The Group does not currently utilise derivatives to manage risk in its pension plans. However, fund managers may use derivatives to hedge currency movements within their portfolios and, in the case of bond managers, to take positions that could be taken using direct holdings of bonds but more efficiently.

## Notes to the 2017 financial statements

continued

### 44 Post-retirement benefits continued

#### Maturity of defined benefit obligations

An approximate analysis of the maturity of the obligations is given in the table below:

	Pension benefits	Other benefits	2017 Total %	2016 Total %	2015 Total %
Proportion relating to current employees	20%	16%	20%	21%	22%
Proportion relating to former employees not yet retired	12%	1%	11%	12%	11%
Proportion relating to retirees	68%	83%	69%	67%	67%
Total	100%	100%	100%	100%	100%
Average duration of obligations (years)	14.0	12.7	13.9	14.3	13.4

#### Geographical distribution of defined benefit obligations

An approximate analysis of the geographic distribution of the obligations is given in the table below:

	Pension benefits	Other benefits	2017 Total %	2016 Total %	2015 Total %
Canada	49%	41%	49%	46%	44%
UK	29%	2%	27%	27%	29%
US	12%	54%	14%	16%	15%
Switzerland	5%	0%	5%	5%	6%
Eurozone	3%	0%	3%	4%	4%
Other	2%	3%	2%	2%	2%
Total	100%	100%	100%	100%	100%

#### Total expense recognised in the income statement

	Pension benefits	Other benefits	2017 Total %	2016 Total US\$m	2015 Total US\$m
Current employer service cost for defined benefit plans	(146)	(9)	(155)	(158)	(184)
Past service income	1	3	4	-	144
Curtailment gains	1	-	1	5	13
Settlement gains	1	-	1	-	11
Net interest on net defined benefit liability	(45)	(34)	(79)	(90)	(113)
Non-investment expenses paid from the plans	(17)	-	(17)	(22)	(21)
Total defined benefit expense	(205)	(40)	(245)	(265)	(150)
Current employer service cost for defined contribution and industry-wide plans	(253)	(2)	(255)	(257)	(289)
Total expense recognised in the income statement	(458)	(42)	(500)	(522)	(439)

The above expense amounts are included as an employee cost within net operating costs. No amounts have been excluded from underlying earnings in 2017, 2016 or 2015.

The curtailments shown in the table above relate primarily to headcount reductions at various operations. The settlement gains in

2015 relate mainly to an exercise in the US in which deferred vested participants were offered a one-time lump sum payment in place of their future pension payments. The past service income in 2015 relates to design changes in Canada and to changes to post-retirement medical plans in the US.

#### Total amount recognised in other comprehensive income before tax

	2017 US\$m	2016 US\$m	2015 US\$m
Actuarial (losses)/gains	(855)	(1,120)	548
Return on assets (net of interest on assets)	894	1,031	79
Loss on application of asset ceiling	(33)	(1)	(8)
Total gain/(loss) recognised in other comprehensive income	6	(90)	619

#### Amounts recognised in the balance sheet

The following amounts were measured in accordance with IAS 19 at 31 December:

	Pension benefits	Other benefits	2017 Total US\$m	2016 Total US\$m
Total fair value of plan assets	15,257	-	15,257	13,749
Present value of obligations – funded	(16,199)	-	(16,199)	(14,504)
Present value of obligations – unfunded	(448)	(998)	(1,446)	(1,724)
Present value of obligations – total	(16,647)	(998)	(17,645)	(16,228)
Effect of asset ceiling	(111)	-	(111)	(63)
Net deficit to be shown in the balance sheet	(1,501)	(998)	(2,499)	(2,542)
Comprising:				
– Deficits	(2,372)	(998)	(3,370)	(3,167)
– Surpluses	871	-	871	625
Net deficits on pension plans	(1,501)	-	(1,501)	(1,616)
Unfunded post-retirement healthcare obligation	-	(998)	(998)	(926)

The surplus amounts shown above are included in the balance sheet as Trade and other receivables. See note 18.

Deficits are shown in the balance sheet within Provisions (including post-retirement benefits). See note 26.

#### Funding policy and contributions to plans

The Group reviews the funding position of its major pension plans on a regular basis and considers whether to provide funding above the minimum level required in each country. In Canada and the US the

minimum level is prescribed by legislation. In the UK and Switzerland the minimum is negotiated with the local trustee or foundation in accordance with the funding guidance issued by the local regulators. In deciding whether to provide funding above the minimum level the Group takes into account other possible uses of cash within the Group, the tax situation of the local sponsoring entity and any strategic advantage that the Group might obtain by accelerating contributions. The Group does not generally pre-fund post-retirement healthcare arrangements.

	Pension benefits	Other benefits	2017 Total US\$m	2016 Total US\$m	2015 Total US\$m
Contributions to defined benefit plans	349	55	404	464	328
Contributions to defined contribution plans	241	2	243	240	272
Contributions to industry-wide plans	12	-	12	17	17
Total	602	57	659	721	617

Contributions to defined benefit pension plans are kept under regular review and actual contributions will be determined in line with the Group's wider financing strategy, taking into account relevant minimum funding requirements. As contributions to many plans are reviewed on at least an annual basis, the contributions for 2018 and subsequent years cannot be determined precisely in advance. Most of the Group's largest pension funds are fully funded on their local funding basis and do not require long-term funding commitments at present. Contributions to defined benefit pension plans for 2018 are estimated to be around US\$210 million but may be higher or lower than this depending on the evolution of financial markets and voluntary funding decisions taken by the Group. Contributions for subsequent years are expected to be at similar levels. Healthcare plans are generally unfunded and contributions for future years will be equal to benefit payments net of participant contributions. The Group's contributions in 2018 are expected to be similar to the amounts paid in 2017.

#### Movements in the net defined benefit liability

A summary of the movement in the net defined benefit liability is shown in the first table below. The subsequent tables provide a more detailed analysis of the movements in the present value of the obligations, the fair value of assets and the effect of the asset ceiling.

The amounts shown below include, where appropriate, 100 per cent of the costs, contributions, gains and losses in respect of employees who participate in the plans and who are employed in associates and joint arrangements. Consequently, the costs, contributions, gains and losses may not correspond directly to the amounts disclosed above in respect of the Group. Defined contribution plans and industry-wide plans are excluded from the movements below.



## Notes to the 2017 financial statements

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### 44 Post-retirement benefits continued

	Pension benefits	Other benefits	2017 Total US\$m	2016 Total US\$m
<b>Change in the net defined benefit liability</b>				
Net defined benefit liability at the start of the year	(1,616)	(926)	(2,542)	(2,530)
Amounts recognised in Income	(205)	(40)	(245)	(265)
Amounts recognised in Other comprehensive income	62	(56)	6	(90)
Employer contributions	349	55	404	464
Arrangements divested	13	-	13	(8)
Currency exchange rate loss	(104)	(31)	(135)	(113)
Net defined benefit liability at the end of the year	(1,501)	(998)	(2,499)	(2,542)
<b>Change in present value of obligation</b>				
Present value of obligation at the start of the year	(15,302)	(926)	(16,228)	(16,123)
Current employer service costs	(146)	(9)	(155)	(158)
Past service income	1	3	4	-
Curtailments	1	-	1	5
Settlements	307	-	307	-
Interest on obligation	(498)	(34)	(532)	(577)
Contributions by plan participants	(23)	-	(23)	(23)
Benefits paid	894	55	949	967
Experience (loss)/gain	(2)	9	7	139
Changes in financial assumptions loss	(678)	(40)	(718)	(1,187)
Changes in demographic assumptions loss	(119)	(25)	(144)	(72)
Arrangements divested	13	-	13	86
Currency exchange rate (loss)/gain	(1,095)	(31)	(1,126)	715
Present value of obligation at the end of the year	(16,647)	(998)	(17,645)	(16,228)
<b>Change in plan assets</b>				
Fair value of plan assets at the start of the year	13,749	-	13,749	13,642
Settlements	(306)	-	(306)	-
Interest on assets	459	-	459	492
Contributions by plan participants	23	-	23	23
Contributions by employer	349	55	404	464
Benefits paid	(894)	(55)	(949)	(967)
Non-investment expenses	(17)	-	(17)	(22)
Return on plan assets (net of interest on assets)	894	-	894	1,031
Arrangements divested	-	-	-	(94)
Currency exchange rate gain/(loss)	1,000	-	1,000	(820)
Fair value of plan assets at the end of the year	15,257	-	15,257	13,749
<b>Change in the effect of the asset ceiling</b>				
Effect of the asset ceiling at the start of the year	(63)	-	(63)	(49)
Interest on the effect of the asset ceiling	(6)	-	(6)	(5)
Movement in the effect of the asset ceiling	(33)	-	(33)	(1)
Currency exchange rate loss	(9)	-	(9)	(8)
Effect of the asset ceiling at the end of the year	(111)	-	(111)	(63)

Most of the settlement amounts shown above relate to the US, where assets and obligations for some pensions in payment were transferred to an insurance company.

In determining the extent to which the asset ceiling has an effect, the Group considers the funding legislation in each country and the rules specific to each pension plan. The calculation takes into account any minimum funding requirements that may be applicable to the plan, whether any reduction in future Group contributions is available, and

whether a refund of surplus may be available. In considering whether any refund of surplus is available the Group considers the powers of trustee boards and similar bodies to augment benefits or wind up a plan. Where such powers are unilateral, the Group does not consider a refund to be available at the end of the life of a plan. Where the plan rules and legislation both permit the employer to take a refund of surplus, the asset ceiling may have no effect, although it may be the case that a refund will only be available many years in the future.

## Main assumptions (rates per annum)

The main assumptions for the valuations of the plans under IAS 19 are set out below.

	Canada	UK	US	Switzerland	Eurozone
<b>At 31 December 2017</b>					
Discount rate	3.4%	2.3%	3.5%	0.5%	1.5%
Inflation <sup>(a)</sup>	1.8%	3.2%	2.1%	1.2%	1.7%
Rate of increase in pensions	0.5%	2.8%	0.0%	0.4%	1.7%
Rate of increase in salaries	3.1%	3.6%	3.6%	2.2%	1.9%
<b>At 31 December 2016</b>					
Discount rate	3.8%	2.6%	3.9%	0.6%	1.4%
Inflation <sup>(a)</sup>	1.9%	3.3%	2.1%	1.0%	1.6%
Rate of increase in pensions	0.4%	2.9%	0.0%	0.0%	1.4%
Rate of increase in salaries	3.2%	3.7%	3.6%	2.0%	2.4%

(a) The inflation assumption shown for the UK is for the Retail Price Index. The assumption for the Consumer Price Index at 31 December 2017 was 2.1 per cent (2016: 2.2 per cent).

The main financial assumptions used for the healthcare plans, which are predominantly in the US and Canada, were: discount rate: 3.6 per cent (2016: 3.9 per cent); medical trend rate: 9.8 per cent reducing to 4.7 per cent by the year 2026 broadly on a straight-line basis (2016: 9.1 per cent, reducing to 5.1 per cent by the year 2025); claims costs based on individual company experience.

For both the pension and healthcare arrangements the post-retirement mortality assumptions allow for future improvements in longevity. The mortality tables used imply that a man aged 60 at the balance sheet date has a weighted average expected future lifetime of 27 years (2016: 26 years) and that a man aged 60 in 2037 would have a weighted average expected future lifetime of 28 years (2016: 28 years).

## Sensitivity

The values reported for the defined benefit obligations are sensitive to the actuarial assumptions used for projecting future benefit payments and discounting those payments. In order to estimate the sensitivity of the obligations to changes in assumptions, we calculate what the obligations would be if we were to make small changes to each of the key assumptions in isolation. The difference between this figure and the figure calculated using our stated assumptions is an indication of the sensitivity to changes in each assumption. The results of this sensitivity analysis are summarised in the table below. Note that this approach is valid for small changes in the assumptions but will be less accurate for larger changes in the assumptions. The sensitivity to inflation includes the impact on pension increases, which are generally linked to inflation where they are granted.

Assumption	Change in assumption	2017		2016	
		Approximate (increase)/decrease in obligations		Approximate (increase)/decrease in obligations	
		Pensions US\$m	Other US\$m	Pensions US\$m	Other US\$m
Discount rate	Increase of 0.5 percentage points	1,091	59	1,031	57
	Decrease of 0.5 percentage points	(1,169)	(63)	(1,107)	(61)
Inflation	Increase of 0.5 percentage points	(579)	(20)	(536)	(19)
	Decrease of 0.5 percentage points	550	18	507	17
Salary increases	Increase of 0.5 percentage points	(74)	(1)	(77)	(3)
	Decrease of 0.5 percentage points	72	1	75	2
Demographic – allowance for future improvements in longevity	Participants assumed to have the mortality rates of individuals who are one year older	509	20	481	20
	Participants assumed to have the mortality rates of individuals who are one year younger	(509)	(20)	(481)	(20)
Medical costs trend rates	Increase of 1.0 percentage points	-	(38)	-	(37)
	Decrease of 1.0 percentage points	-	33	-	31

# Notes to the 2017 financial statements

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## 45 Rio Tinto Limited parent company disclosures

As at 31 December	2017 A\$m	2016 A\$m
<b>Assets</b>		
Current assets	11,914	8,041
Non-current assets	7,954	10,758
<b>Total assets</b>	<b>19,868</b>	<b>18,799</b>
<b>Liabilities</b>		
Current liabilities	(7,448)	(1,268)
Non-current liabilities	(35)	(4,814)
<b>Total liabilities</b>	<b>(7,483)</b>	<b>(6,082)</b>
<b>Net assets</b>	<b>12,385</b>	<b>12,717</b>
<b>Shareholders' equity</b>		
Share capital	3,893	4,004
Other reserves	420	413
Retained earnings	8,072	8,300
<b>Total equity</b>	<b>12,385</b>	<b>12,717</b>
<b>Profit of the parent company</b>	<b>9,688</b>	<b>4,452</b>
<b>Total comprehensive income of the parent company</b>	<b>9,688</b>	<b>4,452</b>

Prepared under Australian Accounting Standards (AAS). In relation to Rio Tinto Limited there are no significant measurement differences between AAS and IFRS as defined in note 1.

### Rio Tinto Limited guarantees

Rio Tinto Limited provides a number of guarantees in respect of Group companies.

Rio Tinto plc and Rio Tinto Limited have jointly guaranteed the Group's external listed debt under the US Shelf Programme, European Debt Issuance Programme and Commercial Paper Programme which totalled A\$10.2 billion at 31 December 2017 (31 December 2016: A\$14.1 billion); in addition these entities also jointly guarantee the Group's undrawn credit facility which was A\$9.6 billion at 31 December 2017 (31 December 2016: A\$10.4 billion).

Rio Tinto Limited has guaranteed other external debt held by Rio Tinto Group entities which totalled A\$0.1 billion at 31 December 2017 (31 December 2016: A\$0.1 billion) and provided guarantees in respect of certain derivative contracts which were in a liability position of A\$48 million at 31 December 2017 (31 December 2016: A\$1 million).

In addition, Rio Tinto Limited has provided a guarantee of all obligations, including contingent obligations, of Rio Tinto Finance Limited, a wholly owned subsidiary.

Pursuant to the DLC Merger, both Rio Tinto plc and Rio Tinto Limited issued deed poll guarantees by which each company guaranteed contractual obligations incurred by the other or guaranteed by the other.

## 46 Related undertakings

In accordance with section 409 of the Companies Act 2006, disclosed below is a full list of related undertakings of the Group. Related undertakings include “subsidiaries”, “associated undertakings”, and “significant holdings in undertakings other than subsidiary companies”. The registered office address, country of incorporation, classes of shares and the effective percentage of equity owned by the Group calculated by reference to voting rights, is disclosed as at 31 December 2017.

The definition of a subsidiary undertaking in accordance with the Companies Act 2006 is different from the definition under IFRS. As a result, the related undertakings included within this list may not be the same as the related undertakings consolidated in the Group IFRS financial statements. Unless otherwise disclosed, all undertakings with an effective equity holding of greater than 50% are considered subsidiary undertakings for the purpose of this note.

Refer to notes 33-36 for further information on accounting policies, basis of consolidation, principal subsidiaries, joint operations, joint ventures and associates.

An explanation of the dual listed companies structure of Rio Tinto plc and Rio Tinto Limited can be found on pages 250 to 251. For completeness, the effective ownership by the Group relates to effective holdings by both entities either together or individually.

### Wholly owned subsidiary undertakings

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
10029734 Canada Inc.; Canada	CAD\$1.00 Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
	CAD\$1.00 Preferred shares	100		
1043802 Ontario Ltd; Canada	CAD Ordinary shares	100	100	66 Wellington Street West, Suite 4700, Toronto Dominion Bank Tower, Toronto ON M5K 1E6, Canada
1109723 B.C. Ltd.	CAD Common shares	100	100	1800 - 510 West Georgia Street, Vancouver BC V6B 0M3, Canada
46106 YUKON INC.; Canada	CAD Common shares	100	100	200-204 Lambert Street, Whitehorse YT Y1A 3T2, Canada
46117 YUKON INC.; Canada	CAD Common shares	100	100	200-204 Lambert Street, Whitehorse YT Y1A 3T2, Canada
	CAD Preferred shares	100	100	
535630 YUKON INC.; Canada	CAD Common shares	100	100	c/o Macdonald & Company, 200-204 Lambert Street, Whitehorse YT Y1A 3T2, Canada
	CAD Preferred shares	100	100	
7999674 CANADA INC.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
9230556 CANADA INC.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
	CAD Preferred shares	100		
9539549 CANADA INC.; Canada	US\$ Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Alcan Alumina Ltda.; Brazil	BRL1.00 Quota shares	100	100	Avenida Engenheiro Emiliano Macieira, 1—km 18, Pedrinhas, Sao Luis, MA, 65095-603, Brazil
Alcan Asia Limited; Hong Kong	HKD Ordinary shares	100	100	Suite 2802, 28/F, Lippo Centre Tower 2, 89 Queensway, Admiralty, Hong Kong
Alcan Betriebs- und Verwaltungsgesellschaft GmbH; Germany	€51.13 Ordinary shares	100	100	Alusingenplatz 1, D-78221, Singen, Germany
Alcan Chemicals Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Alcan Composites Brasil Ltda; Brazil	BRL0.01 Ordinary shares	100	100	Avenida das Nações Unidas, 10.989, 14th floor, Suite 141, São Paulo, 04578-000, Brazil
Alcan Corporation; United States	US\$ 0.01 Ordinary shares	100	100	CSC, 211 East 7th Street, Suite 620, Austin TX 78701-3218, United States
Alcan Farms Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Alcan Finances USA LLC; United States	US\$1,000.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Alcan Gove Development Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Alcan Gove Pty Limited; Australia	AUD Class A shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD Class B shares	100		
Alcan Gove Superannuation Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia

## Notes to the 2017 financial statements

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### 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Alcan Holdings Australia Pty Limited; Australia	AUD Class A shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD Ordinary shares	100	100	
Alcan Holdings Europe B.V.; Netherlands	€455.00 Ordinary shares	100	100	Welplaatweg 104, 3197 KS , Botlek-Rotterdam, Netherlands
Alcan Holdings Europe B.V.; Netherlands	€455.00 Ordinary shares	100	100	Welplaatweg 104, 3197 KS , Botlek-Rotterdam, Netherlands
Alcan Holdings Nederland B.V.; Netherlands	€4,555.00 Ordinary shares	100	100	Welplaatweg 104, 3197 KS , Botlek-Rotterdam, Netherlands
Alcan Holdings Switzerland AG (SA/Ltd.); Switzerland	CHF0.01 Registered shares	100	100	Herostrasse 9, P.O. Box 1954, CH-8048 Zürich, Switzerland
Alcan International Network U.S.A. Inc.; United States	US\$ Ordinary shares	100	100	CSC, 80 State Street, Albany NY 12207-2543, United States
Alcan Lebensmittelverpackungen GmbH; Germany	€51.13 Ordinary shares	100	100	Alusingenplatz 1, D-78221, Singen, Germany
Alcan Management Services (Shanghai) Co., Ltd.; China	US\$1.00 Ordinary shares	100	100	Unit E, 40F Wheelock Square, No. 1717 West Nanjing Road, Jing'an District, Shanghai, 200040, China
Alcan Management Services Canada Limited/Societe de Services de Gestion Alcan Canada Limitee; Canada	CAD Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Alcan Northern Territory Alumina Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Alcan Packaging Canada Limited; Canada	CAD Ordinary shares	100	100	McCarthy Tetrault LLP, c/o Joanne Pierucci, Suite 5300 Toronto Dominion Bank Tower, Toronto ON M5K 1E6, Canada
Alcan Packaging Mühlthal GmbH & Co. KG; Germany	€51.13 Ordinary shares	100	100	Alusingenplatz 1, D-78221, Singen, Germany
Alcan Primary Metal Australia Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Alcan Primary Products Company LLC; United States	US\$ Units shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Alcan Primary Products Corporation; United States	US\$0.01 Ordinary shares	100	100	CSC, 211 East 7th Street, Suite 620, Austin TX 78701-3218, United States
Alcan Realty Limited/Societe Immobiliere Alcan Limitee; Canada	CAD Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Alcan South Pacific Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Alcan Trading AG (SA/Ltd.); Switzerland	CHF1000 Registered shares	100	100	Herostrasse 9, P.O. Box 1954, CH-8048 Zürich, Switzerland
Aluminium Dunkerque; France	€16.00 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Aluminium Pechiney; France	€16.00 Ordinary shares	100	100	725 rue Aristide Bergès, 38341 Voreppe Cedex, France
Aluminum Company of Canada Limited/Aluminium du Canada Limitee; Canada	CAD Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
AML Properties Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Anglesey Aluminium Limited (Dissolved); United Kingdom <sup>(e)</sup>	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Anglesey Aluminium Metal Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
AP Service; France	€15.00 Ordinary shares	100	100	725 rue Aristide Bergès, 38341 Voreppe Cedex, France
Argyle Diamond Mines Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Argyle Diamonds (2013) Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Argyle Diamonds Limited; Australia <sup>(a)</sup>	AUD Class A shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Class B shares	100		



Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Ashton Canada Pty Limited; Australia	AUD Ordinary shares	100	100	37 Belmont Avenue, Belmont WA 6104, Australia
Ashton Mining Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18, Central Park, 152-158 St Georges Terrace, Perth WA 6000, Australia
Ashton Nominees Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Australian Coal Holdings Pty. Limited; Australia <sup>(a)</sup>	AUD A shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD Ordinary shares	100		
Australian Mining & Smelting Pty Ltd; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Beasley River Management Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Beasley River Mining Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Borax España, S.A.; Spain	€150.00 Ordinary shares	100	100	CN 340, Km 954, 12520 NULES, Castellon, Spain
Borax Europe Limited; United Kingdom	£0.25 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Borax Francais; France	€2.75 Ordinary shares	100	100	89 Route de Bourbourg, 59210, Coudekerque-Branche, France
Borax Malaysia Sdn Bhd; Malaysia	MYR1.00 Ordinary shares	100	100	Level 7, Menara Milenium, Jalan Damanlela, Pusat Bandar Damansara, Damansara Heights 50490 Kuala Lumpur, Malaysia
Borax Rotterdam N.V.; Netherlands	€453.78 Ordinary shares	100	100	Welplaatweg 104, 3197KS, ROTTERDAM –BOTLEK, Netherlands
British Alcan Aluminium Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Canning Resources Pty Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Capricorn Diamonds Investments Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Cathjoh Holdings Pty Limited; Australia	AUD Ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
Champlain Reinsurance Company Ltd.; Switzerland	CHF1.23 Registered shares	100	100	Herostrasse 9, P.O. Box 1954, CH-8048 Zürich, Switzerland
Channar Management Services Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Channar Mining Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
CIA. Inmobiliaria e Inversiones Cosmos S.A.C.; Peru	PEN1,000.00 Ordinary shares	100	100	Av. Santa Maria No. 110 Urb. Miraflores – MIRAFLORES – LIMA, Peru
Compagnie Générale D'électrolyse Du Palais; France	€0.94 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Compania de Transmision Sierraoriente S.A.C.; Peru	PEN1,000.00 Ordinary shares	100	100	Av. Santa Maria No. 110 Urb. Miraflores – MIRAFLORES – LIMA, Peru
CRA Exploration (India) Private Limited; India	INR10.00 Ordinary shares	100	100	Apartment No.100 A/5, Ground Floor, The Capital Court, Olof Palme Marg, Munirka, NEW DELHI 110067, India
CRA Investments Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
CRA Pty Ltd; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Daybreak Development LLC; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Daybreak Property Holdings LLC; United States <sup>(c)</sup>	—	—	100	CSC, 15 West South Temple, Suite 1701, Salt Lake City UT 84101, United States
Daybreak Secondary Water Distribution Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Daybreak Water Holding LLC; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
DB Medical I LLC; United States	US\$ Units shares	100	100	CSC, 15 West South Temple, Suite 1701, Salt Lake City UT 84101, United States
DBVC1 LLC; United States <sup>(c)</sup>	—	—	100	CSC, 15 West South Temple, Suite 1701, Salt Lake City UT 84101, United States
Diavik Diamond Mines (2012) Inc.; Canada	CAD Common shares	100	100	300-5201 50th Avenue, PO Box 2498, Yellowknife NT X1A 2P8, Canada

## Notes to the 2017 financial statements

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### 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
East Kalimantan Coal Pte. Ltd; Singapore <sup>(a)</sup>	SGD1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	US\$1.00 Ordinary shares	100		
Eastland Management Inc.; United States	US\$1.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Electric Power Generation Limited; New Zealand <sup>(a)</sup>	NZD1 Ordinary shares	100	100	Tiwai Road, Southland via Intercargill, New Zealand
Empresa de Mineracao Finesa Ltda.; Brazil	BRL Quotas shares	100	100	SIA, Trecho 2, Lotes 710/720, Brasilia DF, Brazil
Falcon Insurance Ltd; Malta <sup>(a)</sup>	US\$1.00 Class "A" ordinary shares	100	100	No 7, 4th Floor, Block C, Skyway Offices, 179 Marina Street, Pieta, PTA 9042, Malta
	US\$1.00 Class "B" shares	100		
Flambeau Mining Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Fundsprops Pty. Limited; Australia <sup>(a)</sup>	AUD A Class ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Gladstone Infrastructure Pty Ltd; Australia	AUD Class G Redeemable Preference shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD A Class ordinary shares	100		
Gove Aluminium Ltd; Australia	AUD A Non redeemable preference shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD A Redeemable preference shares	100		
	AUD Ordinary shares	100		
GPS Energy Pty Limited; Australia	AUD ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
GPS Nominee Pty Limited; Australia	AUD ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
GPS Power Pty. Limited; Australia	AUD ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
Hail Creek Coal Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Hamersley Exploration Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Hamersley HMS Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Hamersley Holdings Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Hamersley Iron – Yandi Pty Limited; Australia <sup>(a)</sup>	AUD Class B shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Class C shares	100		
	AUD Ordinary shares	100		
Hamersley Iron Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Hamersley Resources Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Z Class ordinary shares	100		
Hamersley WA Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Henlopen Manufacturing Co., Inc.; United States	US\$100.00 Ordinary shares	100	100	CSC, 80 State Street, Albany NY 12207-2543, United States
High Purity Iron Inc.; United States	US\$1.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Hismelt Corporation Pty Limited; Australia <sup>(a)</sup>	AUD Class A shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Hunter Valley Resources Pty Ltd; Australia	AUD A Class shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD B Class shares	100		
IEA Coal Research Limited; United Kingdom	£1.00 Ordinary shares	100	100	Apsley House, Third Floor, 176 Upper Richmond Road, London, SW15 2SH, United Kingdom
IEA Environmental Projects Limited; United Kingdom	£1.00 Ordinary shares	100	100	IEAGHG, Pure Offices Cheltenham Office Park, Hatherley Lane, Cheltenham, GL51 6SH, United Kingdom
Industrias Metalicas Castello S.A.; Spain	€6.01 Ordinary shares	100	100	Calle Tuset 10, 08006, Barcelona, Catalogna, Spain
Integrity Land and Cattle LLC; United States	US\$ Units shares	100	100	CSC, 2338 W. Royal Palm Road, Suite J, Phoenix AZ 85021
Itallumina Srl; Italy <sup>(d)</sup>	€1.00 Quotas shares	100	100	Viale Castro Pretorio 122, 00185, Roma, Italy
Johcath Holdings Pty Limited; Australia	AUD Ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
Juna Station Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Kalimantan Gold Pty Limited; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Kalteng Pty. Ltd; Australia <sup>(a)</sup>	AUD A Class ordinary shares	100	100	37 Belmont Avenue, Belmont WA 6104, Australia
	AUD1.00 Class B (Fully paid \$1.00 13/01/2003)	100		
	AUD1.00 Class B (Paid to \$0.12 02/09/2005)	100		
	AUD Ordinary shares	100		
Kelian Investment Limited; British Virgin Islands <sup>(c)(e)</sup>	—	—	100	Woodbourne Hall, Road Town, Tortola, British Virgin Islands
Kelian Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Kembla Coal & Coke Pty. Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Kennecott Barneys Canyon Mining Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Exploration Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Exploration Mexico, S.A. de C.V.; Mexico	MXN1,000.00 Ordinary shares	100	100	Felix Berenguer 125 – 4, Col. Lomas Virreyes, Distrito Federal, 11000, Mexico
Kennecott Holdings Corporation; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Land Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Land Investment Company LLC; United States <sup>(c)</sup>	—	—	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Molybdenum Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Nevada Copper Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Ridgeway Mining Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Royalty Company; United States	US\$100.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Services Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Uranium Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kennecott Utah Copper LLC; United States	US\$ Units shares	100	100	CSC, 15 West South Temple, Suite 1701, Salt Lake City UT 84101, United States
Kennecott Water Distribution LLC; United States	US\$ Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Kestrel Coal Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Kestrel Coal Sales Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Kutaibar Holdings Pty Ltd; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia

## Notes to the 2017 financial statements

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### 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Lawson Mardon Flexible Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Lawson Mardon Smith Brothers Ltd.; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Metallwerke Refonda AG; Switzerland	CHF125 Bearer shares	100	100	Herostrasse 9, P.O. Box 1954, CH-8048 Zürich, Switzerland
Metals & Minerals Insurance Pte. Limited; Singapore	SGD Redeemable preference shares	100	100	2 Shenton Way, #2601, SGX Centre 1, Singapore 068804, Singapore
	SGD Ordinary shares	100		
Mineracao Tabuleiro Ltda; Brazil	BRL Quotas shares	100	100	SIA, Trecho 2, Lotes 690/720, Brasilia DF, Brazil
Minera Kennecott, S.A.de C.V.; Mexico	MXN1 Series "B" shares	100	100	Florencia 57,Piso 3,Col.Juarez, Delegacion Cuauhtemoc, Mexico, D.F., 06600, Mexico
Mitchell Plateau Bauxite Co. Pty. Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Mount Bruce Mining Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Mount Pleasant Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Mutamba Mineral Sands S.A.; Mozambique	MZN100.00 Ordinary shares	100	100	Avenida 24 de Julho, no. 3412, Bairro da Polana Cimento, Maputo City, Mozambique
NBH Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Nhulunbuy Corporation Limited; Australia <sup>(c)</sup>	—	—	100	19 Westal Street, Nhulunbuy NT 0880, Australia
Norgold Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	Redeemable Preference	100		
North Gold (W.A.) Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Redeemable preference shares	100		
North Insurances Pty. Ltd.; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
North IOC (Bermuda) Holdings Limited; Bermuda	US\$1.00 Ordinary shares	100	100	Clarendon House, 2 Church Street, Hamilton, HM 11, Bermuda
North IOC (Bermuda) Limited; Bermuda	US\$143.64 Class A ordinary shares	100	100	Clarendon House, 2 Church Street, Hamilton, HM 11, Bermuda
	US\$100,000.00 Preferred shares	100		
	US\$1.00 Ordinary shares	100		
North IOC Holdings Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
North Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
North Mining Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Redeemable preference shares	100		
Pacific Aluminium (New Zealand) Limited; New Zealand	NZD1 Ordinary shares	100	100	Level 6, 109 Featherston Street, Wellington, 6011, New Zealand
Pacific Aluminium Bell Bay Sales Pty Limited; Australia	AUD Ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
Pacific Aluminium Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Pacific Aluminium Services Pty Limited; Australia	AUD Ordinary shares	100	100	Pacific Aluminium, 123 Albert Street, Brisbane QLD 4000, Australia
Pacific Coast Mines, Inc.; United States	US\$1.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Aviatube Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Pechiney Bâtiment; France	€15.00 Ordinary shares	100	100	725 rue Aristide Bergès, 38341 Voreppe Cedex, France

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Pechiney Bécanour, Inc.; United States	US\$1.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Cast Plate, Inc.; United States	US\$1.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Consolidated Australia Pty Limited; Australia	US\$1.00 Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	US\$1.00 Preference shares	100		
Pechiney Dis Ticaret Limited Sirketi; Turkey <sup>(d)</sup>	TRY25.00 Ordinary shares	100	100	Karakoy Haci Mimi Mah. Vekil Harc Sok. 10 Kat 4, Beyoglu, Istanbul, Turkey
Pechiney Holdings, Inc.; United States	US\$1.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Metals LLC; United States <sup>(c)</sup>	—	—	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Plastic Packaging, Inc.; United States	US\$ Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Pechiney Sales Corporation; United States	US\$1.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Peko Exploration Pty Ltd.; Australia	AUD Ordinary shares	100	100	37 Belmont Avenue, Belmont WA 6104, Australia
Peko-Wallsend Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Pilbara Iron Company (Services) Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Pilbara Iron Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Port d'Ehoala S.A.; Madagascar	US\$100.00 Ordinary shares	100	100	Immeuble ASSIST, Ivandry , Lot N°35, 5ème étage, 101 Antananarivo , Antananarivo, Madagascar
Project Generation Group Pty Ltd; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
PSZ Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
PT Alcan Packaging Flexipack; Indonesia <sup>(d)</sup>	IDR1,000,000.00 Ordinary shares	100	100	31st Floor, Menara BTPN, Jl. Dr. Ide Anak Agung Gde Agung Lot 5.5-5.6, Mega Kuningan, Jakarta, 12950, Indonesia
PT Rio Tinto Consultants; Indonesia <sup>(d)</sup>	US\$1.00 Ordinary shares	100	100	31st Floor, Menara BTPN, Jl. Dr. Ide Anak Agung Gde Agung Lot 5.5-5.6, Mega Kuningan, Jakarta, 12950, Indonesia
PT Rio Tinto Exploration; Indonesia <sup>(d)</sup>	US\$1.00 Ordinary shares	100	100	15th Floor, Menara Anugrah, Kantor Taman E3.3, Jalan DR. Ide Anak Agung Gde Agung Lot 8.6-8.7, Jakarta, 12950, Indonesia
PT Rio Tinto Indonesia; Indonesia	US\$1.00 Ordinary shares	100	100	31st Floor, Menara BTPN, Jl. Dr. Ide Anak Agung Gde Agung Lot 5.5-5.6, Mega Kuningan, Jakarta, 12950, Indonesia
PT Rio Tinto Irja; Indonesia <sup>(d)</sup>	US\$1.00 Ordinary shares	100	100	31st Floor, Menara BTPN, Jl. Dr. Ide Anak Agung Gde Agung Lot 5.5-5.6, Mega Kuningan, Jakarta, 12950, Indonesia
QIT Madagascar Minerals Ltd; Bermuda	US\$1.00 Ordinary shares	100	100	Canon's Court, 22 Victoria Street, Hamilton, HM 12, Bermuda
Queensland Coal Pty. Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Química e Metalúrgica Mequitall Ltda.; Brazil	BRL Ordinary shares	100	100	Av. das Nacoes Unida, 12551 19o, andar, CJ 1911, 04578-000, Sao Paulo, SP, Brazil
Ranges Management Company Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Ranges Mining Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Resolution Copper Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Richards Bay Mining Holdings (Proprietary) Limited; South Africa	ZAR1.00 A Ordinary shares	100	100	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
	ZAR1.00 B Ordinary shares	100		
Richards Bay Titanium Holdings (Proprietary) Limited; South Africa	ZAR1.00 A Ordinary shares	100	100	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
	ZAR1.00 B Ordinary shares	100		



# Notes to the 2017 financial statements

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## 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Rio de Contas Desenvolvimento Minerais Ltda; Brazil	BRL Quota shares	100	100	Rua Coronel Durval Matos, S/N. Centro, Municipio de Jaguaquara, Estado da Bahia, CEP45345-000, Brazil
Rio Santa Rita Empreendimentos e-Participacoes Ltda	BRL Quota shares	100	100	SIA, Trecho 2, Lotes 690/720, Brasília, DF, Brazil
Rio Sava Exploration DOO; Serbia <sup>(c)</sup>	—	—	100	Resavska 23, 11000 Beograd, Beograd, 11000, Serbia
Rio Tinto (Commercial Paper) Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto (Hong Kong) Ltd; Hong Kong	HKD Ordinary shares	100	100	Suite 2802, 28/F, Lippo Centre Tower 2, 89 Queensway, Admiralty, Hong Kong
Rio Tinto (Mauritius) Pty Limited; Mauritius <sup>(d)</sup>	US\$1.00 Ordinary shares	100	100	6th Floor, Tower A, 1 Cybercity, Ebene, Mauritius
Rio Tinto Advisory Services Pty Limited; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Alcan Fund Inc.; Canada	CAD Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Alcan Inc.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Alcan International Ltd. / Rio Tinto Alcan International Ltee; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Alcan Middle East DMCC; United Arab Emirates	AED1,000 Ordinary shares	100	100	Gold Tower, Jlt Cluster I, 8th Floor, Unit E, Dubai, PO BOX 340801, United Arab Emirates
Rio Tinto Alcan Technology Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Almazpoisk LLC; Russian Federation <sup>(c)(d)</sup>	—	—	100	3, Aleksandra Lukyanova, 105066, Moscow, Russian Federation
Rio Tinto Aluminium (Bell Bay) Limited; Australia	AUD 7.5% Cumulative preference shares	100	100	Pacific Aluminium, Level 3, 500 Queen Street, Brisbane QLD 4000, Australia
Rio Tinto Aluminium (Holdings) Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Aluminium Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto America Holdings Inc.; United States	US\$0.01 Class A common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto America Inc.; United States	US\$100.00 Series A preferred stock	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Asia Ltd; Hong Kong	US\$100.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Asia Pty. Limited.; Australia <sup>(a)</sup>	HKD Ordinary shares	100	100	Suite 2802, 28/F, Lippo Centre Tower 2, 89 Queensway, Admiralty, Hong Kong
Rio Tinto Asia Pty. Limited.; Australia <sup>(a)</sup>	AUD Class A shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto AuM Company; United States	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto AuM Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Australian Holdings Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Bahia Holdings Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Base Metals Pty. Limited; Australia <sup>(a)</sup>	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Base Metals Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Brazilian Holdings Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Brazilian Holdings Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Brazilian Investments Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Canadian Investments Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Canada Diamond Operation Management Inc.; Canada	CAD Common shares	100	100	300-5201 50th Avenue, PO Box 2498, Yellowknife NT X1A 2P8, Canada
Rio Tinto Canada Inc; Canada	CAD Class B shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Canada Inc; Canada	CAD Class C shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Canada Inc; Canada	CAD Class D shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Canada Inc; Canada	CAD Class J Shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Canada Inc; Canada	Class K Shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Rio Tinto Canada Management Inc./ Rio Tinto Gestion Canada Inc.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
	CAD Preferred shares	100		
Rio Tinto Canada Uranium Corporation; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Coal (Clermont) Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Coal Australia Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Coal Investments Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Coal NSW Holdings Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Rio Tinto Desenvolvimento Minerais LTDA.; Brazil	BRL Quotas shares	100	100	SIG Quadra 04, Lote 175, Torre A, Salas 106 a 109, Edifício Capital Financial Center, Brasília, CEP 70610-440, Brazil
Rio Tinto Diamonds and Minerals Canada Holding Inc.; Canada	CAD Class A (dividend rights)	100	100	300-5201 50th Avenue, PO Box 2498, Yellowknife NT X1A 2P8, Canada
	CAD Class B shares	100		
	CAD Class C (voting rights) shares	100		
	CAD Class P1 preferred shares	100		
Rio Tinto Diamonds Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Diamonds Netherlands B.V.; Netherlands	€500.00 Ordinary shares	100	100	Welpstraatweg 104, 3197 KS, Botlek-Rotterdam, The Netherlands, Netherlands
Rio Tinto Diamonds NV; Belgium	€ Ordinary shares	100	100	Hoveniersstraat 53, 2018 Antwerp, Belgium
Rio Tinto Eastern Investments B.V.; Netherlands	€13,418,899,730 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Energy America Inc.; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Energy Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Escondida Limited; Bermuda	US\$1.00 Ordinary shares	100	100	22 Canon's Court, Victoria Street, Hamilton, HM 12, Bermuda
Rio Tinto European Holdings Limited; United Kingdom <sup>(b)</sup>	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Exploration (Asia) Holdings Pte. Ltd.; Singapore	US\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
Rio Tinto Exploration (PNG) Limited; Papua New Guinea <sup>(a)</sup>	PGK1.00 Ordinary shares	100	100	c/o BDO Accountants, Section 15, Lot 15, Bernal Street, National Capital District, Papua New Guinea
Rio Tinto Exploration and Mining (India) Private Limited; India	INR10.00 Ordinary shares	100	100	21st Floor, DLF Building No.5, Tower A, DLF Cyber City, Phase -III, Gurgaon, Haryana, 122002, India
Rio Tinto Exploration Canada Inc.; Canada	CAD Class A shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
	CAD Class B shares	100		
	CAD Class C shares	100		
	CAD Class D shares	100		
	CAD Class E preferred shares	100		
Rio Tinto Exploration Gabon SA; Gabon <sup>(d)</sup>	XAF10,000 Ordinary shares	100	100	C/O NEW ACE Baker Tilly, Quartier Louis – Quaben, Libreville, B.P. :3981, Gabon
Rio Tinto Exploration India Private Limited; India	INR10.00 Ordinary shares	100	100	Apartment No.100 A/5, Ground Floor, The Capital Court, Olof Palme Marg, Munirka, NEW DELHI 110067, India
Rio Tinto Exploration Kazakhstan LLP; Kazakhstan <sup>(c)</sup>	—	—	100	Dostyk 310/G, Almaty, 050020, Kazakhstan
Rio Tinto Exploration Pty Limited; Australia <sup>(a)</sup>	AUD Class B shares	100	100	37 Belmont Avenue, Belmont WA 6104, Australia
	AUD Class C shares	100		
	AUD Ordinary shares	100		
Rio Tinto Exploration Zambia Limited; Zambia	ZMW1.00 Ordinary shares	100	100	Plot 3827, Parliament Road, Olympia, Lusaka, Zambia

## Notes to the 2017 financial statements

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### 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Rio Tinto Fer et Titane inc.; Canada	CAD Class B preference shares	100	100	1625 Route Marie-Victorin, Sorel-Tracy QC J3R 1M6, Canada
	CAD Common shares	100		
	CAD\$0.01 Preferred shares	100		
Rio Tinto FH Limited; United Kingdom <sup>(d)</sup>	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Finance (USA) Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Finance (USA) plc; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto PACE Canada Inc./Gestion Rio Tinto PACE Canada Inc.; Canada	CAD Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Finance Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Finance plc; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto France S.A.S.; France	€15.25 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Rio Tinto Global Employment Company Pte. Ltd.; Singapore	US\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
Rio Tinto Guinée S.A.; Guinea	GNF100,000.00 Ordinary shares	100	100	Route de la Corniche Nord, Cité Ministérielle—Rue DI 256 Quartier Landréah, Commune de Dixinn—BP 99, Conakry, Guinea
Rio Tinto Holdings LLC; Mongolia	MNT20,000.00 Ordinary shares	100	100	Monnis Tower 13th floor, Chinggis Avenue-15, SBD, Ulaanbaatar-14240, Mongolia
Rio Tinto Hydrogen Energy Australia Pty Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Hydrogen Energy LLC; United States <sup>(c)</sup>	—	—	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Iceland Ltd.; Iceland	ISK1.00 Registered shares	100	100	P.O. Box 244, IS-222, Hafnarfjörður, Iceland
Rio Tinto India Private Limited; India	INR10.00 Ordinary shares	100	100	Apartment No.100 A/5, Ground Floor, The Capital Court, Olof Palme Marg, Munirka, NEW DELHI 110067, India
Rio Tinto Indonesian Holdings Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto International Holdings Limited; United Kingdom <sup>(b)</sup>	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto International Trading (Shanghai) Co Ltd; China <sup>(d)</sup>	US\$1.00 Ordinary shares	100	100	Room 1615-3, No. 1 Jilong Road, China (Shanghai) Pilot Free Trade Zone, Shanghai, 200031, China
Rio Tinto Investments One Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Rio Tinto Investments Two Pty Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Rio Tinto Iron & Titanium (Suzhou) Co., Ltd; China	US\$1.00 Ordinary shares	100	100	418 Nanshi Street, Suzhou Industrial Park, Suzhou, 215021, China
Rio Tinto Iron & Titanium GmbH; Germany <sup>(c)</sup>	—	—	100	Mergenthalerallee 77, D-65760, Eschborn, (Frankfurt am Main), Germany
Rio Tinto Iron & Titanium Holdings GmbH; Germany <sup>(c)</sup>	—	—	100	Mergenthalerallee 77, D-65760, Eschborn, (Frankfurt am Main), Germany
Rio Tinto Iron & Titanium Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Iron and Titanium Canada Inc./Rio Tinto Fer et Titane Canada Inc.; Canada	CAD Common shares	100	100	1625 Route Marie-Victorin, Sorel-Tracy QC J3R 1M6, Canada
Rio Tinto Iron Ore Asia Pte Ltd; Singapore	US\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
Rio Tinto Iron Ore Atlantic Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Iron Ore Europe S.A.S.; France	€100.00 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France

**Wholly owned subsidiary undertakings**

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Rio Tinto Iron Ore Trading China Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Japan Ltd; Japan	JPY500 Ordinary shares	100	100	8th Floor, Kojimachi Diamond Building, 1 Kojimachi 4-chome, Chiyoda-ku, Tokyo 102-0083, Japan
Rio Tinto Jersey Holdings 2010 Limited; Jersey	US\$ Ordinary shares	100	100	22 Grenville Street, St Helier, JE4 8PX, Jersey
Rio Tinto Korea Ltd; Republic of Korea	KRW10,000.00 Ordinary shares	100	100	2nd Floor, JS Tower, 6 Teheran-ro 79-gil, Gangnam-Gu, Seoul, 135-877, Republic of Korea
Rio Tinto Logistic Services Pty Ltd; Australia <sup>(a)(g)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto London Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Management Services South Africa (Proprietary) Ltd; South Africa	ZAR2.00 Ordinary shares	100	100	1 Harries Road, Illovo, Sandton, 2196, Sandton, South Africa, 2196, South Africa
Rio Tinto Marketing Pte. Ltd.; Singapore	SGD\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	US\$1.00 Ordinary shares	100		
Rio Tinto Marketing Services Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Medical Plan Trustees Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Metals Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto Minera Peru Limitada SAC; Peru	PEN100.00 Ordinary shares	100	100	Av. La Paz 1049, Oficina 501, Lima 18, Peru
Rio Tinto Mineracao do Brasil Ltda; Brazil	BRL1 Quotas shares	100	100	SIG Quadra 04, Lote 175, Torre A, Salas 106 a 109, Edifício Capital Financial Center, Brasília, Brasília, CEP 70610-440, Brazil
Rio Tinto Minerals Asia Pte Ltd; Singapore	SGD\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	US\$1.00 Ordinary shares	100		
Rio Tinto Minerals Development Limited; United Kingdom	£0.25 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Minerals Exploration (Beijing) Co., Ltd; China	US\$ 1.00 Ordinary shares	100	100	Units 15 - 16, 18/F, China World Office Building 2, No. 1 Jianguomenwai Dajie, Chaoyang District, Beijing, China
Rio Tinto Minerals Inc.; United States	US\$0.01 Common shares	100	100	CSC, 15 West South Temple, Suite 1701, Salt Lake City UT 84101, United States
Rio Tinto Mining and Exploration Inc.; United States	US\$1.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Mining and Exploration Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto Mining and Exploration S.A.C.; Peru	PEN0.5 Ordinary shares	100	100	Calle General Borgono N 1034, Miraflores, Lima 18, Peru
Rio Tinto Namibian Holdings Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Nickel Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Nominees Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto OT Management Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Overseas Holdings Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto Pension Investments Limited; United Kingdom <sup>(b)</sup>	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Peru Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Potash Management Inc./Rio Tinto Potasse Management Inc.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Procurement (Singapore) Pte Ltd; Singapore	US\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore

# Notes to the 2017 financial statements

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## 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Rio Tinto Pte Ltd; Singapore	SGD\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	SGD\$1.00 Preference shares	100		
Rio Tinto Saskatchewan Management Inc.; Canada	CAD Common shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Rio Tinto Saskatchewan Potash Holdings General Partner Inc.; Canada	CAD Common shares	100	100	McCarthy Tetrault LLP, Suite 5300, TD Bank Tower 66 Wellington Street West, Toronto ON M5K 1E6, Canada
Rio Tinto Saskatchewan Potash Holdings Limited Partnership; Canada <sup>(c)</sup>	—	—	100	McCarthy Tetrault LLP, Suite 5300, TD Bank Tower 66 Wellington Street West, Toronto ON M5K Canada 1E6, Canada
Rio Tinto Secretariat Limited	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Services Inc.; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Services Limited; Australia <sup>(a)</sup>	AUD Class Z shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
	AUD Ordinary shares	100		
Rio Tinto Shared Services Pty Limited; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Shipping (Asia) Pte. Ltd.; Singapore	US\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
Rio Tinto Shipping Pty. Limited.; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Simfer UK Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Singapore Holdings Pte Ltd; Singapore	SGD\$1.00 Ordinary shares	100	100	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	US\$ Ordinary shares	100		
Rio Tinto South East Asia Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Rio Tinto Staff Fund Pty Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Sulawesi Holdings Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Technological Resources Inc.; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Rio Tinto Technological Resources UK Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Trading (Shanghai) Co., Ltd.; China	US\$1.00 Ordinary shares	100	100	41/F Wheelock Square, No. 1717 West Nanjing Road, Jing' an District, Shanghai, 200040, China
Rio Tinto Uranium Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Vostok Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Rio Tinto Western Holdings Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$1.00 Ordinary shares	100		
Riversdale Connections (Proprietary) Ltd; South Africa	ZAR1.00 Ordinary shares	100	100	Ground Floor – Cypress Place North, Woodmead Business Park 140/142 Western Service Road, Woodmead, 2191, South Africa
Robe River Limited; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Rocklea Station Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
RTA AAL Australia Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Boyne Limited; Australia	AUD Ordinary shares	100	100	Pacific Aluminium, Level 3, 500 Queen Street, Brisbane QLD 4000, Australia
RTA Holdco 1 Limited; United Kingdom	US\$ 0.0001 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom



Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
RTA Holdco 4 Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$0.73 Ordinary shares	100		
RTA Holdco 7 Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$ Class A preference shares	100		
RTA Holdco 8 Limited; United Kingdom	US\$1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
	US\$ Class A preference shares	100		
RTA Holdco Australia 1 Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Holdco Australia 3 Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Holdco Australia 5 Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Holdco Australia 6 Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Holdco France 2017 S.A.S.; France	€ 10.00 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
RTA Pacific Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Sales Pty Ltd; Australia	AUD Class A shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD Class B shares	100		
RTA Smelter Development Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Weipa Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTA Yarwun Pty Ltd; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
RTAlcan 1 LLC; United States	US\$ Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
	US\$ Class A preferred shares	100		
RTAlcan 2 LLC; United States	US\$ Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
RTAlcan 3 LLC; United States	US\$ Common shares	100	100	CSC, 2711 Centerville Road, Suite 400, Wilmington DE 19808
RTLDS Aus Pty. Ltd; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
RTLDS UK Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
RTMDC LLC; Mongolia	MNT1,240.00 Common shares	100	100	7 floor, Seoul Business Centre, Zaluuchuud avenue – 26, 1st khoroo, Bayanzurkh district, Ulaanbaatar, 13381, Mongolia
RTPDS Aus Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Savoie Services Y.K.; Japan	JPY50,000 Ordinary shares	100	100	Harumi, 3 Nagahama-cho, Ozu-city, Ehime-ken, 799-3412, Japan
Scheuch Unterstuetzungskasse GmbH; Germany	€51.13 Ordinary shares	100	100	Alusingenplatz 1, D-78221, Singen, Germany
Skeleton Coast Diamonds Limited; Namibia	NAD2.00 Ordinary shares	100	100	360 Sam Nujoma Drive, Klein Windhoek, Windhoek, Namibia
Skymont Corporation; United States	US\$ Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
Société De Financement Des Risques Industriels; Luxembourg	€ Ordinary shares	100	100	534, rue de Neudorf, B.P. 593, Luxembourg, L-2015, Luxembourg
Société D'entreprises, Carrières Et Mines De L'Esterel; France	€9.33 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Société Générale de Recherches et d'exploitations Minières; France	€0.22 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Société Immobilière Alpes Provence; France	€15.00 Ordinary shares	100	100	17 Place des Reflets, La Defense 2, 92400, Courbevoie, France
Sohio Western Mining Company; United States	US\$100.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA

## Notes to the 2017 financial statements

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### 46 Related undertakings continued

Wholly owned subsidiary undertakings				
Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Southern Copper Pty. Limited; Australia	AUD A shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
	AUD B shares	100		
	AUD Non cumulative redeemable preference shares	100		
	AUD Ordinary shares	100		
	—	—		
Swift Current Land & Cattle LLC; United States <sup>(c)</sup>	—	—	100	CSC, 2338 W. Royal Palm Road, Suite J, Phoenix AZ 85021
Swiss Aluminium Australia Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
	AUD Stock Unit A shares	100		
	AUD Stock Unit B shares	100		
	AUD Stock Unit C shares	100		
	—	—		
TBAC Limited; United Kingdom	£1.00 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Technological Resources Pty. Limited; Australia <sup>(a)</sup>	AUD A Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
	AUD B Ordinary shares	100		
	—	—		
The Barrier Corporation (Vic.) Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
The Kelian Community and Forest Protection Trust; Singapore <sup>(c)</sup>	—	—	100	10 Collyer Quay, #10-01 Ocean Financial Centre, 049315, Singapore
The Pyrites Company, Inc.; United States	US\$1.00 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
The Roberval and Saguenay Railway Company/La Compagnie du Chemin de Fer Roberval Saguenay; Canada	CAD\$100.00 Ordinary shares	100	100	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
	CAD\$100.00 Preference shares 6% non-cumulative	100		
	—	—		
The Zinc Corporation Pty Ltd; Australia	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
	AUD Z Class ordinary shares	100		
	—	—		
Thos. W. Ward Limited; United Kingdom	£0.25 Ordinary shares	100	100	6 St James's Square, London, SW1Y 4AD, United Kingdom
Three Crowns Insurance Company Limited; Bermuda	£1.00 Common shares	100	100	Canon's Court, 22 Victoria Street, Hamilton, HM 12, Bermuda
Tinto Holdings Australia Pty. Limited; Australia	AUD A shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
	AUD Ordinary shares	100		
	—	—		
Trans Territory Pipeline Pty Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
U.S. Borax Inc.; United States	US\$0.10 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
	—	—		
Union Générale Industrielle Africaine; Morocco	MAD100.00 Ordinary shares	100	100	52 bld Zerkouni – 1er étage – Appartement N° 3–, Espace Erreda—Casablanca—Maroc, Maroc, Morocco
Victoria Technology Inc.; United States <sup>(a)</sup>	US\$1.00 Ordinary shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
	—	—		
Waste Solutions and Recycling LLC; United States	US\$ Units shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
West Kutai Foundation Limited; Singapore <sup>(c)</sup>	—	—	100	10 Collyer Quay, #10-01 Ocean Financial Centre, 049315, Singapore
Wimmera Industrial Minerals Pty. Limited; Australia <sup>(a)</sup>	AUD Ordinary shares	100	100	Level 33, 120 Collins Street, Melbourne VIC 3000, Australia
Winchester South Development Company Proprietary Limited; Australia	AUD Ordinary shares	100	100	123 Albert Street, Brisbane QLD 4000, Australia
Wyoming Coal Resources Company; United States	US\$0.01 Common shares	100	100	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
	—	—		
201 Logistics Center, LLC; United States <sup>(c)</sup>	—	—	50	CSC, 251 Little Falls Drive, Wilmington DE 19808, USA
AGM Holding Company Pte Ltd; Singapore	US\$ Ordinary shares	100	50.8	77 Robinson Road, #13-00, Robinson 77, 068896, Singapore

Other Group entities including subsidiaries where the effective ownership is less than 100%, associated undertakings and significant holdings in undertakings other than subsidiary companies

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Alufluor AB; Sweden	SEK1,000.00 Ordinary shares	50	50	Industrigatan 70, Box 902, S-25109, Helsingborg, Sweden
Aluminerie Alouette Inc; Canada	CAD Ordinary shares	40	40	400, Chemin de la Pointe-Noire, C.P. 1650, Sept-Îles Québec G4R 5M9, Canada
Aluminerie De Bécancour, Inc.; Canada	CAD1.00 Ordinary shares	50.1	25.2	5555 Pierre Thibault Street, PO 30, Bécancour, Quebec G0X 1B, Canada
Aluminium & Chemie Rotterdam B.V.; Netherlands	€4,555 Ordinary shares	65.8	65.8	Oude Maasweg 80, NL-3197 KJ, Botlek, Rotterdam, The Netherlands
Asia Gold Mongolia LLC; Mongolia	MNT1,250.00 Common shares	100	50.7	Suite 1302, F13, Monnis Tower, Chingis Avenue-15, 1st Khoroo, Sukhbaatar district, Ulaanbaatar, 14240, Mongolia
Asia Naran Bulag LLC; Mongolia	MNT1,000.00 Common shares	100	50.7	Suite 1302, F13, Monnis Tower, Chingis Avenue-15, 1st Khoroo, Sukhbaatar district, Ulaanbaatar, 14240, Mongolia
Balkhash Saryshagan LLP; Kazakhstan <sup>(c)</sup>	—	—	75	Dostyk 310/G, Almaty, 050020, Kazakhstan
Beasley River Marketing Pty Ltd; Australia	AUD A Class Shares	100	53	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUS B Shares	100		
Bektau B.V.; Netherlands	€200.00 Ordinary shares	75	75	Welplaatweg 104, 3197 KS, Botlek-Rotterdam, The Netherlands, Netherlands
Blair Athol Coal Pty. Ltd.; Australia	AUD Ordinary shares	57.2	71.2	123 Albert Street, Brisbane QLD 4000, Australia
Boyne Smelters Limited; Australia	AUD A1 Class shares	100		
	AUD A2 Class shares	100	59.4	123 Albert Street, Brisbane QLD 4000, Australia
	AUD B1 Class shares	100		
CanPacific Potash Inc.; Canada <sup>(c)</sup>	—	—	32	c/o McKercher LLP, 374 Third Avenue South, Saskatoon SK S7K1M5, Canada
Carol Lake Company Ltd.; Canada	CAD\$100.00 Ordinary shares	100	58.7	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Chinalco Rio Tinto Exploration Co. Ltd (in liquidation); China <sup>(d)</sup>	CNY1.00 Capital Contribution (Ordinary shares)	49	49	Unit 402, China Resources Building, No. 8 Jiangumenbei Avenue, Dong Cheng District, Beijing, 100005 P.R., China
Chlor Alkali Unit Pte Ltd; Singapore	SGD\$1.00 Ordinary (SGD) shares	100	68.4	12 Marina Boulevard, #20-01 Marina Bay Financial Centre Tower 3, Singapore, 018982, Singapore
	US\$1.00 Ordinary (USD) shares	68.4		
Corporation De Pêche Ste-Marguerite Inc.; Canada	CAD\$10.00 Ordinary shares	96.8	96.8	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Dalrymple Bay Coal Terminal Pty Ltd; Australia	AUD Ordinary shares	32.1	22.8	Martin Armstrong Drive, Hay Point via Mackay QLD 4740, Australia
Dampier Salt Limited; Australia	AUD Ordinary (\$1.00257) shares	68.4		
	AUD Ordinary (\$1.88 on 31/01/2013) shares	68.4	68.4	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Enarotali Gold Project Limited; Jersey	£0.001 Ordinary shares	25	25	13 Castle Street, St Helier, Jersey JE4 5UT, Jersey
Energy Resources of Australia Ltd; Australia	AUD A Class ordinary shares	68.4	68.4	C/- Mallesons Stephen Jacques, 60 Marcus Clarke Street, Canberra ACT, Australia
Fabrica De Plasticos Mycsa, S.A.; Bolivarian Republic of Venezuela <sup>(d)</sup>	VEF1.00 Common shares	49	49	Urbanización Industrial San Ignacio, parcela 2-A, vía San Pedro, Los Teques, Estado Miranda, Venezuela
Global Hubco BV; Netherlands	€1.00 Ordinary shares	33.3	33.3	c/o TMF Netherlands B.V., Luna Arena, Herikerbergweg 238, 1101, CM Amsterdam Zuidooost, Netherlands
Gulf Power Company/La Compagnie Gulf Power; Canada	CAD\$100.00 Ordinary shares	100	58.7	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Hail Creek Marketing Pty Ltd; Australia	AUD Ordinary shares	82	82	123 Albert Street, Brisbane QLD 4000, Australia
Halco (Mining) Inc.; United States	US\$100.00 Ordinary shares	45	45	The Prentice-Hall Corporation System, Inc., 2711 Centerville Road, Suite 400, Willmington DE 19808, United States
Half-Tide Marine Pty Ltd; Australia	AUD Ordinary shares	48.6	34.6	DBCT MS F283, Martin Armstrong Drive, Hay Point, QLD 4740, Australia
Heruga Exploration LLC; Mongolia	MNT 12,500 Common Shares	100	50.8	Suite 1302, F13, Monnis Tower, Chingis Avenue-15, 1st Khoroo, Sukhbaatar district, Ulaanbaatar, 14240, Mongolia
Hope Downs Marketing Company Pty Ltd; Australia	AUD A Class shares	100	50	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Hydrogen Energy International LLC; United States <sup>(c)</sup>	—	—	50	1209 Orange Street, Wilmington, New Castle, Delaware, U.S.A.
IAL Holdings Singapore Pte Ltd; Singapore	US\$ Ordinary shares	100	57.8	77 Robinson Road, #13-00, Robinson 77, 068896, Singapore
Iron Ore Company of Canada; United States	US\$1,000.00 Series B shares	91.4		
	US\$1,000.00 Series G shares	100	58.7	1209 Orange Street, Wilmington, Delaware 19801, U.S.A.
	US\$1,000.00 Series F shares	100		

## Notes to the 2017 financial statements

continued

### 46 Related undertakings continued

**Other Group entities including subsidiaries where the effective ownership is less than 100%, associated undertakings and significant holdings in undertakings other than subsidiary companies**

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Korgantas LLP; Kazakhstan <sup>(c)</sup>	—	—	75	Dostyk 310/G, Almaty, 050020, Kazakhstan
Lao Sanxai Minerals Company Limited; Lao People's Democratic Republic	US\$1.00 Ordinary shares	70	70	5th Floor, ANZ Bank Building, 33 Lane Xang Avenue, Hatsady Village, Chanthaboury District, Vientiane Capital, Lao People's Democratic Republic
Leichhardt Coal Pty Limited; Australia	AUD Ordinary shares	44.7	44.7	123 Albert Street, Brisbane QLD 4000, Australia
Magma Arizona Railroad Company; United States	US\$100.00 Common shares	99.9	54.9	CSC, 2338 W. Royal Palm Road, Suite J, Phoenix AZ 85021
Minera Escondida Ltda; Chile <sup>(c)</sup>	—	—	30	Av.Cerro Plomo, Piso 18,Las Condes, Santiago, 7580154, Chile
Movele; Luxembourg	US\$ Ordinary shares	100	50.8	22 rue Jean-Pierre Brasseur, L-1258, Luxembourg
	US\$ Preference shares	100		
New Zealand Aluminium Smelters Ltd; New Zealand	NZD1.00 Class A Ordinary shares	79.4	79.4	Tiwai Road , Southland via Intercargill, New Zealand
Northern Land Company Ltd; Canada	CAD1.00 Ordinary shares	50	58.7	235 Water Street, Ste 1000 Scotia Ctr, St-John's Newfoundland A1C 1B6
Nozalela Mineral Sands (Pty) Ltd; South Africa	ZAR 1.00 Ordinary shares	100	74	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
NZAS Retirement Fund Trustee Limited; New Zealand	NZD Ordinary shares	100	79.4	Mercer (NZ) Limited, Level 8, 113-119 The Terrace, Wellington, 6140, New Zealand
Orian Holding Corp; British Virgin Islands <sup>(e)</sup>	US\$ Common shares	100	50.8	Midocean Cambers-Management and Trust Services (BVI) Limited, PO Box 805, Pelican Drive, Road Town, Tortola,VG 110, British Virgin Islands
Oyu Tolgoi LLC; Mongolia <sup>(f)</sup>	MNT10,000.00 Common shares	66	33.5	Level 12 Monnis Tower, Chinggis Avenue-15, 1st khoroo, Sukhbaatar District, Ulaanbaatar, 14240, Mongolia
Oyu Tolgoi Netherlands BV; Netherlands	€100.00 Ordinary shares	100	50.8	Prins Bernhardplein 200 , Amsterdam, 1097 JB, The Netherlands
Pechiney Philippines Inc.; Philippines	PHP10.00 Ordinary shares	99.9	99.9	Room 306, ITC Building, 337 Sen Gil Puyat Avenue, Markati, Metro Manila, Philippines
Pechiney Reynolds Quebec, Inc.; United States	US\$10.00 Common shares	50	50.2	CSC, 233 South 13th Street, Suite 1900, Lincoln NE 68508, U.S.A.
	US\$100.00 Preferred shares	100		
Procivis Savoie; France	€19.00 Ordinary shares	22.1	22.1	116 Quai Charles Roissard, 73000, Chambéry, France
PT Hutan Lindung Kelian Lestari; Indonesia	IDR9,803.00 Ordinary shares	99	99	Kelian Mine Site, West Kutai, East Kalimantan, Indonesia
PT Kelian Equatorial Mining; Indonesia	IDR1,080.00 Ordinary shares	90	90	31st Floor, Menara BTPN, Jl. Dr. Ide Anak Agung Gde Agung Lot 5.5-5.6, Mega Kuningan, Jakarta, 12950, Indonesia
PT Mitra Sumbawa Minerals; Indonesia	US\$1.00 Ordinary shares	90	90	15th Floor, Menara Anugrah, Kantor Taman E3.3, Jalan DR. Ide Anak Agung Gde Agung Lot 8.6-8.7, Jakarta, 12950, Indonesia
PT Rikit Alas Minerals; Indonesia	US\$1.00 Ordinary shares	90	90	15th Floor, Menara Anugrah, Kantor Taman E3.3, Jalan DR. Ide Anak Agung Gde Agung Lot 8.6-8.7, Jakarta, 12950, Indonesia
QIT Madagascar Minerals SA; Madagascar	US\$10.00 Certificats d'investissement	100	80	Immeuble ASSIST, Ivandry , Lot N°35, 5ème étage, 101 Antananarivo , Antananarivo, Madagascar
	US\$10.00 Common shares	80		
Quebec North Shore and Labrador Railway Company/ Compagnie de Chemin de Fer du Littoral Nord de Quebec et du Labrador Inc.; Canada	CAD\$27.59 Ordinary shares	100	58.7	400-1190 Avenue des Canadiens-de-Montréal, Montréal Québec H3B 0E3, Canada
Queensland Alumina Limited; Australia	AUD Class B shares	100	80	Plant Operations Building, Parsons Point, Gladstone QLD 4680, Australia
	AUD Class C shares	100		
	AUD CLASS D shares	100		
Resolution Copper Mining LLC; United States <sup>(c)</sup>	—	—	55	CSC, 251 Little Falls Drive, Wilmington DE 19808, U.S.A.

**Other Group entities including subsidiaries where the effective ownership is less than 100%, associated undertakings and significant holdings in undertakings other than subsidiary companies**

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
Richards Bay Mining (Proprietary) Limited; South Africa	ZAR0.01 B Ordinary shares	99.9		
	ZAR0.01 B Preference shares	100	73.9	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
	ZAR 0.01 BHP Billiton Preference share	100		
Richards Bay Prefco (Pty) Ltd; South Africa	ZAR0.01 Preference shares	100	99.9	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
Richards Bay Titanium (Proprietary) Limited; South Africa	ZAR0.01 B Preference shares	100		
	ZAR0.01 BHP Billiton Preference shares	100	73.9	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
	ZAR0.01 B Ordinary shares	100		
Rightship Pty Ltd; Australia	AUD Ordinary shares	33.3	33.3	Level 20, 500 Collins Street, Melbourne VIC 3000, Australia
Rio Tinto Orissa Mining Private Ltd; India	INR100.00 Ordinary shares	51	51	N-3 / 356, IRC Village, Nayapalli, Bhubaneswar, Orissa, 751015, India
Rio Tinto Sohar Logistics LLC; Oman	OMR1.00 Ordinary shares	70	70	P.O. Box 686, Ruwi, 112, Oman
Riversdale Anthracite Colliery (Proprietary) Ltd; South Africa	ZAR2.00 Ordinary shares	74	74	Ground Floor – Cypress Place North, Woodmead Business Park, 140-142 Western Service Road, Woodmead, 2151, South Africa
Robe River Mining Co. Pty. Ltd.; Australia	AUD Class A shares	40	73.6	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
	AUD Class B shares	76.4		
Robe River Ore Sales Pty. Ltd.; Australia	AUD Ordinary	65	57.1	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Rössing Uranium Limited; Namibia <sup>(f)</sup>	NAD1 “B” Shares shares	71.2	35.6	360 Sam Nujoma Drive, Klein Windhoek, Windhoek, Namibia
	NAD0.1 “C” Shares	70.6		
Saryarka B.V.; Netherlands	€200.00 Ordinary shares	75	75	Welplaatweg 104, 3197 KS, Botlek-Rotterdam, The Netherlands, Netherlands
SGLS LLC; Mongolia	MNT10,000 Common shares	100	50.8	Suite 1302, F13, Monnis Tower, Chingis Avenue-15, 1st Khoroo, Sukhbaatar district, Ulaanbaatar, 14240, Mongolia
Simfer Jersey Finance 1 Ltd; Jersey	US\$ Ordinary shares	100	53	22 Grenville Street, St Helier, JE4 8PX, Jersey
Simfer Jersey Finance 2 Ltd; Jersey	US\$ Ordinary shares	53	53	22 Grenville Street, St Helier, JE4 8PX, Jersey
Simfer Jersey Limited; Jersey	US\$ Ordinary shares	53	53	22 Grenville Street, St Helier, JE4 8PX, Jersey
Simfer Jersey Nominee Limited; United Kingdom	£1.00 Ordinary shares	100	53	6 St James’s Square, London, SW1Y 4AD, United Kingdom
SIMFER S.A.; Guinea <sup>(f)</sup>	GNF100,000 Ordinary shares	85	45	Résidence Dolphine1 – Coleah Corniche Sud, Commune de Matam, BP 848, Conakry, BP 848, Guinea
Singapore Metals Pte. Ltd.; Singapore	US\$ Ordinary shares	100	50.8	77 Robinson Road, #13-00, Robinson 77, 068896, Singapore
Société Minière Et De Participations Guinée-Alusuisse; Guinea <sup>(c)</sup>	—	—	50	Tougue, Guinea
Sohar Aluminium Co. L.L.C.; Oman	OMR1.00 Ordinary shares	20	20	Sohar Industrial Estate, P.O. Box 80, PC 327, Sohar, Sultanate of Oman
THR Aruba Holdings LLC A.V.V.; Aruba	US\$1.00 Common shares	100	50.8	IMC International Management Trust Company N.V., L.G. Smith Blvd. 62, Miramar Building, Oranjestad, Aruba
THR Delaware Holdings, LLC; United States <sup>(c)</sup>	—	—	50.8	National Corporate Research, Ltd., 850 New Burton Road, Suite 201, Dover DE 19904, United States
THR Kharmagtai Pte Ltd.; Singapore	US\$ Ordinary shares	100	50.8	77 Robinson Road, #13-00, Robinson 77, 068896, Singapore
THR MINES (BC) LTD.; Canada	CAD Common shares	100	50.8	354-200 Granville Street, Vancouver BC V6C 1S4, Canada
	US\$ Common shares	100		



## Notes to the 2017 financial statements

continued

### 46 Related undertakings continued

**Other Group entities including subsidiaries where the effective ownership is less than 100%, associated undertakings and significant holdings in undertakings other than subsidiary companies**

Name of undertaking and country of incorporation	Share class	% of share class held by Group companies	Effective Group % ownership	Registered office address
THR Mines Services Co. Ltd.; Canada	CAD Common shares	100	50.8	Lackowicz Shier & Hoffman Barristers & Solicitors, 300-204 Black Street, Whitehorse YT Y1A 2M9, Canada
THR OYU TOLGOI LTD.; British Virgin Islands	US\$1.00 Ordinary shares	100	50.8	Midocean Chambers, Road Town, Tortola, Virgin Islands, British
THR Ulaan Pte. Ltd.; Singapore	US\$ Ordinary shares	100	50.8	77 Robinson Road, #13-00, Robinson 77, 068896, Singapore
Tisand (Proprietary) Limited; South Africa	ZAR1.00 A Ordinary shares	100	74	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa
	ZAR1.00 B Ordinary shares	100		
	ZAR1,000.00 Cumulative preference shares	100		
Tomago Aluminium Company Pty Limited; Australia	AUD Ordinary shares	100	51.6	638 Tomago Road, Tomago, NSW 2322, Australia
Turquoise Hill (Beijing) Services Company Ltd; China <sup>(c)</sup>	—	—	50.8	Room 2913, Cameo Center, No.16 GuangShun South Street, WangJing ChaoYang District, Beijing China. 100102
Turquoise Hill Netherlands Cooperatief U.A.; Netherlands	US\$ COOP shares	100	50.8	Prins Bernhardplein 200, 1097 JB Amsterdam, The Netherlands
Turquoise Hill Resources Ltd.; Canada	CAD Common shares	50.8	50.8	300-204 Black Street, Whitehorse Yukon Territories Y1A 2M9, Canada
Turquoise Hill Resources Philippines Inc.; Philippines <sup>(d)</sup>	PHP100.00 Common shares	99.9	50.8	Romulo Mabanta Buenaventura Sayoc & De Los Angeles, 21st Floor, Philamlife Tower, 8767 Paswode Roxas, Makati City, 1226, Philippines
Turquoise Hill Resources Singapore Pte Ltd.; Singapore	SGD1.00 Common shares	100	50.8	1A International Business Park, 609933, Singapore
Twin Falls Power Corporation Ltd; Canada	CAD Class B shares	74.4	34.253	Hydro Place, P.O. Box 12500, St-John's Newfoundland and Labrador A1B 3T5, Canada
Yalleen Pastoral Co Pty Ltd; Australia	AUD Ordinary shares	63.7	56	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia
Zululand Titanium (Pty) Ltd; South Africa	ZAR1.00 Ordinary shares	100	74	The Farm RBM, Number 16317, KwaZulu-Natal, South Africa

**In addition, the Group participates in the following unincorporated arrangements:**

<b>Name of undertaking and country of incorporation</b>	<b>Address or principal place of business</b>	<b>Interest % owned by the Group</b>
Bao-HI Ranges Joint Venture; Australia	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia	54
Blair Athol Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	71.2
Cape Bougainville Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	53.8
Channar Mining Joint Venture; Australia	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia	60
Diavik Joint Venture; Canada	300-5201 50th Avenue, Yellowknife NT X1A 2P9, Canada	60
Gladstone Power Station Joint Venture; Australia	NRG Gladstone Operating Service, Gladstone Power Station, Gladstone QLD 4680, Australia	42.1
Grasberg joint operation; Indonesia	Jl Mandala Raya Selatan, No. 1 Kuala Kencana, Timika, Irian Jaya, 98663, Indonesia	40
Green Mountain Mining Venture; United States	4700 Daybreak Parkway, South Jordan UT 84009, United States	100
Hail Creek Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	82
Hope Downs Joint Venture; Australia	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia	50
Kestrel Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	80
Mitchell Plateau Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	52.3
Rhodes Ridge Joint Venture; Australia	Level 18 Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia	50
Robe River Iron Associates Joint Venture; Australia	Level 27, Central Park, 152-158 St. Georges Terrace, Perth WA 6000, Australia	57.1
Tomago Aluminium Joint Venture; Australia	638 Tomago Road, NSW 2322, Tomago, Australia	51.6
Winchester South Joint Venture; Australia	123 Albert Street, Brisbane QLD 4000, Australia	75
Winter Road Joint Venture; Canada	300-5201 50th Avenue, Yellowknife NT X1A 2P9, Canada	33.3

(a) Directly held by Rio Tinto Limited.

(b) Directly held by Rio Tinto plc.

(c) Group ownership is held through an interest in capital. The entity has no classes of shares.

(d) In liquidation or application for dissolution filed.

(e) Dissolved after 31 December 2017.

(f) Classed as a subsidiary in accordance with section 1162(4)(a) of the Companies Act 2006 on the grounds of dominant influence.

(g) This company changed its name to Rio Tinto PACE Australia Pty Limited with effect from 12 January 2018.

# Rio Tinto plc

## Company balance sheet

As at 31 December	Note	2017 US\$m	2016 US\$m
<b>Non-current assets</b>			
Investments	B	36,093	36,050
Trade and other receivables		396	392
		<b>36,489</b>	36,442
<b>Current assets</b>			
Trade and other receivables	C	9,242	6,070
Cash at bank and in hand		5	4
		<b>9,247</b>	6,074
<b>Total assets</b>		<b>45,736</b>	42,516
<b>Current liabilities</b>			
Trade and other payables	D	(12,388)	(12,223)
Dividends payable		(18)	(16)
Other financial liabilities	G	(347)	(23)
		<b>(12,753)</b>	(12,262)
<b>Non-current liabilities</b>			
Other financial liabilities	G	(341)	(392)
<b>Total liabilities</b>		<b>(13,094)</b>	(12,654)
<b>Net assets</b>		<b>32,642</b>	29,862
<b>Capital and reserves</b>			
Share capital	E	220	224
Share premium account		4,306	4,304
Other reserves	F	11,992	11,988
Retained earnings		16,124	13,346
<b>Total equity</b>		<b>32,642</b>	29,862

The Rio Tinto plc company balance sheet has been prepared in accordance with Financial Reporting Standard 101 "Reduced Disclosure Framework" (FRS 101). Note A explains the principal accounting policies.

Profit after tax and total comprehensive income for the year amounted to US\$7,816 million (2016: US\$6,875 million). As permitted by section 408 of the UK Companies Act 2006, no statement of comprehensive income for the Rio Tinto plc parent company is shown.

The Rio Tinto plc company balance sheet, statement of comprehensive income and the related notes were approved by the directors on 28 February 2018 and the balance sheet is signed on their behalf by



**Jan du Plessis**  
Chairman



**Jean-Sébastien Jacques**  
Chief executive



**Chris Lynch**  
Chief financial officer

Rio Tinto plc

Registered number: 719885

Rio Tinto plc (the "Company") is incorporated in the United Kingdom, registered in England and Wales, and domiciled in the United Kingdom

## Company statement of changes in equity

	Share capital US\$m	Share premium account US\$m	Other reserves US\$m	Retained earnings US\$m	Total equity US\$m
<b>Year ended 31 December 2017</b>					
Opening balance	224	4,304	11,988	13,346	29,862
Profit for the financial year (comprehensive income)	-	-	-	7,816	7,816
Dividends	-	-	-	(3,255)	(3,255)
Proceeds from issue of shares	-	2	-	-	2
Share buy back	(4)	-	4	(1,828)	(1,828)
Share based payments	-	-	-	45	45
Total	220	4,306	11,992	16,124	32,642
<b>Year ended 31 December 2016</b>					
Opening balance	224	4,300	11,988	8,458	24,970
Profit for the financial year (comprehensive income)	-	-	-	6,875	6,875
Dividends	-	-	-	(2,046)	(2,046)
Proceeds from issue of shares	-	4	-	1	5
Share based payments	-	-	-	58	58
Total	224	4,304	11,988	13,346	29,862

## A Principal accounting policies

### a. Basis of preparation

The Rio Tinto plc company financial statements have been prepared using the historical cost convention, as modified by the revaluation of certain financial liabilities and in accordance with the UK Companies Act 2006 and FRS 101. The financial statements have been prepared on a going concern basis.

The accounting policies set out below have been applied consistently to all periods presented in these financial statements. The following exemptions available under FRS 101 have been applied:

- Paragraphs 45(b) and 46 to 52 of IFRS 2, “Share-based payment” (details of the number and weighted average exercise prices of share options and how the fair value of goods and services received was determined).
- Paragraphs 91-99 of IFRS 13 “Fair value measurement” (disclosure of valuation techniques and inputs used for fair value measurement of assets and liabilities).
- IFRS 7 “Financial Instruments: Disclosures”.
- Paragraph 38 of IAS 1 “Presentation of financial statements”, comparative information requirements in respect of Paragraph 79(a)(iv) of IAS 1.
- The following paragraphs of IAS 1 “Presentation of financial statements”:
  - 10 (d) (statement of cash flows);
  - 16 (statement of compliance with all IFRS);
  - 38A (requirement for minimum of two primary statements, including cash flow statements);
  - 38B-D (additional comparative information);
  - 111 (cash flow statement information); and
  - 134-136 (capital management disclosures).
- IAS 7 “Statement of cash flows”.
- Paragraph 30 and 31 of IAS 8 “Accounting policies, changes in accounting estimates and errors” (requirement for the disclosure of information when an entity has not applied a new IFRS that has been issued and is not yet effective).
- Paragraph 17 of IAS 24 “Related party disclosures” (key management compensation).
- The requirements of IAS 24, “Related party disclosures” to disclose related-party transactions entered into between two or more members of a group.

### b. Judgments in applying accounting policies and key sources of estimation uncertainty

The preparation of the financial statements requires management to make assumptions, judgments and estimates and to use judgment in applying accounting policies and making critical accounting estimates. These judgments, estimates and assumptions are based on management's best knowledge of the relevant facts and circumstances, having regard to previous experience, but actual results may differ materially from the amounts included in the financial statements.

The key area of judgment that has the most significant effect on the amounts recognised in the financial statements is the review for impairment of investment carrying values.

### c. Currency translation

Items included in the financial statements are measured using the currency of the primary economic environment in which the Company operates (the functional currency). The financial statements are presented in US dollars, which is the Company's functional and presentation currency. Transactions denominated in other currencies, including the issue of shares, are translated into the functional currency using the exchange rates prevailing at the date of the transaction.

Foreign exchange gains and losses resulting from the settlement of such transactions, and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies, are recognised in the profit and loss account.

Exchange rates used are consistent with the rates used by the Group as disclosed in the consolidated financial statements (note 41).

### d. Investments

Investments in Group companies are valued at cost less accumulated impairment losses. Investments are reviewed for impairment if events or changes in circumstances indicate that the carrying amount may not be recoverable.

### e. Financial guarantees

Financial guarantees are recognised initially at fair value. Subsequently, the liability is measured at the higher of the best estimate of the expenditure required to settle the present obligation and the amount initially recognised less cumulative amortisation.

### f. Share-based payments

The Company operates a number of share-based payment plans for Group employees, the details of which are included in the consolidated financial statements (note 43). The fair value of the Company's share plans is recognised as an addition to the cost of the investment in the subsidiary in which the relevant employees work over the expected vesting period, with a corresponding entry to retained earnings. Payments received from the Company's subsidiaries in respect of these share-based payments are recognised as a reduction in the cost of the investment. The Company uses fair values provided by independent actuaries calculated using either a lattice-based option valuation model or a Monte Carlo simulation model. The fair value of the share plans is determined at the date of grant, taking into account any market-based vesting conditions attached to the award.

Non-market based vesting conditions (eg relative EBIT margin performance targets) are taken into account in estimating the number of awards likely to vest. The estimate of the number of awards likely to vest is reviewed at each balance sheet date up to the vesting date, at which point the estimate is adjusted to reflect the actual awards issued. No adjustment is made after the vesting date even if the awards are forfeited or not exercised.

### g. Dividend income

Dividend income is recognised when the right to receive payment is established.

### h. Treasury shares

The consideration paid for shares repurchased by the Company and held as treasury shares is recognised as a reduction in shareholders' funds through retained earnings.



## B Investments

	2017 US\$m	2016 US\$m
<i>Investments in Group companies:</i>		
At 1 January	36,050	36,180
Additions	45	58
Disposals	-	(160)
Other adjustments	(2)	(28)
At 31 December	36,093	36,050

At 31 December 2017 the Company had the following principal subsidiaries:

Company	Principal activity	Country of incorporation	Percentage shareholding
Rio Tinto International Holdings Limited	Holding company	UK	100
Rio Tinto European Holdings Limited	Holding company	UK	100

In accordance with Section 409 of the UK Companies Act 2006, a full list of related undertakings is disclosed in the consolidated financial statements (note 46).

## C Trade and other receivables

Trade and other receivables includes US\$9,114 million (31 December 2016: US\$6,007 million), which is subject to interest based on LIBOR, is unsecured and repayable on demand.

## D Trade and other payables

Trade and other payables include US\$12,265 million (31 December 2016: US\$12,079 million) which is subject to interest rates based on LIBOR, is unsecured and repayable on demand.

## E Share capital

	2017 US\$m	2016 US\$m
Issued and fully paid up share capital of 10p each <sup>(a)</sup>		
At 1 January	224	224
Ordinary shares purchased and cancelled <sup>(b)</sup>	(4)	-
At 31 December	220	224

(a) 26,241 new shares (2016: 33,210 new shares) were issued during the year and 147,126 shares (2016: 743,380 shares) were reissued from treasury pursuant to share plans.  
(b) During the year 32,937,109 shares (2016: nil shares) were purchased and immediately cancelled.

## F Other reserves

Other reserves include US\$11,936 million (2016: US\$11,936 million) which represents the difference between the nominal value and issue price of the shares issued arising from Rio Tinto plc's rights issue completed in July 2009.

## G Rio Tinto plc guarantees

Rio Tinto plc provides a number of guarantees in respect of Group companies.

Rio Tinto plc and Rio Tinto Limited have jointly guaranteed the Group's external listed debt under the US Shelf Programme, European Debt Issuance Programme and Commercial Paper Programme which totalled US\$7.9 billion at 31 December 2017 (31 December 2016: US\$10.2 billion). In addition, these entities also jointly guarantee the Group's undrawn credit facility which was US\$7.5 billion at 31 December 2017 (31 December 2016: US\$7.5 billion). Rio Tinto plc has provided guarantees in respect of certain derivative contracts that are in a liability position of US\$231 million at 31 December 2017 (31 December 2016: US\$458 million).

Rio Tinto plc has provided a guarantee, known as the completion support undertaking (CSU), in favour of the Oyu Tolgoi LLC project finance lenders. At 31 December 2017 US\$4.3 billion of project finance debt was outstanding under this facility (31 December 2016: US\$4.3 billion). Oyu Tolgoi LLC is owned by Erdenes Oyu Tolgoi LLC (34 per cent), which is controlled by the Government of Mongolia, and Turquoise Hill Resources Ltd (66 per cent, of which Rio Tinto owns 51 per cent). The project finance has been raised for development of the underground mine and the CSU will terminate on the completion of the underground mine according to a set of completion tests set out in the project finance facility.

The Rio Tinto guarantee applies to the extent that Turquoise Hill Resources Ltd cannot satisfy Oyu Tolgoi LLC's project finance debt servicing obligations under its own guarantee to the lenders, called the sponsor debt service undertaking (DSU). Both the CSU and DSU contain a carve-out for certain political risk events.

During 2017, fees of US\$44 million (2016: US\$13 million) were received from Oyu Tolgoi LLC and Turquoise Hill Resources Ltd as consideration for provision of the CSU with an additional balance of US\$12 million (31 December 2016: US\$13 million) due and included within Current Assets - Trade and other receivables.

Rio Tinto plc has provided a number of guarantees in relation to various pension funds. Subject to certain conditions, Rio Tinto plc would pay any contributions due from Group companies participating in these funds in the event that the companies fail to meet their contribution requirements. The guarantees were not called upon in 2017. The aggregate of company contributions to these plans in 2017 was US\$51 million (2016: US\$94 million).

Other guarantees issued by Rio Tinto plc in relation to Rio Tinto Group entities as at 31 December 2017 amount to US\$338 million (31 December 2016: US\$337 million). Included within this balance is US\$60 million (31 December 2016: US\$60 million) in relation to non-wholly owned subsidiaries.

Pursuant to the DLC Merger, both Rio Tinto plc and Rio Tinto Limited issued deed poll guarantees by which each company guaranteed contractual obligations incurred by the other or guaranteed by the other.

The liability recognised for financial guarantees is US\$389 million (31 December 2016: US\$415 million).

## H Contingent Liabilities

Details of contingent liabilities are included in note 31 to the Group Financial Statements.

## I Events after the balance sheet date

On 7 February 2018, the Group announced an on-market share buy-back programme of US\$1.0 billion Rio Tinto plc shares; this is in addition to US\$1.925 billion under the US\$2.5 billion programme announced on 21 September 2017 which started on 27 December 2017. Rio Tinto plc shares that have been bought back under these programmes during 2018 have been cancelled and announcements have been made to the relevant stock exchanges.

# Rio Tinto financial information by business unit

	Rio Tinto interest %	Gross revenue <sup>(a)</sup>			EBITDA <sup>(b)</sup>			Net earnings <sup>(c)</sup>		
		for the year ended 31 December			for the year ended 31 December			for the year ended 31 December		
		2017 US\$m	2016 US\$m	2015 US\$m	2017 US\$m	2016 US\$m	2015 US\$m	2017 US\$m	2016 US\$m	2015 US\$m
<b>Iron Ore</b>										
Pilbara (d)		18,143	14,530	13,886	11,383	8,558	7,730	6,576	4,662	4,013
Evaluation projects/other		108	75	66	137	(32)	(55)	116	(51)	(73)
<b>Total Iron Ore</b>		<b>18,251</b>	<b>14,605</b>	<b>13,952</b>	<b>11,520</b>	<b>8,526</b>	<b>7,675</b>	<b>6,692</b>	<b>4,611</b>	<b>3,940</b>
<b>Aluminium</b>	(e)									
Bauxite		2,019	1,913	2,057	804	848	937	463	493	542
Alumina		2,661	2,118	2,145	454	27	(47)	180	(121)	(187)
Intrasegment		(790)	(786)	(849)	(25)	-	-	(17)	-	-
Bauxite & Alumina		3,890	3,245	3,353	1,233	875	890	626	372	355
Primary Metal		5,808	4,913	4,931	1,762	1,258	1,245	778	402	446
Pacific Aluminium		2,305	1,971	2,254	453	264	408	176	62	147
Intersegment & Other		(2,321)	(1,822)	(1,876)	(19)	(50)	132	(12)	(13)	92
Integrated Operations		9,682	8,307	8,662	3,429	2,347	2,675	1,568	823	1,040
Other Product Group Items		1,214	1,075	1,374	(132)	(42)	(76)	(100)	(30)	(50)
Product group operations		10,896	9,382	10,036	3,297	2,305	2,599	1,468	793	990
Evaluation projects/other		109	76	81	126	167	143	115	154	128
<b>Total Aluminium</b>		<b>11,005</b>	<b>9,458</b>	<b>10,117</b>	<b>3,423</b>	<b>2,472</b>	<b>2,742</b>	<b>1,583</b>	<b>947</b>	<b>1,118</b>
<b>Copper &amp; Diamonds</b>										
Rio Tinto Kennecott 100.0		1,352	1,243	1,403	539	126	437	78	(228)	44
Escondida 30.0		1,811	1,465	1,855	1,030	793	760	325	270	281
Grasberg joint venture (f)		33	-	-	(3)	(17)	(17)	(169)	(64)	(34)
Oyu Tolgoi & Turquoise Hill (g)		940	1,203	1,636	256	436	501	36	52	57
Diamonds (h)		706	613	698	287	239	293	92	47	79
Product group operations		4,842	4,524	5,592	2,109	1,577	1,974	362	77	427
Evaluation projects/other		-	-	-	(205)	(190)	(141)	(99)	(95)	(57)
<b>Total Copper &amp; Diamonds</b>		<b>4,842</b>	<b>4,524</b>	<b>5,592</b>	<b>1,904</b>	<b>1,387</b>	<b>1,833</b>	<b>263</b>	<b>(18)</b>	<b>370</b>
<b>Energy &amp; Minerals</b>										
Rio Tinto Coal Australia (i)		2,829	2,634	2,757	1,223	893	497	716	382	48
Iron Ore Company of Canada 58.7		1,867	1,324	1,353	770	335	197	235	64	12
Rio Tinto Iron & Titanium (j)		1,763	1,419	1,571	546	370	435	201	86	116
Rio Tinto Borates 100.0		630	620	624	244	213	178	126	117	103
Dampier Salt 68.4		215	259	306	27	74	71	3	25	24
Uranium (k)		417	456	474	15	54	1	(26)	10	(42)
Product group operations		7,721	6,712	7,085	2,825	1,939	1,379	1,255	684	261
Simandou iron ore project (l)		-	-	-	(13)	(102)	(87)	(6)	(47)	(41)
Evaluation projects/other		43	22	55	(9)	(31)	(55)	(7)	(25)	(43)
<b>Total Energy &amp; Minerals</b>		<b>7,764</b>	<b>6,734</b>	<b>7,140</b>	<b>2,803</b>	<b>1,806</b>	<b>1,237</b>	<b>1,242</b>	<b>612</b>	<b>177</b>
<b>Other Operations</b>	(m)	<b>10</b>	<b>8</b>	<b>18</b>	<b>(116)</b>	<b>(95)</b>	<b>(83)</b>	<b>(138)</b>	<b>(88)</b>	<b>(90)</b>
Intersegment transactions		(15)	(11)	(34)	-	-	-	-	-	-
<b>Product group Total</b>		<b>41,857</b>	<b>35,318</b>	<b>36,785</b>	<b>19,534</b>	<b>14,096</b>	<b>13,404</b>	<b>9,642</b>	<b>6,064</b>	<b>5,515</b>
Other items (n)					(736)	(411)	(546)	(483)	(241)	(375)
Exploration and evaluation					(218)	(175)	(237)	(178)	(147)	(211)
Net interest								(354)	(576)	(389)
<b>Underlying EBITDA/earnings</b>					<b>18,580</b>	<b>13,510</b>	<b>12,621</b>	<b>8,627</b>	<b>5,100</b>	<b>4,540</b>
Items excluded from underlying EBITDA/earnings		10	18	(1)	1,912	(687)	(563)	135	(483)	(5,406)
<b>EBITDA/net earnings</b>					<b>20,492</b>	<b>12,823</b>	<b>12,058</b>	<b>8,762</b>	<b>4,617</b>	<b>(866)</b>
<b>Reconciliation to Group income statement</b>										
Share of equity accounted unit sales and intra-subsiary/equity accounted units sales		(1,837)	(1,555)	(1,955)						
Depreciation & amortisation in subsidiaries excluding capitalised depreciation					(4,302)	(4,691)	(4,553)			
Impairment charges, net of reversals					(796)	(249)	(2,791)			
Depreciation & amortisation in equity accounted units					(648)	(526)	(462)			
Taxation and finance items in equity accounted units					(272)	(241)	(276)			
<b>Consolidated sales revenue/profit on ordinary activities before finance items and tax</b>		<b>40,030</b>	<b>33,781</b>	<b>34,829</b>	<b>14,474</b>	<b>7,116</b>	<b>3,976</b>			

	Rio Tinto interest %	Capital expenditure <sup>(a)</sup> for the year ended 31 December			Depreciation & amortisation for the year ended 31 December			Operating assets <sup>(p)</sup> as at for the year ended 31 December			Employees for the year ended 31 December		
		2017 US\$m	2016 US\$m	2015 US\$m	2017 US\$m	2016 US\$m	2015 US\$m	2017 US\$m	2016 US\$m	2015 US\$m	2017 Number	2016 Number	2015 Number
<b>Iron Ore</b>													
Pilbara	(d)	1,201	868	1,608	1,645	1,645	1,744	16,535	16,357	16,870	10,159	10,424	11,097
Evaluation projects/other		-	-	-	-	-	-	2	2	2	-	-	-
<b>Total Iron Ore</b>		<b>1,201</b>	<b>868</b>	<b>1,608</b>	<b>1,645</b>	<b>1,645</b>	<b>1,744</b>	<b>16,537</b>	<b>16,359</b>	<b>16,872</b>	<b>10,159</b>	<b>10,424</b>	<b>11,097</b>
<b>Aluminium</b>	(e)												
Bauxite		825	343	159	123	110	112	1,897	1,278	1,050	2,534	2,592	2,603
Alumina		108	87	158	209	206	207	2,733	2,588	2,698	2,012	2,139	2,287
Intrasegment		-	-	-	-	-	-	(18)	-	-	-	-	-
Bauxite & Alumina		933	430	317	332	316	319	4,612	3,866	3,748	4,546	4,731	4,890
Primary Metal		389	394	1,249	665	716	629	9,946	10,701	10,326	6,404	6,799	7,980
Pacific Aluminium		109	91	126	196	193	212	1,016	1,044	1,198	2,173	2,276	2,339
Intersegment and Other		5	1	(10)	6	25	12	772	171	677	222	231	210
<b>Total Aluminium</b>		<b>1,436</b>	<b>916</b>	<b>1,682</b>	<b>1,199</b>	<b>1,250</b>	<b>1,172</b>	<b>16,346</b>	<b>15,782</b>	<b>15,949</b>	<b>13,345</b>	<b>14,037</b>	<b>15,419</b>
<b>Copper &amp; Diamonds</b>													
Rio Tinto Kennecott	100.0	249	333	408	422	530	344	1,936	2,189	2,441	1,734	1,638	1,793
Escondida	30.0	248	517	770	507	364	293	3,369	3,565	3,485	1,079	1,230	1,159
Grasberg joint venture	(f)	138	174	179	42	89	43	1,137	1,151	1,016	1,642	2,859	2,868
Oyu Tolgoi & Turquoise Hill	(g)	901	322	92	344	450	416	4,725	3,804	3,597	2,835	2,728	2,798
Diamonds	(h)	85	97	124	132	164	159	441	655	857	922	907	1,118
Product group operations		1,621	1,443	1,573	1,447	1,597	1,255	11,608	11,364	11,396	8,212	9,362	9,736
Evaluation projects/other		1	(2)	3	5	4	6	135	166	155	142	127	160
<b>Total Copper &amp; Diamonds</b>		<b>1,622</b>	<b>1,441</b>	<b>1,576</b>	<b>1,452</b>	<b>1,601</b>	<b>1,261</b>	<b>11,743</b>	<b>11,530</b>	<b>11,551</b>	<b>8,354</b>	<b>9,489</b>	<b>9,896</b>
<b>Energy &amp; Minerals</b>													
Rio Tinto Coal Australia	(i)/(q)	84	(107)	108	152	297	336	1,040	1,807	2,137	1,924	3,049	3,157
Iron Ore Company of Canada	58.7	202	75	118	157	151	162	988	1,018	1,152	2,382	2,308	2,316
Rio Tinto Iron & Titanium	(j)	119	97	150	219	189	194	3,881	3,662	3,554	4,048	4,094	4,507
Rio Tinto Borates	100.0	28	31	28	65	53	45	523	508	585	936	984	987
Dampier Salt	68.4	13	11	14	22	23	22	150	146	140	232	317	394
Uranium	(k)	21	30	39	37	25	65	(327)	(143)	(216)	1,307	1,303	1,329
Product group operations		467	137	457	652	738	824	6,255	6,998	7,352	10,829	12,055	12,690
Simandou iron ore project	(l)	-	-	91	-	-	1	17	13	(10)	10	635	912
Evaluation projects/other		-	4	4	-	1	5	41	38	39	25	763	855
<b>Total Energy &amp; Minerals</b>		<b>467</b>	<b>141</b>	<b>552</b>	<b>652</b>	<b>739</b>	<b>830</b>	<b>6,313</b>	<b>7,049</b>	<b>7,381</b>	<b>10,864</b>	<b>13,453</b>	<b>14,457</b>
<b>Other Operations</b>	(m)	<b>(35)</b>	<b>(11)</b>	<b>(36)</b>	<b>32</b>	<b>34</b>	<b>32</b>	<b>(328)</b>	<b>203</b>	<b>(33)</b>	<b>203</b>	<b>249</b>	<b>299</b>
<b>Product group Total</b>		<b>4,691</b>	<b>3,355</b>	<b>5,382</b>	<b>4,980</b>	<b>5,269</b>	<b>5,039</b>	<b>50,611</b>	<b>50,923</b>	<b>51,720</b>	<b>42,925</b>	<b>47,652</b>	<b>51,168</b>
Intersegment transactions								206	142	242			
Net assets/(liabilities) of disposal groups held for sale	(r)							370	(7)	182			
Other items	(n)	70	(46)	65	42	51	68	(2,631)	(2,181)	(1,012)	3,882	3,377	3,770
Less: equity accounted units		(417)	(651)	(859)	(647)	(526)	(462)	-	-	-	-	-	-
<b>Total</b>		<b>4,344</b>	<b>2,658</b>	<b>4,588</b>	<b>4,375</b>	<b>4,794</b>	<b>4,645</b>	<b>48,556</b>	<b>48,877</b>	<b>51,132</b>	<b>46,807</b>	<b>51,029</b>	<b>54,938</b>
Add back: Proceeds from disposal of property, plant and equipment		138	354	97									
<b>Total capital expenditure per cash flow statement</b>		<b>4,482</b>	<b>3,012</b>	<b>4,685</b>									
Less: Net debt								(3,845)	(9,587)	(13,783)			
Less: EAU funded balances excluded from net debt								-	-	-			
<b>Equity attributable to owners of Rio Tinto</b>								<b>44,711</b>	<b>39,290</b>	<b>37,349</b>			

# Notes to financial information by business unit

Business units are classified according to the Group's management structure. Certain comparative amounts have been reallocated to appropriately represent changes in management responsibility.

- a) Gross sales revenue includes the sales revenue of equity accounted units on a proportionately consolidated basis (after adjusting for sales to subsidiaries) in addition to consolidated sales. Consolidated sales revenue includes subsidiary sales to equity accounted units which are not included in gross sales revenue.
- b) EBITDA of subsidiaries and the Group's share of EBITDA relating to equity accounted units represents profit before: tax, net finance items, depreciation and amortisation charged to the income statement in the period. Underlying EBITDA excludes the same items that are excluded from underlying earnings.
- c) Represents profit after tax for the period attributable to the owners of the Rio Tinto Group. Business unit earnings are stated before finance items but after the amortisation of discount related to provisions. Earnings attributed to business units do not include amounts that are excluded in arriving at underlying earnings.
- d) Pilbara represents the Group's 100 per cent holding in Hamersley, 50 per cent holding of Hope Downs Joint Venture and 65 per cent holding of Robe River Iron Associates. The Group's net beneficial interest in Robe River Iron Associates is 53 per cent as 30 per cent is held through a 60 per cent owned subsidiary and 35 per cent is held through a 100 per cent owned subsidiary.
- e) Presented on an integrated operations basis splitting activities between Bauxite & Alumina, Primary Metal, Pacific Aluminium and Other integrated operations (which in total reflect the results of the integrated production of aluminium) and Other product group items which relate to other commercial activities.
- f) Through a joint venture agreement with Freeport-McMoRan Inc. (Freeport), Rio Tinto is entitled to 40 per cent of material mined above an agreed threshold as a consequence of expansions and developments of the Grasberg facilities since 1998.
- g) Rio Tinto's interest in Oyu Tolgoi is held indirectly through its 50.8 per cent investment in Turquoise Hill Resources Ltd (TRQ), where TRQ's principal asset is its 66 per cent investment in Oyu Tolgoi LLC, which owns the Oyu Tolgoi copper-gold mine.
- h) Includes Rio Tinto's interests in Argyle (100 per cent) and Diavik (60 per cent).
- i) On 1 September, 2017, Rio Tinto disposed of its 100 per cent shareholding in Coal & Allied Industries Limited to Yancoal Australia Limited.

As at 31 December 2016, this included Rio Tinto's 100 per cent shareholding in Coal & Allied Industries Limited and its wholly-owned subsidiaries. Rio Tinto as a 100 per cent owner of Coal & Allied held a 67.6 per cent, 80 per cent and 55.6 per cent respectively, with management rights, in Hunter Valley Operations, Mount Thorley and Warkworth. On 1 March 2016, Coal & Allied disposed of its 40 per cent interest in Bengalla Joint Venture and on 5 August 2016, Coal & Allied disposed of its 100 per cent interest in the Mount Pleasant project. Both were included up until their respective disposal dates.

- j) Includes Rio Tinto's interests in Rio Tinto Fer et Titane (100 per cent), QIT Madagascar Minerals (QMM, 80 per cent) and Richards Bay Minerals (attributable interest of 74 per cent).
- k) Includes Rio Tinto's interests in Energy Resources of Australia (68.4 per cent) and Rössing Uranium Limited (68.6 per cent).
- l) Simfer Jersey Limited, a company incorporated in Jersey in which the Group has a 53 per cent interest, has an 85 per cent interest in Simfer S.A., the company that manages the Simandou project in Guinea. The Group therefore has a 45.05 per cent indirect interest in Simfer S.A. These entities are consolidated as subsidiaries and together referred to as the Simandou iron ore project.
- m) Other Operations include Rio Tinto's 100 per cent interest in the curtailed Gove alumina refinery and Rio Tinto Marine.
- n) Central office costs, central Growth & Innovation costs and other central items are reported in Other items. The loss in Other items includes restructuring, project and other one off costs of US\$177 million (pre-tax) in 2017. The increased loss also reflects an increase in Information Systems & Technology spend and further investment in the Commercial Centre in Singapore and capability to support the Group's Mine to Market Productivity programme.
- o) Capital expenditure comprises the net cash outflow on purchases less disposals of property, plant and equipment, capitalised evaluation costs and purchases less disposals of other intangible assets. The details provided include 100 per cent of subsidiaries' capital expenditure and Rio Tinto's share of the capital expenditure of joint operations and equity accounted units.
- p) Operating assets of subsidiaries comprise net assets excluding post-retirement assets and liabilities, net of tax, and are before deducting net debt. Operating assets are stated after deduction of non-controlling interests, which are calculated by reference to the net assets of the relevant companies (ie inclusive of such companies' debt and amounts due to or from Rio Tinto Group companies).
- q) Capital expenditure in 2016 for Rio Tinto Coal Australia includes net proceeds of US\$192 million for the disposal of 100 per cent interest in the Mount Pleasant thermal coal project to MACH Energy Australia Pty Ltd on 5 August 2016.
- r) Assets and liabilities held for sale at 31 December 2017 comprise of Rio Tinto's interest in the Dunkerque aluminium smelter and certain other separate assets.

Assets and liabilities held for sale at 31 December 2016 comprise Rio Tinto's interests in the Blair Athol coal project and certain separate assets.

Assets and liabilities held for sale at 31 December 2015 comprised Rio Tinto's interests in the Blair Athol coal project, Carbone Savoie (disposed of on 31 March 2016), Bengalla (disposed of on 1 March 2016), and certain other separate assets.

# Australian Corporations Act

## – summary of ASIC relief

Pursuant to section 340 of the Corporations Act 2001 (Corporations Act), the Australian Securities and Investments Commission issued an order dated 14 December 2015 that granted relief to Rio Tinto Limited from certain requirements of the Corporations Act in relation to the Company's financial statements and associated reports. The order essentially continues the relief that has applied to Rio Tinto Limited since the formation of the Group's dual listed companies (DLC) structure in 1995. The order applies to Rio Tinto Limited's financial reporting obligations for the financial years and half-years ending between 31 December 2015 and 30 June 2020 inclusive.

In essence, instead of being required under the Corporations Act to prepare consolidated financial statements covering only itself and its controlled entities, the order allows Rio Tinto Limited to prepare consolidated financial statements in which it, Rio Tinto plc and their respective controlled entities are treated as a single economic entity. In addition, those consolidated financial statements are to be prepared:

- in accordance with the principles and requirements of International Financial Reporting Standards as adopted by the European Union (EU IFRS) rather than the Australian Accounting Standards (AAS) (except for one limited instance in the case of any concise report), and in accordance with UK financial reporting obligations generally;
- on the basis that the transitional provisions of International Financial Reporting Standard 1, First-time Adoption of International Financial Reporting Standards, should be applied using the combined financial statements previously prepared for Rio Tinto Limited, Rio Tinto plc and their respective controlled entities under Generally Accepted Accounting Principles in the United Kingdom, under which the DLC Merger between Rio Tinto Limited and Rio Tinto plc was accounted for using "merger", rather than "acquisition", accounting (reflecting that neither Rio Tinto Limited nor Rio Tinto plc was acquired by, or is controlled by, the other; and meaning that the existing carrying amounts, rather than fair values, of assets and liabilities at the time of the DLC Merger were used to measure those assets and liabilities at formation);

- on the basis that Rio Tinto Limited and Rio Tinto plc are a single company (with their respective shareholders being the shareholders in that single company); and
- with a reconciliation, from EU IFRS to AAS, of the following amounts: consolidated loss/profit for the financial year, total consolidated comprehensive loss/income for the financial year and total consolidated equity at the end of the financial year (see page 117).

Those consolidated financial statements must also be audited in relation to their compliance with relevant Australian and UK requirements. Rio Tinto Limited must also prepare a Directors' report which satisfies the content requirements of the Corporations Act (applied on the basis that for these purposes the consolidated entity is the Group, and the consolidated financial statements cover the Group). This includes a Remuneration Report (see pages 70 to 105) prepared in accordance with the requirements of the Corporations Act.

Rio Tinto Limited is also required to comply generally with the lodgement and distribution requirements of the Corporations Act (including timing requirements) in relation to those consolidated financial statements (including any concise financial statements), the Auditors' report and the Directors' report. The Corporations Act also requires that a non-binding resolution to adopt the Remuneration Report be voted on by shareholders at the Company's annual general meeting.

Rio Tinto Limited is not required to prepare separate consolidated financial statements solely for it and its controlled entities. Rio Tinto Limited is also not required to prepare and lodge parent entity financial statements for itself in respect of each relevant financial year.

Rio Tinto Limited must, however, in accordance with the Corporations Act include in the consolidated financial statements for the Group, as a note, various parent entity information regarding Rio Tinto Limited (including in relation to assets, liabilities, shareholders' equity, profit and loss, income, guarantees, contingent liabilities, and contractual commitments) prepared in accordance with AAS (see page 182).



# Directors' declaration

## Directors' statement of responsibilities in relation to the Group financial statements, Rio Tinto plc financial statements and Rio Tinto Limited financial statements

The directors are responsible for preparing the Annual report, the Remuneration Report and the financial statements in accordance with applicable law and regulations.

UK and Australian company law requires the directors to prepare financial statements for each financial year. Under UK law the directors have elected to prepare the Group financial statements in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union and the Rio Tinto plc financial statements in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards and applicable law), including FRS 101 "Reduced disclosure framework".

Under Australian law, the directors are also required to prepare certain Rio Tinto Limited parent company financial statements in accordance with Australian Accounting Standards (AAS). In preparing the Group financial statements, the directors have also elected to comply with IFRSs, issued by the International Accounting Standards Board (IASB).

Under UK and Australian company law the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and the companies as at the end of the financial year, and of the profit or loss of the companies and Group for the period (as applicable).

In preparing these financial statements, the directors are required to:

- select suitable accounting policies and apply them consistently;
- make judgments and estimates that are reasonable and prudent;
- state whether IFRSs as adopted by the European Union, applicable UK Accounting Standards and AAS have been followed, subject to any material departures disclosed and explained in the Group and parent company financial statements respectively; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Group and the companies will continue in business.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the transactions of the companies and the Group and disclose with reasonable accuracy at any time the financial position of the companies and the Group and enable them to ensure that:

- the Group financial statements comply with the UK Companies Act 2006, the Australian Corporations Act 2001 as amended by the Australian Securities and Investments Commission Order dated 14 December 2015 and Article 4 of the IAS Regulation;
- the Rio Tinto plc financial statements comply with the UK Companies Act 2006;
- the Rio Tinto Limited parent company disclosures comply with the Corporations Act as amended by the Australian Securities and Investments Commission Order dated 14 December 2015; and
- the Remuneration Report complies with the UK Companies Act 2006 and the Corporations Act 2001 as amended by the Australian Securities and Investments Commission Order dated 14 December 2015.

The directors are also responsible for safeguarding the assets of the Companies and the Group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the Group's website. Legislation governing the preparation and dissemination of financial statements may differ between jurisdictions in which the Group reports.

Each of the current directors, whose names and function are listed on pages 52 to 54 in the Governance section, confirm that, to the best of their knowledge:

- the Rio Tinto Group financial statements and notes, which have been prepared in accordance with IFRS as adopted by the EU, the Corporations Act 2001 as amended by the Australian Securities and Investments Commission Order dated 14 December 2015, the UK Companies Act 2006 and Article 4 of the IAS Regulation, give a true and fair view of the assets, liabilities, financial position and profit of the Group;
- the Rio Tinto plc financial statements and notes, which have been prepared in accordance with United Kingdom Generally Accepted Accounting Practice give a true and fair view of the assets, liabilities, financial position and profit of the company;
- the Rio Tinto Limited parent company disclosures, which have been prepared in accordance with Australian Accounting Standards (AAS) and Corporations Act 2001 as amended by the Australian Securities and Investments Commission Order dated 14 December 2015 give a true and fair view of the assets, liabilities, financial position and profit of the company;
- the Strategic report section of the Annual report include a fair review of the development and performance of the business and the position of the Group, together with a description of the principal risks and uncertainties that it faces; and
- there are reasonable grounds to believe that each of the Rio Tinto Group, Rio Tinto plc and Rio Tinto Limited will be able to pay its debts as and when they become due and payable.

The directors have been given the declarations by the chief executive and chief financial officer required by section 295A of the Corporations Act 2001 as amended by the Australian Securities and Investments Commission Order dated 14 December 2015.

### Disclosure of information to auditors

The directors in office at the date of this report have each confirmed that:

- so far as he or she is aware, there is no relevant audit information of which the Group's auditors are unaware; and
- he or she has taken all the steps that he or she ought to have taken as a director to make himself or herself aware of any relevant audit information and to establish that the Group's auditors are aware of that information.

This declaration is made in accordance with a resolution of the board.

Jan du Plessis  
Chairman

Jean-Sébastien Jacques  
Chief executive

Chris Lynch  
Chief financial officer

# Auditor's independence declaration

As lead auditor for the audit of Rio Tinto Limited for the year ended 31 December 2017, I declare that to the best of my knowledge and belief, there have been:

- (a) no contraventions of the auditor independence requirements of the *Corporations Act 2001* in relation to the audit; and
- (b) no contraventions of any applicable code of professional conduct in relation to the audit.

This declaration is in respect of Rio Tinto Limited and the entities it controlled during the period.

Debbie Smith

**Partner**

PricewaterhouseCoopers

Brisbane

28 February 2018

Liability limited by a scheme approved under Professional Standards Legislation

## Independent auditors' report of PricewaterhouseCoopers LLP to the members of Rio Tinto plc and of PricewaterhouseCoopers to the members of Rio Tinto Limited

For the purpose of this report, the terms “we” and “our” denote PricewaterhouseCoopers LLP in relation to UK legal, professional and regulatory responsibilities and reporting obligations to the members of Rio Tinto plc and PricewaterhouseCoopers in relation to Australian legal, professional and regulatory responsibilities and reporting obligations to the members of Rio Tinto Limited. For the purposes of the table on pages 214 to 216 that sets out the key audit matters and how our audit addressed the key audit matters, the terms “we” and “our” refer to PricewaterhouseCoopers LLP and/or PricewaterhouseCoopers and/or our component teams. The Group financial statements, as defined below, consolidate the accounts of Rio Tinto plc and Rio Tinto Limited and their respective subsidiaries (the “Group”) and include the Group’s share of joint arrangements and associates. The Parent Companies are defined as Rio Tinto plc and Rio Tinto Limited.

The relevant legislation governing the Parent companies is the United Kingdom Companies Act 2006 (“Companies Act 2006”) for Rio Tinto plc and the Australian Corporations Act 2001 (“Corporations Act 2001”) as amended by the ASIC order dated 14 December 2015 (the “ASIC Order”) for Rio Tinto Limited.

### Report on the audit of the financial statements and the financial report

#### Opinion

#### Opinion of PricewaterhouseCoopers LLP on the financial statements to the members of Rio Tinto plc

In our opinion:

- the financial statements, defined below, give a true and fair view of the state of the Group’s and of Rio Tinto plc’s affairs as at 31 December 2017 and of the Group’s profit and cash flows for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards (“IFRSs”) as adopted by the European Union;
- the Rio Tinto plc financial statements have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, comprising FRS 101 “Reduced Disclosure Framework”, and applicable law); and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

PricewaterhouseCoopers LLP’s opinion is consistent with our reporting to the Audit Committee.

#### Separate opinion of PricewaterhouseCoopers LLP in relation to financial statements prepared in accordance with IFRSs as issued by the International Accounting Standards Board (“IASB”)

As explained in note 1 to the financial statements, the Group, in addition to applying IFRSs as adopted by the European Union, has also applied IFRSs as issued by the IASB.

In our opinion, the Group financial statements have been properly prepared in accordance with IFRSs as issued by the IASB.

### Opinion of PricewaterhouseCoopers on the financial report to the members of Rio Tinto Limited

In our opinion:

The accompanying financial report, defined below, is in accordance with the Corporations Act 2001 as amended by the ASIC Order, including:

- giving a true and fair view of the Group’s financial position as at 31 December 2017 and of its financial performance for the year then ended; and
- complying with Australian Accounting Standards and the Corporations Regulations 2001.

#### What we have audited

The Group financial statements (as defined below) and the Rio Tinto plc financial statements (as defined below) are referred to in this report as the “financial statements”. The Group financial statements, note 45 “Rio Tinto Limited parent company disclosures” and the Directors’ declaration on page 210 are collectively referred to in this report as the “financial report”.

PricewaterhouseCoopers LLP has audited the financial statements for the year ended 31 December 2017.

PricewaterhouseCoopers has audited the Reconciliation with Australian Accounting Standards, the Directors’ Remuneration Report included in the Directors’ report and the financial report for the year ended 31 December 2017.

The Group financial statements, included within the Annual report and Accounts (the “Annual report”), comprise: the Group balance sheet as at 31 December 2017; the Group income statement and Group statement of comprehensive income for the year then ended; the Group cash flow statement for the year then ended; the Group statement of changes in equity for the year then ended; notes 1 – 44 and 46 to the Group financial statements, which include a description of the significant accounting policies and other explanatory information; the outline of dual listed companies structure and basis of financial statements; and the Rio Tinto financial information by business unit.

The Rio Tinto plc financial statements, included within the Annual report, comprise: the Rio Tinto plc Company balance sheet as at 31 December 2017; the Rio Tinto plc Company statement of changes in equity for the year then ended; and notes A-I to the Rio Tinto plc financial statements, which include a description of the significant accounting policies and other explanatory information.

#### Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (“ISAs (UK)”), Australian Auditing Standards (“ASAs”) and applicable law. Our responsibilities under those standards are further described in the *Auditors’ responsibilities for the audit of the financial statements and financial report* section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Independence

PricewaterhouseCoopers LLP remained independent of the Group in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC’s Ethical Standard, as applicable to listed public interest entities, and we have fulfilled our other ethical responsibilities in accordance with these requirements. To the best of our knowledge and belief, we declare that non-audit services prohibited by the FRC’s Ethical Standard were not provided to the Group or Rio Tinto plc. Other than those disclosed in note 39 to the financial statements, we have provided no non-audit services to the Group or Rio Tinto plc in the period from 1 January 2017 to 31 December 2017.

PricewaterhouseCoopers remained independent of the Group in accordance with the auditor independence requirements of the Corporations Act 2001 and the ethical requirements of the Accounting Professional and Ethical Standards Board’s APES 110 Code of Ethics for Professional Accountants (“APES 110”) that are relevant to our audit of

the financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with APES 110.

## Our audit approach

The Group's principal activities are minerals and metals exploration, development, production and processing. The Group operates through four product groups which are supported by the Growth & Innovation group and other centralised functions. Together these comprise 49 business units containing multiple reporting units.

### Overview

<b>Materiality</b>	Overall Group materiality: US\$350 million (2016: US\$275 million). Overall Rio Tinto plc materiality: US\$325 million (2016: US\$250 million)
<b>Scope</b>	<p>We identified the Pilbara business unit as a significant component which required an audit of its complete financial information due to its financial significance to the Group.</p> <p>Aside from the Pilbara, we obtained full scope reporting from a further 21 reporting units (2016: 21). Specific audit procedures on certain balances and transactions were performed at a further 16 reporting units (2016: 12), which comprised ten (2016: seven) operating reporting units and six (2016: five) central reporting units, such as treasury entities.</p>
<b>Key audit matters</b>	<p>We assessed the risks of material misstatement in the financial statements and the financial report and determined the following key audit matters for 2017:</p> <ul style="list-style-type: none"> <li>– impairment assessments (including indicators of impairment and impairment reversal), with a particular focus on exploration and evaluation assets (Roughrider) and property, plant and equipment (at Oyu Tolgoi, Argyle, Grasberg and Rössing) and indefinite-lived intangible assets in Rio Tinto Aluminium;</li> <li>– provisions for close-down, restoration and environmental obligations; and</li> <li>– provisions for uncertain tax positions, with a particular focus on transfer pricing of certain transactions with the Group's commercial centre in Singapore.</li> </ul> <p>Compared with last year, based on our assessment of the risks of material misstatement, we did not consider defined benefit pension plan surpluses and deficits to be a key audit matter, as we have not identified material misstatements or had to communicate significant matters to the Audit Committee in recent years and there were no new risk factors this year.</p>

### The scope of our audit and our key audit matters

As part of designing our audit we determined materiality and assessed the risks of material misstatement in the financial statements and the financial report. In particular, we looked at where the directors made subjective judgements, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. We gained an understanding of the legal and regulatory framework applicable to the Group and the industry in which it operates, and considered the risk of acts by the Group that were contrary to applicable laws and regulations, including fraud. We designed audit procedures to respond to the risk, recognising that the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion. We designed audit procedures that focused on the risk that non-compliance with the Companies Act 2006, the Corporations Act 2001, the UK Listing Rules and/or the Listing Rules of the Australian Stock Exchange, gives rise to a material misstatement in the financial statements. In assessing compliance with laws and regulations, our tests included checking the financial statement disclosures to underlying supporting documentation, assessment of certain component auditors' work, enquiries with management and enquiries of legal counsel.

As in all of our audits, we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the directors that represented a risk of material misstatement due to fraud.

Key audit matters are those matters that, in the auditors' professional judgement, were of most significance in the audit of the financial statements and financial report of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditors, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. These matters, and any comments we make on the results of our procedures thereon, were addressed in the context of our audit of the financial statements and the financial report as a whole, and in forming our opinions thereon, and we do not provide a separate opinion on these matters. This is not a complete list of all risks identified by our audit. We note that there are no key audit matters specifically applicable to Rio Tinto plc.

# Independent auditors' report

of PricewaterhouseCoopers LLP to the members of Rio Tinto plc and of PricewaterhouseCoopers to the members of Rio Tinto Limited *continued*

Key audit matter	How our audit addressed the key audit matter
<p><b>Impairment/reversal of impairment assessment</b></p> <p>The Group has goodwill of US\$1,037 million, indefinite-lived intangible assets of US\$1,824 million, finite-lived intangible assets of US\$1,295 million (including exploration and evaluation assets of US\$393 million) and property, plant and equipment of US\$62,093 million as at 31 December 2017. Impairment charges to each of these asset categories have been recognised in previous years.</p> <p>All cash generating units ("CGUs") containing goodwill and indefinite-lived intangible assets must be tested for impairment annually. Management must also determine the recoverable amount for other assets including finite-lived intangible assets, property, plant and equipment and exploration and evaluation assets when impairment indicators or indicators of impairment reversal are identified.</p> <p>The determination of recoverable amount, being the higher of value-in-use ("VIU") and fair value less costs of disposal ("FVLCD"), requires judgement on the part of management in identifying and then estimating the recoverable amount for the relevant CGUs. Recoverable amounts are based on management's view of key internal value driver inputs and external market conditions such as future commodity prices, the timing and approval of future capital and operating expenditure, and the most appropriate discount rate.</p> <p>Specific CGUs where we focussed our procedures included the following:</p> <p><i>Oyu Tolgoi</i></p> <p>The development of the underground mine has progressed as planned during 2017. The operating assets of the Oyu Tolgoi CGU as at 31 December 2017 were US\$8.3 billion.</p> <p><i>Argyle</i></p> <p>As a result of lower production volumes compared with forecast, a smaller than expected contribution from productivity improvements and lower prices achieved for bulk diamonds, an impairment trigger was identified for the Argyle CGU.</p> <p>Management increased its closure cost estimates during the year based on the findings to date from its latest ongoing technical studies.</p> <p>Management determined that the projected cash-flows from the business did not support retaining a carrying value for the long term assets.</p> <p>A total pre-tax impairment charge of US\$172 million was recorded in relation to Argyle.</p> <p><i>Grasberg</i></p> <p>New regulations affecting aspects of the Contract of Works agreement between Freeport and the Government of Indonesia were issued in 2017, impacting PT Freeport Indonesia's operating rights and negatively impacting production forecasts.</p> <p>These new developments in the legal and political environment impacting the economics of the operation were identified by management as an impairment trigger.</p> <p>Management performed an impairment test predicated on estimated cash flows under the Participation Agreement, which supported the carrying value of the CGU.</p> <p><i>Uranium assets</i></p> <p>An impairment indicator was identified for the Roughrider uranium deposit as a result of reduced planned exploration expenditure. An impairment indicator was also identified for Rössing as a result of structural changes in forecast uranium prices.</p>	<p>For material property, plant and equipment, finite-lived intangible assets and exploration and evaluation assets we undertook the following to assess for indicators of impairment/impairment reversal:</p> <ul style="list-style-type: none"> <li>– satisfied ourselves as to the appropriateness of management's identification of the Group's CGUs and the continued satisfactory operation of the Group's controls over the impairment assessment process;</li> <li>– evaluated management's assessment of impairment indicators, as well as indicators of impairment reversal, including the conclusions reached; and</li> <li>– where applicable, understood the progress of any capital development programs against planned expenditure.</li> </ul> <p>In addition, specifically for the Oyu Tolgoi project, we:</p> <ul style="list-style-type: none"> <li>– understood the impact of the latest life of mine assumptions and assessed management's competence and objectivity in preparing the latest mine plans; and</li> <li>– considered the current project status and the length of time remaining to complete the underground mine and the associated complexity of doing so, and thereby satisfied ourselves that developments in 2017 did not give rise to an impairment or impairment reversal trigger for the Oyu Tolgoi CGU.</li> </ul> <p>In instances where an impairment trigger was identified, or where an annual impairment test was required by accounting standards, such as for goodwill balances and indefinite-lived intangible assets, including water rights in Rio Tinto Aluminium, we:</p> <ul style="list-style-type: none"> <li>– assessed whether the underlying impairment model has been prepared in accordance with the Group's impairment methodology;</li> <li>– ensured that the forecasts and life of mine plans in the impairment assessment are consistent with the most up-to-date budgets, mine plan, production assumptions or other supporting documentation that has been formally approved by management;</li> <li>– agreed the principal economic assumptions underpinning the impairment model to supporting evidence or data assessed by our valuation experts;</li> <li>– performed sensitivity analysis over the key assumptions in the valuation model; and</li> <li>– checked the mathematical accuracy of management's valuation models and relevant data.</li> </ul> <p>In addition to our overall response to impairment described above, we performed additional procedures on certain projects or reporting units where an impairment trigger was identified:</p> <p><i>Argyle</i></p> <ul style="list-style-type: none"> <li>– agreed the revised closure provision cash flows to management's model, and ensured the impact of this revision is included in the recoverable amount assessment.</li> </ul> <p><i>Grasberg</i></p> <ul style="list-style-type: none"> <li>– assessed management's conclusions in relation to the impact of the Government of Indonesia's new mining regulations, including the effect on production forecasts; and</li> <li>– assessed whether the mine operating and capital assumptions in the cash flow model were consistent with the underlying joint operation agreement.</li> </ul>



**Key audit matter continued***Uranium assets continued*

Management has assessed the recoverable amount of the assets, and determined that the exploration and evaluation assets for Roughrider and property, plant and equipment and intangible assets for Rössing were fully impaired, resulting in pre-tax impairment charges of US\$357 million and US\$267 million respectively.

Refer to note 6 for management's conclusions and the Audit Committee's views set out on page 64.

**How our audit addressed the key audit matter continued***Uranium assets*

- agreed management's uranium price forecasts and other relevant economic assumptions with reference to independent broker and analyst reports; and
- confirmed that there is no further substantive expenditure budgeted or planned to evaluate the Roughrider deposit.

We considered the appropriateness of the related disclosures in note 6 to the financial statements.

Based on the procedures performed, we noted no material issues from our work.

**Provisions for close-down, restoration and environmental obligations**

The Group has provisions for close-down, restoration and environmental obligations of US\$9,983 million as at 31 December 2017.

The calculation of these provisions requires management judgement in estimating the quantum and timing of future costs, particularly given the unique nature of each site, the long timescales involved and the potential associated obligations. These calculations also require management to determine an appropriate rate to discount future costs to their net present value.

The judgement required to estimate such costs is compounded by the fact that there has been limited restoration and rehabilitation activity and historical precedent against which to benchmark estimates of future costs.

Management reviews the close-down, restoration and environmental obligations on an annual basis, using experts to provide support in its assessment where appropriate. This review incorporates the effects of any changes in local regulations and management's anticipated approach to restoration and rehabilitation.

As at 31 December 2017, the total provision held on the balance sheet has increased from US\$8,722 million to US\$9,983 million.

Refer to notes 2 and 26, and the Audit Committee's views set out on page 64.

We assessed management's process for the review of closure provisions, and performed detailed testing for 8 reporting units that had a movement in their closure provision in the year or a closure provision as at 31 December 2017 that was above the respective individual component's materiality level (2016: 10 reporting units).

As part of our detailed testing of the cost estimates prepared by management for the 8 reporting units selected, we established the existence of legal and/or constructive obligations with respect to the closure provision and considered the intended method of restoration and rehabilitation and associated cost estimate.

We also considered the competence and objectivity of management's experts, whether internal or external to the Group, who produced the cost estimates and, where appropriate, engaged our own internal expert to assess the work performed by management's experts.

We checked the mathematical accuracy of management's calculations and assessed the appropriateness of the discount rate using our valuations experts.

In addition to the overall response to the risk described above, we performed additional procedures in respect of the largest increase in obligations during the year:

- read the latest available technical studies and assessed the appropriateness of the scope of work performed by management and the various third party experts; and
- considered whether the updates in provision reflect changes to previous estimates or the correction of prior period errors.

For the in scope reporting units that did not have a movement in the year, or a closure provision as at 31 December 2017, that was above the respective individual component's materiality level, we considered whether the provision relating to close-down, restoration and environmental obligations was consistent with our understanding of the obligations associated with the operation and the remediation plans.

We considered the appropriateness of the related disclosures in notes 2 and 26 to the financial statements.

Based on the procedures performed, we noted no material issues from our work.

# Independent auditors' report

of PricewaterhouseCoopers LLP to the members of Rio Tinto plc and of PricewaterhouseCoopers to the members of Rio Tinto Limited *continued*

Key audit matter continued	How our audit addressed the key audit matter continued
<p><b>Provisions for uncertain tax positions</b></p> <p>The Group operates across a large number of jurisdictions and is subject to periodic challenges by local tax authorities on a range of tax matters during the normal course of business, including transfer pricing, indirect taxes and transaction related tax matters.</p> <p>As at 31 December 2017, the Group has current and non-current taxes payable of US\$2,248 million. Where the amount of tax payable is uncertain, the Group establishes provisions based on management's best estimate of the most likely outcome.</p> <p>In relation to specific uncertain tax positions, we focussed on matters relating to the transfer pricing of certain transactions between the Group's entities based in Australia and the Group's commercial centre in Singapore. Over the past financial year, the Group has been in continued discussions with the Australian Taxation Office on these matters.</p> <p>Refer to notes 2 and 9, and the Audit Committee's views set out on page 64.</p>	<p>We assessed management's process for identifying uncertain tax positions and the related accounting policy of providing for tax exposures.</p> <p>We engaged our tax specialists to understand the current status of tax assessments and investigations and to monitor developments in ongoing disputes. We read recent rulings and correspondence with local tax authorities, as well as external advice received by the Group where relevant, to satisfy ourselves that the tax provisions had been appropriately recorded or adjusted to reflect the latest external developments.</p> <p>In addition to our overall response to the risk described above, we performed additional procedures in respect of the Group's Singapore commercial centre as follows:</p> <ul style="list-style-type: none"> <li>– read the latest available correspondence between management and the relevant tax authorities and expert reports to assess the continued appropriateness of the provision recognised by management;</li> <li>– checked the mathematical accuracy of management's provision calculations and agreed relevant input data to supporting records;</li> <li>– engaged our experts in the field of transfer pricing to evaluate the basis on which the provision has been determined; and</li> <li>– tested payments to the tax authorities, where applicable.</li> </ul> <p>Based on the procedures performed, we determined the provision reflects management's current best estimate of the expected economic outflow.</p> <p>We considered the appropriateness of the related disclosures in notes 2 and 9 to the financial statements.</p> <p>Based on the procedures performed, we noted no material issues arising from our work.</p>

## How we tailored the audit scope

As the Group engagement team, we tailored the scope of our audit to ensure that we performed enough work to be able to give opinions on the financial statements and the financial report as a whole, taking into account the geographical structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

The Group is organised into four product groups - Aluminium, Copper & Diamonds, Energy & Minerals and Iron Ore, all of which are supported by the Growth & Innovation group and other centralised functions. Each product group is made up of a number of operating businesses which represent separate business units. Each business unit is comprised of individual reporting units which align to discrete operations. The Group financial statements are a consolidation of reporting units, comprising the Group's operating businesses and centralised functions. We determined the appropriate reporting units to perform work on based on factors such as the size of the balances, the key audit matters as noted above and known accounting matters, and to include unpredictability in our audit procedures.

In establishing the overall approach to the Group audit, we determined the type of work that needed to be performed at reporting units by us, as the Group engagement team, or component auditors from either other PwC network firms or non-PwC firms operating under our instruction.

We identified the Pilbara reporting unit as a significant component (as defined within ISAs (UK) and ASAs) which, in our view, required an audit of its complete financial information, due to its financial significance to the Group. Outside of the Pilbara reporting unit, we obtained full scope reporting from a further 21 reporting units (2016: 21). Specific audit procedures on certain balances and transactions were performed at a further 16 reporting units (2016: 12), which comprised ten (2016: seven) operating reporting units and six (2016: five) central reporting units, such as treasury entities, primarily to ensure appropriate audit coverage.

As we seek to vary our audit procedures each year to ensure an element of unpredictability, two different smaller reporting units (2016: two) were included in our Group audit scope for 2017. We also performed work centrally on IT general controls, journals, taxation and pensions.

Where work was performed by component auditors, we determined the level of involvement we needed to have in the audit work at those reporting units to be able to conclude whether sufficient appropriate audit evidence had been obtained as a basis for our opinions on the Group financial statements and financial report as a whole.

We issued formal written instructions to all component auditors setting out the audit work to be performed by each of them and maintained regular communication with the component auditors throughout the audit cycle. These interactions included attending certain component clearance meetings and holding regular conference calls, as well as reviewing and assessing any matters reported. The Group engagement team also reviewed selected audit working papers for certain component teams.

In addition, senior members of the Group engagement team visited component teams across all four product groups in Canada, Australia, Indonesia, Mongolia, Singapore, South Africa and the United States of America. These visits included meetings with local management and with the component auditors, and typically operating site tours.

### Materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and to evaluate the effect of misstatements, both individually and in aggregate, on the financial statements and the financial report as a whole.

Based on our professional judgement, we determined materiality for the financial statements and the financial report as a whole as follows:

<b>Overall materiality</b>	Overall Group materiality US\$350 million (2016: US\$275 million). Overall Rio Tinto plc materiality: US\$325 million (2016: US\$250 million).
<b>How we determined it</b>	For overall Group materiality we used an average of underlying earnings before tax (as defined in note 2 to the financial statements) of the current and previous three years (2016: average underlying earnings before tax of the current year and previous three years).  For overall Rio Tinto plc materiality we used total assets.
<b>Rationale for benchmark applied</b>	For overall Group materiality, we chose to use an adjusted underlying earnings measure as the benchmark because an adjusted measure removes the impact of material items which do not recur from year to year or otherwise significantly affect the underlying trend of performance from continuing operations. This is the metric against which the performance of the Group is most commonly assessed by management and reported to members.  Our approach to determine materiality is based on a four year average of profit before tax adjusted for items excluded from underlying earnings. The adoption of a multi-year average benchmark for materiality will respond to longer-term trends in commodity markets and will reduce volatility in the measure year-on-year. Using our professional judgement, we determined materiality for this year at US\$350 million, which equates to approximately 2.9% of the current year's underlying earnings before tax.  For overall Rio Tinto plc materiality we determined our materiality based on total assets, which is more applicable than a performance-related measure as the company is an investment holding company for the Group. Using our professional judgement, we determined materiality for this year at US\$325 million, which equates to approximately 0.7% of the current year's total assets.
<b>Component materiality</b>	For each reporting unit ("component") in our audit scope, we allocated a materiality that was less than our overall Group materiality. The materiality allocated to each component was between US\$15 million and US\$320 million.

We agreed with the Audit Committee that we would report to them misstatements identified during our audit above US\$25 million (2016: US\$25 million) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

### Going concern

#### Reporting obligation

In accordance with ISAs (UK) we report as follows:

We are required to report to you if we have anything material to add or to draw attention to in respect of the directors' statement about whether they considered it appropriate to adopt the going concern basis of accounting in preparing the financial statements and the directors' identification of any material uncertainties to the Group's and Rio Tinto plc's ability to continue as a going concern over a period of at least twelve months from the date of the approval of the financial statements. We have nothing material to add or draw attention to. However, because not all future events or conditions can be predicted, this statement is not a guarantee as to the Group's and Rio Tinto plc's ability to continue as a going concern.

We are also required to report if the directors' statement relating to Going Concern in accordance with Listing Rule 9.8.6R(3) is materially inconsistent with our knowledge obtained in the audit. We have nothing to report.

In accordance with ASAs:

We are required to conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial report or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

# Independent auditors' report

of PricewaterhouseCoopers LLP to the members of  
Rio Tinto plc and of PricewaterhouseCoopers to the  
members of Rio Tinto Limited *continued*

## Reporting on other information – PricewaterhouseCoopers LLP

The other information comprises all of the information in the Annual report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic Report and the Directors' Report, we also considered whether the disclosures required by the Companies Act 2006 have been included.

Based on the responsibilities described above and our work undertaken in the course of the audit, the Companies Act 2006 (CA06), ISAs (UK) and the Listing Rules of the Financial Conduct Authority (FCA) require us also to report certain opinions and matters as described below (required by ISAs (UK) unless otherwise stated).

### Strategic Report and Directors' Report

In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic Report and the Directors' Report for the year ended 31 December 2017 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements. (CA06)

In light of the knowledge and understanding of the Group and Rio Tinto plc and their environment obtained in the course of the audit, we did not identify any material misstatement in the Strategic Report and Directors' Report. (CA06)

### The directors' assessment of the prospects of the Group and of the principal risks that would threaten the solvency or liquidity of the Group

We have nothing material to add or draw attention to regarding:

- The directors' confirmation on page 18 of the Annual report that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency or liquidity.
- The disclosures in the Annual report that describe those risks and explain how they are being managed or mitigated.
- The directors' explanation on page 18 of the Annual report as to how they have assessed the prospects of the Group, over what period they have done so and why they consider that period to be appropriate, and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

We have nothing to report having performed a review of the directors' statement that they have carried out a robust assessment of the principal risks facing the Group and statement in relation to the longer-term viability of the Group. Our review was substantially less in scope than an audit and only consisted of making inquiries and considering the directors' process supporting their statements; checking that the statements are in alignment with the relevant provisions of the UK Corporate Governance Code (the "Code"); and considering whether the statements are consistent with the knowledge and understanding of the Group and Rio Tinto plc and their environment obtained in the course of the audit. (Listing Rules)

### Other Code Provisions

We have nothing to report in respect of our responsibility to report when:

- The statement given by the directors, on page 109, that they consider the Annual report taken as a whole to be fair, balanced and understandable, and provides the information necessary for members to assess the Group's and Rio Tinto plc's position and performance, business model and strategy, is materially inconsistent with our knowledge of the Group and Rio Tinto plc acquired in the course of performing our audit.
- The section of the Annual report on page 64 describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee.
- The directors' statement relating to Rio Tinto plc's compliance with the Code does not properly disclose a departure from a relevant provision of the Code specified, under the Listing Rules, for review by the auditors.

### Directors' remuneration

In our opinion, the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006. (CA06)

## Reporting on other information – PricewaterhouseCoopers

The directors are responsible for the other information. The other information comprises the information included in the Annual report for the year ended 31 December 2017, other than the financial report and our auditor's report thereon.

Our opinion on the financial report does not cover the other information and accordingly we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial report, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial report or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

### Directors' remuneration

#### *Directors' Remuneration Report – Corporations Act 2001 opinion*

Under the Corporations Act 2001 (in respect of Rio Tinto Limited) we are required to express an opinion on the Directors' Remuneration Report based on our audit conducted in accordance with ASAs.

#### *Opinion on the Remuneration Report*

We have audited the Remuneration Report included on pages 70 to 105 of the Directors' report for the year ended 31 December 2017.

In our opinion, the Remuneration Report of Rio Tinto Limited complies with the requirements of section 300A of the Corporations Act 2001 as amended by the ASIC Order.

#### *Responsibilities*

The directors of Rio Tinto Limited are responsible for the preparation and presentation of the Remuneration Report in accordance with section 300A of the Corporations Act 2001 as amended by the ASIC Order.

Our responsibility is to express an opinion on the Remuneration Report, based on our audit conducted in accordance with ASAs.

## Responsibilities for the financial statements, the financial report and the audit

### Responsibilities of the directors for the financial statements and financial report

As explained more fully in the Directors' statement of responsibilities set out on page 210, the directors are responsible for the preparation of the financial statements and the financial report in accordance with the applicable financial reporting frameworks and for being satisfied that they give a true and fair view. The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements and the financial report that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements and financial report, the directors are responsible for assessing the Group's and Parent Companies' ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or the Parent Companies or to cease operations, or have no realistic alternative but to do so.

### Auditors' responsibilities for the audit of the financial statements and financial report

Our objectives are to obtain reasonable assurance about whether the financial statements and financial report as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) and ASAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements or financial report.

A further description of PricewaterhouseCoopers LLP's responsibilities for the audit of the financial statements is located on the FRC's website at: [www.frc.org.uk/auditors](http://www.frc.org.uk/auditors). A further description of PricewaterhouseCoopers' responsibilities for the audit of the financial report is located on the Auditing and Assurance Standards Board website at: [http://www.auasb.gov.au/auditors\\_responsibilities/ar1.pdf](http://www.auasb.gov.au/auditors_responsibilities/ar1.pdf). The descriptions on these websites form part of the auditors' report for PricewaterhouseCoopers LLP and PricewaterhouseCoopers respectively.

### Use of this report

This report, including the opinions, has been prepared for and only for the members of Rio Tinto plc and Rio Tinto Limited as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 (in respect of Rio Tinto plc) and the Corporations Act 2001 as amended by the ASIC Order (in respect of Rio Tinto Limited) and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

## Other required reporting – PricewaterhouseCoopers LLP

### Companies Act 2006 exception reporting

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not received all the information and explanations we require for our audit;
- adequate accounting records have not been kept by Rio Tinto plc, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of directors' remuneration specified by law are not made; or
- the Rio Tinto plc financial statements and the part of the Directors' Remuneration Report to be audited are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

## Appointment – PricewaterhouseCoopers LLP and PricewaterhouseCoopers

PricewaterhouseCoopers LLP and PricewaterhouseCoopers have acted as auditors of Rio Tinto since its formation under a dual listed company structure in 1995.

A predecessor firm of PricewaterhouseCoopers LLP was appointed by the members of a predecessor company of Rio Tinto plc on 8 May 1958 to audit the financial statements for the year ended 31 May 1958 and subsequent financial periods. The period of total uninterrupted engagement is 60 years, covering the years ended 31 May 1958 to 31 December 2017.

A predecessor firm of PricewaterhouseCoopers was appointed by the members of a predecessor company of Rio Tinto Limited on 31 December 1959 to audit the financial statements for the year ended 31 December 1959 and subsequent financial periods. The period of total uninterrupted engagement is 59 years, covering the years ended 31 December 1959 to 31 December 2017.

**Paul Barkus**  
**Senior Statutory Auditor**  
for and on behalf of  
**PricewaterhouseCoopers LLP**  
**Chartered Accountants and**  
**Statutory Auditors**  
**London, United Kingdom**

28 February 2018

**Debbie Smith,**  
**Partner**  
for and on behalf of  
**PricewaterhouseCoopers**

**Brisbane, Australia**

28 February 2018



# Financial summary 2008-2017

US\$m	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Gross sales revenue <sup>(a)</sup>	56,905	42,734	59,008	65,298	55,597	54,575	50,041	36,784	35,336	<b>41,867</b>
Share of equity accounted units' sales revenue and items excluded from underlying earnings	(4,044)	(2,472)	(3,837)	(4,769)	(4,655)	(3,404)	(2,377)	(1,955)	(1,555)	<b>(1,837)</b>
<b>Consolidated sales revenue</b>	<b>52,861</b>	<b>40,262</b>	<b>55,171</b>	<b>60,529</b>	<b>50,942</b>	<b>51,171</b>	<b>47,664</b>	<b>34,829</b>	<b>33,781</b>	<b>40,030</b>
Underlying profit before interest and tax (PBIT)	17,683	9,843	21,128	23,662	13,467	16,039	13,851	7,310	8,053	<b>13,363</b>
Finance costs <sup>(b)</sup>	(1,706)	(1,058)	(909)	(759)	(616)	(794)	(967)	(1,076)	(1,360)	<b>(1,090)</b>
Exchange differences and derivatives <sup>(c)</sup>	(322)	528	529	2	695	(3,362)	(2,021)	(3,458)	622	<b>(1,078)</b>
Other exclusions from underlying earnings	(6,477)	(1,453)	(257)	(9,633)	(15,977)	(8,378)	(1,311)	(3,502)	(972)	<b>1,621</b>
<b>Profit/(loss) before tax (PBT)</b>	<b>9,178</b>	<b>7,860</b>	<b>20,491</b>	<b>13,272</b>	<b>(2,431)</b>	<b>3,505</b>	<b>9,552</b>	<b>(726)</b>	<b>6,343</b>	<b>12,816</b>
Tax on exclusions	988	(91)	42	135	2,896	2,642	423	567	(155)	<b>(596)</b>
Tax on underlying PBT	(4,730)	(1,985)	(5,338)	(6,607)	(3,485)	(5,068)	(3,476)	(1,560)	(1,412)	<b>(3,369)</b>
Loss after tax from discontinued operations	(827)	(449)	(97)	(10)	(7)	-	-	-	-	<b>-</b>
Attributable to non-controlling interests	(933)	(463)	(860)	(955)	(1)	2,586	28	853	(159)	<b>(89)</b>
<b>Net earnings/(loss) <sup>(d)</sup></b>	<b>3,676</b>	<b>4,872</b>	<b>14,238</b>	<b>5,835</b>	<b>(3,028)</b>	<b>3,665</b>	<b>6,527</b>	<b>(866)</b>	<b>4,617</b>	<b>8,762</b>
<b>Underlying earnings</b>	<b>10,303</b>	<b>6,298</b>	<b>13,987</b>	<b>15,572</b>	<b>9,269</b>	<b>10,217</b>	<b>9,305</b>	<b>4,540</b>	<b>5,100</b>	<b>8,627</b>
<b>Earnings/(loss) per share (basic) - continuing operations <sup>(e)</sup></b>	<b>286.8c</b>	<b>301.7c</b>	<b>731.0c</b>	<b>303.9c</b>	<b>(163.4)c</b>	<b>198.4c</b>	<b>353.1c</b>	<b>(47.5)c</b>	<b>256.9c</b>	<b>490.4c</b>
<b>Underlying earnings per share (basic) - continuing operations <sup>(e)</sup></b>	<b>656.2c</b>	<b>357.1c</b>	<b>713.3c</b>	<b>809.7c</b>	<b>501.3c</b>	<b>553.1c</b>	<b>503.4c</b>	<b>248.8c</b>	<b>283.8c</b>	<b>482.8c</b>
Dividends per share: declared for year <sup>(f)</sup>										
Rio Tinto shareholders (US cents)	111.22c	45.00c	108.00c	145.00c	167.00c	192.00c	215.00c	215.00c	170.00c	<b>290.00c</b>
Rio Tinto plc (pence)	67.49p	28.84p	67.35p	90.47p	106.77p	120.10p	134.88p	143.13p	134.36p	<b>212.56p</b>
Rio Tinto Limited (Aus. cents)	146.22c	51.56c	111.21c	134.01c	160.18c	213.14c	256.07c	296.80c	222.75c	<b>366.25c</b>
<b>Net assets</b>										
Fixed assets <sup>(g)</sup>	67,651	72,706	83,895	91,529	90,580	81,554	80,669	70,226	68,104	<b>70,735</b>
Other assets less liabilities	8,469	10,078	4,394	1,632	8,478	8,224	4,596	4,037	4,128	<b>2,495</b>
Provisions (including deferred tax liabilities)	(14,987)	(17,998)	(19,706)	(25,935)	(22,126)	(18,221)	(18,176)	(16,352)	(16,915)	<b>(18,270)</b>
Net debt	(38,672)	(18,861)	(4,071)	(8,342)	(19,192)	(18,055)	(12,495)	(13,783)	(9,587)	<b>(3,845)</b>
Non-controlling interests	(1,823)	(2,094)	(6,265)	(6,685)	(11,187)	(7,616)	(8,309)	(6,779)	(6,440)	<b>(6,404)</b>
<b>Equity attributable to owners of Rio Tinto</b>	<b>20,638</b>	<b>43,831</b>	<b>58,247</b>	<b>52,199</b>	<b>46,553</b>	<b>45,886</b>	<b>46,285</b>	<b>37,349</b>	<b>39,290</b>	<b>44,711</b>
<b>Capital expenditure <sup>(h)</sup></b>	<b>(8,574)</b>	<b>(5,388)</b>	<b>(4,591)</b>	<b>(12,573)</b>	<b>(17,615)</b>	<b>(13,001)</b>	<b>(8,162)</b>	<b>(4,685)</b>	<b>(3,012)</b>	<b>(4,482)</b>
<b>Acquisitions</b>	<b>(9)</b>	<b>(396)</b>	<b>(907)</b>	<b>(4,156)</b>	<b>(1,335)</b>	<b>4</b>	<b>-</b>	<b>(3)</b>	<b>-</b>	<b>-</b>
<b>Disposals</b>	<b>2,572</b>	<b>2,424</b>	<b>3,800</b>	<b>386</b>	<b>251</b>	<b>1,896</b>	<b>887</b>	<b>(38)</b>	<b>761</b>	<b>2,675</b>
<b>Net cash generated from operating activities <sup>(i)</sup></b>	<b>14,883</b>	<b>9,212</b>	<b>18,277</b>	<b>20,235</b>	<b>9,430</b>	<b>15,078</b>	<b>14,286</b>	<b>9,383</b>	<b>8,465</b>	<b>13,884</b>
<b>Cash flows before financing activities <sup>(i)</sup></b>	<b>8,702</b>	<b>5,855</b>	<b>16,566</b>	<b>3,245</b>	<b>(8,813)</b>	<b>4,132</b>	<b>7,783</b>	<b>4,783</b>	<b>6,361</b>	<b>11,511</b>
<b>Ratios</b>										
Operating margin <sup>(k)</sup>	32%	24%	37%	37%	25%	30%	28%	20%	23%	<b>32%</b>
Net debt to total capital <sup>(l)</sup>	63%	29%	6%	12%	25%	25%	19%	24%	17%	<b>7%</b>
Underlying earnings: owners' equity <sup>(m)</sup>	45%	20%	27%	28%	19%	22%	20%	11%	13%	<b>21%</b>
Interest cover <sup>(n)</sup>	10	9	27	27	13	13	13	7	7	<b>14</b>

(a) Gross sales revenue includes 100 per cent of subsidiaries' sales revenue and the Group's share of the sales revenue of equity accounted units (after adjusting for sales to subsidiaries).

(b) Finance costs include net interest and amortisation of discount.

(c) Under IFRS, as defined in note 1, certain gains and losses on currency exchange and on revaluation of derivatives are included in the Group's net earnings/(loss). These items are excluded from underlying earnings.

(d) Underlying earnings is an additional measure of earnings, which is reported by Rio Tinto with its IFRS (as defined in note 1) results to provide greater understanding of the underlying business performance of its operations. It is defined in note 2 to the financial statements. Underlying profit before interest and tax (PBIT) is similar to underlying earnings except that it is stated before interest and tax.

(e) 2009 earnings per share from continuing operations and underlying earnings per share have been calculated using a number of shares which reflects the discounted price of the July 2009 rights issues (the bonus factor). 2008 comparatives have been restated accordingly.

(f) Dividends per share are the amounts declared in respect of each financial year. These usually include an interim dividend paid in the year, and a final dividend paid after the end of the year. 2008 ordinary dividends per share have been restated using a number of shares which reflects the discounted price of the July 2009 rights issues (the bonus factor).

(g) Fixed assets include property, plant and equipment, intangible assets, goodwill, and investments in, and long-term loans to, equity accounted units.

(h) Capital expenditure is presented gross, before taking into account any disposals of property, plant and equipment or intangible assets.

(i) Net cash generated from operating activities represents the cash generated by the Group's consolidated operations, after payment of interest, taxes, and dividends to non-controlling interests in subsidiaries.

(j) Cash flow before financing activities is stated before deducting dividends payable to owners of Rio Tinto.

(k) Operating margin is the percentage of underlying PBIT, after excluding tax on equity accounted units, to gross sales revenue.

(l) Total capital comprises equity attributable to owners of Rio Tinto plus net debt and non-controlling interests.

(m) Underlying earnings: owners' equity represents underlying earnings expressed as a percentage of the mean of opening and closing equity attributable to owners of Rio Tinto.

(n) Interest cover represents the number of times interest payable less receivable (excluding the amortisation of discount but including capitalised interest) is covered by underlying operating profit, less amortisation of discount, plus dividends from equity accounted units. Underlying operating profit is similar to underlying earnings but is stated before tax, interest and share of profit after tax of equity accounted units.

## Summary financial data in Australian dollars, sterling and US dollars

2017 A\$m	2016 A\$m	2017 £m	2016 £m		2017 US\$m	2016 US\$m
<b>54,373</b>	47,467	<b>32,455</b>	26,043	Gross sales revenue	<b>41,867</b>	35,336
<b>51,987</b>	45,401	<b>31,031</b>	24,909	Consolidated sales revenue	<b>40,030</b>	33,781
<b>16,644</b>	8,525	<b>9,935</b>	4,677	Profit before tax from continuing operations	<b>12,816</b>	6,343
<b>11,495</b>	6,419	<b>6,861</b>	3,522	Profit for the year from continuing operations	<b>8,851</b>	4,776
<b>11,379</b>	6,205	<b>6,792</b>	3,404	Net earnings attributable to Rio Tinto shareholders	<b>8,762</b>	4,617
<b>11,204</b>	6,854	<b>6,688</b>	3,761	Underlying earnings <sup>(a)</sup>	<b>8,627</b>	5,100
<b>636.9c</b>	345.2c	<b>380.2p</b>	189.4p	Basic earnings per ordinary share <sup>(b)</sup>	<b>490.4c</b>	256.9c
<b>627.1c</b>	381.4c	<b>374.3p</b>	209.2p	Basic underlying earnings per ordinary share <sup>(a) (b)</sup>	<b>482.8c</b>	283.8c
				Dividends per share to Rio Tinto shareholders <sup>(c)</sup>		
<b>301.34c</b>	211.02c	<b>183.69p</b>	108.01p	- paid	<b>235.0c</b>	152.5c
<b>228.53c</b>	163.62c	<b>129.43p</b>	100.56p	- proposed	<b>180.0c</b>	125.0c
<b>14,949</b>	8,549	<b>8,923</b>	4,690	Cash flow before financing activities	<b>11,511</b>	6,361
<b>(4,929)</b>	(13,281)	<b>(2,869)</b>	(7,836)	Net debt	<b>(3,845)</b>	(9,587)
<b>57,322</b>	54,428	<b>33,366</b>	32,116	Equity attributable to Rio Tinto shareholders	<b>44,711</b>	39,290

(a) Underlying earnings exclude net impairment and other charges of US\$135 million (2016: charges of US\$483 million), which are analysed on page 133.

(b) Basic earnings per ordinary share and basic underlying earnings per ordinary share do not recognise the dilution resulting from share options on issue.

(c) The Australian dollar and sterling amounts are based on the US dollar amounts, retranslated at average or closing rates as appropriate, except for the dividends which are the actual amounts.

The financial data above has been extracted from the financial information set out on pages 111 to 201.

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# Production, reserves and operations

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## Metals and minerals production

	Rio Tinto % share <sup>(a)</sup>	2017 Production		2016 Production		2015 Production	
		Total	Rio Tinto share	Total	Rio Tinto share	Total	Rio Tinto share
<b>Alumina</b> ('000 tonnes)							
Jonquière (Vaudreuil) (Canada) <sup>(b)</sup>	100.0	1,448	1,448	1,452	1,452	1,449	1,449
Jonquière (Vaudreuil) specialty plant (Canada)	100.0	122	122	115	115	110	110
Queensland Alumina (Australia)	80.0	3,735	2,988	3,848	3,078	3,747	2,997
São Luis (Alumar) (Brazil)	10.0	3,697	370	3,707	371	3,667	367
Yarwun (Australia)	100.0	3,203	3,203	3,176	3,176	2,864	2,864
<b>Rio Tinto total</b>			8,131		8,192		7,788
<b>Aluminium</b> ('000 tonnes)							
Alma (Canada)	100.0	457	457	467	467	466	466
Alouette (Sept-Îles) (Canada)	40.0	598	239	609	244	606	242
Arvida (Canada)	100.0	171	171	172	172	173	173
Arvida AP60 (Canada)	100.0	57	57	60	60	59	59
Bécancour (Canada)	25.1	438	110	445	111	437	109
Bell Bay (Australia)	100.0	187	187	182	182	191	191
Boyne Island (Australia)	59.4	508	302	583	346	579	344
Dunkerque (France) <sup>(c)</sup>	100.0	284	284	280	280	275	275
Grande-Baie (Canada)	100.0	229	229	227	227	221	221
ISAL (Reykjavik) (Iceland) <sup>(d)</sup>	100.0	212	212	205	205	201	201
Kitimat (Canada)	100.0	433	433	408	408	110	110
Laterrière (Canada)	100.0	249	249	247	247	244	244
Lochaber (UK) <sup>(d)</sup>	—	—	—	46	46	47	47
Sohar (Oman)	20.0	253	51	386	77	377	75
Tiwai Point (New Zealand)	79.4	337	267	339	269	333	265
Tomago (Australia)	51.6	590	304	589	304	579	299
<b>Rio Tinto total</b>			3,551		3,646		3,322

See notes ► 227



	Rio Tinto % share <sup>(a)</sup>	2017 Production		2016 Production		2015 Production	
		Total	Rio Tinto share	Total	Rio Tinto share	Total	Rio Tinto share
<b>Bauxite</b> ('000 tonnes)							
Gove (Australia)	100.0	11,201	11,201	9,091	9,091	7,497	7,497
Porto Trombetas (MRN) (Brazil)	12.0	14,698	1,764	16,462	1,975	16,162	1,939
Sangaredi (Guinea)	23.0 <sup>(e)</sup>	15,409	6,934	16,023	7,210	14,615	6,577
Weipa (Australia)	100.0	30,898	30,898	29,427	29,427	27,663	27,663
<b>Rio Tinto total</b>			50,796		47,703		43,677
<b>Borates</b> ('000 tonnes) <sup>(f)</sup>							
Rio Tinto Borates – Boron (US)	100.0	517	517	503	503	476	476
<b>Coal</b> (hard coking) ('000 tonnes)							
<b>Rio Tinto Coal Australia</b>							
Hail Creek Coal (Australia) <sup>(g)</sup>	82.0	5,247	4,303	5,950	4,879	6,218	5,099
Kestrel Coal (Australia) <sup>(g)</sup>	82.0	4,252	3,402	4,077	3,262	3,450	2,760
<b>Rio Tinto total hard coking coal</b>			7,704		8,141		7,859
<b>Coal</b> (semi-soft coking) ('000 tonnes)							
<b>Rio Tinto Coal Australia</b>							
Hunter Valley (Australia) <sup>(h)</sup>	—	1,529	1,034	3,720	2,540	2,966	2,373
Mount Thorley (Australia) <sup>(h)</sup>	—	876	700	1,420	1,127	1,398	895
Warkworth (Australia) <sup>(h)</sup>	—	514	286	809	436	853	380
<b>Rio Tinto total semi-soft coking coal</b>			2,020		4,102		3,647
<b>Coal</b> (thermal) ('000 tonnes)							
<b>Rio Tinto Coal Australia</b>							
Bengalla (Australia) <sup>(i)</sup>	—	—	—	1,476	527	8,319	2,662
Hail Creek Coal (Australia) <sup>(g)</sup>	82.0	4,134	3,390	3,767	3,089	3,245	2,661
Hunter Valley (Australia) <sup>(h)</sup>	—	8,502	5,747	9,925	6,782	10,048	8,039
Kestrel Coal (Australia) <sup>(g)</sup>	80.0	843	674	846	676	637	509
Mount Thorley (Australia) <sup>(h)</sup>	—	2,011	1,609	2,850	2,235	2,815	1,802
Warkworth (Australia) <sup>(h)</sup>	—	4,521	2,512	7,225	3,945	6,663	2,965
<b>Rio Tinto total thermal coal</b>			13,933		17,254		18,638

See notes ► 227

## Metals and minerals production

	Rio Tinto % share <sup>(a)</sup>	2017 Production		2016 Production		2015 Production	
		Total	Rio Tinto share	Total	Rio Tinto share	Total	Rio Tinto share
<b>Copper (mined) ('000 tonnes)</b>							
Bingham Canyon (US)	100.0	148.9	148.9	152.7	152.7	92.0	92.0
Escondida (Chile)	30.0	902.7	270.8	1,010.7	303.1	1,148.9	344.7
Grasberg – Joint Venture (Indonesia) <sup>(i)</sup>	40.0	14.3	5.7	0.0	0.0	0.0	0.0
Oyu Tolgoi (Mongolia) <sup>(k)</sup>	33.5	157.4	52.8	201.3	67.5	202.2	67.8
<b>Rio Tinto total</b>			478.1		523.3		504.4
<b>Copper (refined) ('000 tonnes)</b>							
Escondida (Chile)	30.0	238.0	71.4	312.1	93.6	326.3	97.9
Rio Tinto Kennecott (US)	100.0	125.8	125.8	156.5	156.5	115.2	115.2
<b>Rio Tinto total</b>			197.2		250.1		213.0
<b>Diamonds ('000 carats)</b>							
Argyle (Australia)	100.0	17,135	17,135	13,958	13,958	13,472	13,472
Diavik (Canada)	60.0	7,486	4,492	6,658	3,995	6,406	3,843
Murowa (Zimbabwe) <sup>(l)</sup>	—	—	—	—	—	99	77
<b>Rio Tinto total</b>			21,627		17,953		17,392
<b>Gold (mined) ('000 ounces)</b>							
Bingham Canyon (US)	100.0	177.9	177.9	153.2	153.2	130.8	130.8
Escondida (Chile)	30.0	146.2	43.9	132.6	39.8	88.5	26.6
Grasberg – Joint Venture (Indonesia) <sup>(i)</sup>	40.0	0.0	0.0	0.0	0.0	0.0	0.0
Oyu Tolgoi (Mongolia) <sup>(k)</sup>	33.5	114.3	38.3	300.0	100.5	653.4	219.0
<b>Rio Tinto total</b>			260.1		293.5		376.4
<b>Gold (refined) ('000 ounces)</b>							
Rio Tinto Kennecott (US)	100.0	203.7	203.7	135.4	135.4	179.0	179.0
<b>Iron ore ('000 tonnes)</b>							
Hamersley mines (Australia)	(m)	206,760	206,760	205,902	205,902	189,421	189,421
Hamersley – Channar (Australia)	60.0	10,798	6,479	9,731	5,839	10,561	6,337
Hope Downs (Australia)	50.0	46,941	23,470	47,010	23,505	44,745	22,373
Iron Ore Company of Canada (Canada)	58.7	19,016	11,166	18,155	10,661	17,691	10,388
Robe River - Robe Valley (Australia) <sup>(n)</sup>	53.0	31,182	16,526	32,776	17,371	32,482	17,216
Robe River - West Angelas (Australia)	53.0	34,116	18,082	34,044	18,044	32,665	17,313
<b>Rio Tinto total</b>			282,484		281,321		263,048
<b>Molybdenum ('000 tonnes)</b>							
Bingham Canyon (US)	100.0	5.0	5.0	2.8	2.8	7.6	7.6

See notes ► 227

	Rio Tinto % share <sup>(a)</sup>	2017 Production		2016 Production		2015 Production	
		Total	Rio Tinto share	Total	Rio Tinto share	Total	Rio Tinto share
<b>Salt</b> ('000 tonnes)							
Dampier Salt (Australia)	68.4	<b>7,446</b>	<b>5,090</b>	7,578	5,180	8,103	5,539
<b>Silver</b> (mined) ('000 ounces)							
Bingham Canyon (US)	100.0	<b>2,156</b>	<b>2,156</b>	1,943	1,943	1,458	1,458
Escondida (Chile)	30.0	<b>5,707</b>	<b>1,712</b>	5,971	1,791	4,812	1,443
Grasberg – Joint Venture (Indonesia) <sup>(i)</sup>	40.0	<b>0</b>	<b>0</b>	0	0	0	0
Oyu Tolgoi (Mongolia) <sup>(k)</sup>	33.5	<b>974</b>	<b>326</b>	1,420	476	1,223	410
<b>Rio Tinto total</b>			<b>4,194</b>		<b>4,210</b>		<b>3,311</b>
<b>Silver</b> (refined) ('000 ounces)							
Rio Tinto Kennecott (US)	100.0	<b>2,378</b>	<b>2,378</b>	1,815	1,815	1,843	1,843
<b>Titanium dioxide slag</b> ('000 tonnes)							
Rio Tinto Iron & Titanium (Canada/South Africa) <sup>(a)</sup>	100.0	<b>1,315</b>	<b>1,315</b>	1,048	1,048	1,089	1,089
<b>Uranium</b> ('000 lbs U <sub>3</sub> O <sub>8</sub> )							
Energy Resources of Australia (Australia) <sup>(p)</sup>	68.4	<b>5,056</b>	<b>3,458</b>	5,182	3,544	4,421	3,023
Rössing (Namibia) <sup>(p)</sup>	68.6	<b>4,652</b>	<b>3,192</b>	4,078	2,798	2,747	1,884
<b>Rio Tinto total</b>			<b>6,650</b>		<b>6,342</b>		<b>4,907</b>

**Production data notes:**

Mine production figures for metals refer to the total quantity of metal produced in concentrates, leach liquor or doré bullion irrespective of whether these products are then refined onsite, except for the data for bauxite and iron ore, which can represent production of marketable quantities of ore plus concentrates and pellets. Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result from calculation of Rio Tinto share of production.

- (a) Rio Tinto percentage share, shown above, is as at the end of 2017. The footnotes below include all ownership changes over the three years.
- (b) Jonquière's (Vaudreuil's) production shows smelter grade alumina only and excludes hydrate produced and used for specialty alumina.
- (c) On 10 January 2018, Rio Tinto announced a binding offer to sell its 100 per cent interest in the Dunkerque smelter.
- (d) Rio Tinto sold its 100 per cent interest in the Lochaber aluminium smelter with an effective date of 16 December 2016. Production data are shown up to that date. On 26 February 2018, Rio Tinto announced a binding offer to sell its 100 per cent interest in the ISAL smelter.
- (e) Rio Tinto has a 22.95 per cent shareholding in the Sangaredi mine but benefits from 45.0 per cent of production.
- (f) Borate quantities are expressed as B<sub>2</sub>O<sub>3</sub>.
- (g) Kestrel and Hail Creek produce hard coking coal and thermal coal through their mining operations. Both mines may blend coal types at ports.
- (h) On 1 September 2017, Rio Tinto completed the sale of Coal & Allied, a wholly owned subsidiary of Rio Tinto Coal Australia (RTCA) and production from these assets is included to this date. This included Coal & Allied's 67.6 per cent interest in the Hunter Valley Operations mine, 80 per cent interest in the Mount Thorley mine and 55.6 per cent interest in the Warkworth mine. In an earlier restructuring of the Coal & Allied group completed on 3 February 2016, Rio Tinto had obtained 100 per cent of Coal & Allied and retained a 67.6 per cent interest in the newly created Hunter Valley Operations joint venture. Prior to restructuring, Rio Tinto's interest in the Hunter Valley Operations, Mount Thorley and Warkworth mines was 80 per cent, 64 per cent and 44.46 per cent respectively.

- (i) Rio Tinto sold its interest in the Bengalla Joint Venture with an effective date of 1 March 2016.
- (j) Through a joint venture agreement with Freeport-McMoRan, Inc (FCX), Rio Tinto is entitled to 40 per cent of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. Total production reflects the quantities attributable to these expansions and developments.
- (k) Rio Tinto owns a 33.52 per cent indirect interest in Oyu Tolgoi through its 50.79 per cent interest in Turquoise Hill Resources Ltd.
- (l) Rio Tinto sold its 77.8 per cent interest in Murowa Diamonds with an effective date of 17 June 2015. Production data are shown up to that date.
- (m) Includes 100 per cent of production from Paraburdoo, Mt Tom Price, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass and the Eastern Range mines. While Rio Tinto owns 54 per cent of the Eastern Range mine, under the terms of the joint venture agreement, Hamersley Iron manages the operation and is obliged to purchase all mine production from the joint venture and therefore all of the production is included in Rio Tinto's share of production.
- (n) Robe River – Robe Valley (Australia) was previously reported as Robe River – Pannawonica (Australia).
- (o) Quantities comprise 100 per cent of Rio Tinto Fer et Titane and Rio Tinto's share of Richards Bay Minerals' production. Ilmenite mined in Madagascar is being processed in Canada.
- (p) ERA and Rössing report drummed U<sub>3</sub>O<sub>8</sub>.

# Ore reserves

Ore Reserves and Mineral Resources for Rio Tinto managed operations are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, December 2012 (the JORC Code), as required by the Australian Securities Exchange (ASX). Codes or guidelines similar to JORC with only minor regional variations have been adopted in South Africa, Canada, the US, Chile, Peru, the Philippines, the UK, Ireland and Europe. Together, these Codes represent current best practice for reporting Ore Reserves and Mineral Resources.

The JORC Code envisages the use of reasonable investment assumptions, including the use of projected long-term commodity prices, in calculating Ore Reserve estimates. However, for US reporting, the US Securities and Exchange Commission requires historical price data to be used. For this reason, some Ore Reserves reported to the SEC in the Form 20-F may differ from those reported below.

Ore Reserve and Mineral Resource information in the tables below is based on information compiled by Competent Persons (as defined by

JORC), most of whom are full time employees of Rio Tinto or related companies. Each has had a minimum of five years' relevant estimation experience and is a member of a recognised professional body whose members are bound by a professional code of ethics. Each Competent Person consents to the inclusion in this report of information they have provided in the form and context in which it appears. Competent Persons responsible for the estimates are listed on pages 238 and 239, by operation, along with their professional affiliation, employer and accountability for Ore Reserves and/or Mineral Resources. Where operations are not managed by Rio Tinto, the Ore Reserves are published as received from the managing company. The Ore Reserve figures in the following tables are as of 31 December 2017. Summary data for year end 2016 are shown for comparison. Metric units are used throughout. The figures used to calculate Rio Tinto's share of Ore Reserves are often more precise than the rounded numbers shown in the tables, hence small differences might result if the calculations are repeated using the tabulated figures.

	Type of mine (a)	Proved ore reserves at end 2017		Probable ore reserves at end 2017		Total ore reserves 2017 compared with 2016				Rio Tinto share		
						2017	2016	2017	2016			
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Interest	Recoverable mineral			
Bauxite (b)		millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	millions of tonnes	millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	% Al <sub>2</sub> O <sub>3</sub>	%	millions of tonnes	
Reserves at operating mines												
Gove (Australia) (c)	O/P	143	49.4	4	49.3	147	147	49.4	49.2	100.0	147	
Porto Trombetas (MRN) (Brazil) (d)	O/P	34	49.9	15	50.5	48	61	50.1	49.8	12.0	6	
Sangaredi (Guinea) (e)	O/P	170	48.4	162	49.3	331	346	48.8	48.9	23.0	76	
Weipa (Australia)												
– East Weipa and Andoom (f)	O/P	196	50.7			196	209	50.7	50.6	100.0	196	
Total											425	
Reserves at development project												
Weipa (Australia)												
– South of Embley (g)	O/P	287	53.2	971	53.0	1,258	1,409	53.0	52.4	100.0	1,258	
Borates (h)												
		millions of tonnes		millions of tonnes		millions of tonnes	millions of tonnes				millions of tonnes	
Reserves at operating mine												
Rio Tinto Borates – Boron (US) (i)	O/P	11		5.2		16	22			100.0	16	
	Coal type (j)	Reserves		Marketable reserves		Marketable reserves		Marketable coal quality		Average % yield to give marketable reserves		Marketable reserves
		Proved at end 2017	Probable at end 2017	Proved at end 2017	Probable at end 2017	Total 2017	Total 2016	Calorific value	Sulphur content			
		millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	MJ/kg (k)	% (k)	millions of tonnes		
Coal (l)												
Reserves at operating mines												
Rio Tinto Coal Australia												
Hail Creek (m)	O/C SC + MC	75	141	49	93	142	159	25.64	0.33	66 82.0	117	
Hunter Valley Operations (n)	O/C SC + MC					–	616	–	–	–	–	
Kestrel Coal (o)	U/G SC + MC	16	165	13	133	146	94	32.03	0.57	81 80.0	117	
Mount Thorley Operations (n)	O/C SC + MC					–	12	–	–	–	–	
Warkworth (n)	O/C SC + MC					–	206	–	–	–	–	
Total											233	

See notes ► 232

	Type of mine <sup>(a)</sup>	Proved ore reserves at end 2017		Probable ore reserves at end 2017		Total ore reserves 2017 compared with 2016				Average mill recovery		Interest %	Rio Tinto share
		Tonnage millions of tonnes	Grade % Cu	Tonnage millions of tonnes	Grade % Cu	2017		2016					
						millions of tonnes	% Cu	millions of tonnes	% Cu	millions of tonnes	% Cu	millions of tonnes	% Cu
<b>Copper</b>													
<b>Reserves at operating mines</b>													
Bingham Canyon (US)	O/P	405	0.46	239	0.37	644	668	0.43	0.43	88	100.0	2.431	
Escondida (Chile)													
– sulphide	O/P	3,459	0.73	1,774	0.65	5,233	5,638	0.70	0.67	82	30.0	9.010	
– sulphide leach <sup>(p)</sup>	O/P	1,614	0.42	539	0.39	2,153	2,479	0.41	0.42	32	30.0	0.842	
– oxide	O/P	95	0.71	196	0.56	291	301	0.61	0.66	62	30.0	0.329	
Grasberg (Indonesia)	O/P+U/G	627	1.18	1,329	0.99	1,956	2,059	1.05	1.06	89	(q)	6.396	
Oyu Tolgoi (Mongolia)													
– Oyut open pit	O/P	309	0.52	554	0.39	863	912	0.44	0.44	79	33.5	0.998	
– Oyut stockpiles <sup>(r)</sup>		47	0.32			47	39	0.32	0.46	71	33.5	0.036	
<b>Total</b>												20.042	
<b>Reserves at development projects</b>													
Oyu Tolgoi (Mongolia)													
– Hugo Dummett North	U/G			464	1.66	464	464	1.66	1.66	92	33.5	2.371	
– Hugo Dummett North Extension <sup>(s)</sup>	U/G			35	1.59	35	35	1.59	1.59	92	29.9	0.152	
<b>Total</b>												2.523	
												Recoverable diamonds	
<b>Diamonds <sup>(b)</sup></b>		millions of tonnes	carats per tonne	millions of tonnes	carats per tonne	millions of tonnes	millions of tonnes	carats per tonne	carats per tonne			millions of carats	
<b>Reserves at operating mines</b>													
Argyle (Australia) <sup>(t)</sup>	U/G			16	2.4	16	29	2.4	2.3		100.0	38.5	
Diavik (Canada) <sup>(u)</sup>	O/P+U/G	8.5	2.9	6.6	2.7	15	16	2.8	2.8		60.0	25.5	
<b>Total</b>												64.0	
												Recoverable metal	
<b>Gold</b>		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	millions of tonnes	grammes per tonne	grammes per tonne			millions of ounces	
<b>Reserves at operating mines</b>													
Bingham Canyon (US)	O/P	405	0.18	239	0.16	644	668	0.17	0.17	67	100.0	2.332	
Grasberg (Indonesia)	O/P+U/G	627	0.99	1,329	0.76	1,956	2,059	0.83	0.86	67	(q)	11.040	
Oyu Tolgoi (Mongolia)													
– Oyut open pit	O/P	309	0.36	554	0.24	863	912	0.28	0.28	69	33.5	1.817	
– Oyut stockpiles <sup>(r)</sup>		47	0.12			47	39	0.12	0.21	63	33.5	0.038	
<b>Total</b>												15.227	
<b>Reserves at development projects</b>													
Oyu Tolgoi (Mongolia)													
– Hugo Dummett North	U/G			464	0.34	464	464	0.34	0.34	83	33.5	1.407	
– Hugo Dummett North Extension <sup>(s)</sup>	U/G			35	0.55	35	35	0.55	0.55	84	29.9	0.155	
<b>Total</b>												1.563	

See notes ► 232

# Ore reserves

	Type of mine <sup>(a)</sup>	Proved ore reserves at end 2017		Probable ore reserves at end 2017		Total ore reserves 2017 compared with 2016				Average mill recovery % Interest %		Rio Tinto share	
		Tonnage	Grade	Tonnage	Grade	2017	2016	2017	2016				
		millions of tonnes	% Fe	millions of tonnes	% Fe	millions of tonnes	millions of tonnes	% Fe	% Fe	Marketable product millions of tonnes			
Iron ore <sup>(v)</sup> <sup>(b)</sup>													
Reserves at operating mines													
Hamersley Iron (Australia)													
– Brockman 2 (Brockman ore) <sup>(w)</sup>	O/P	60	62.2	27	61.1	87	69	61.9	62.4	100.0		87	
– Brockman 4 (Brockman and Marra Mamba ore) <sup>(x)</sup>	O/P	295	62.3	115	61.1	410	446	62.0	61.9	100.0		410	
– Marandoo (Marra Mamba ore)	O/P	153	63.9	11	58.1	164	161	63.5	63.5	100.0		164	
– Mt Tom Price	O/P	11	62.0	29	63.6	40	45	63.2	63.6	100.0		40	
(Brockman and Marra Mamba ore) <sup>(y)</sup>													
– Nammuldi (Marra Mamba ore) <sup>(z)</sup>	O/P	66	62.4	83	61.5	150	136	61.9	62.3	100.0		150	
– Paraburdoo (Brockman ore)	O/P	7	61.1	8	63.7	15	16	62.5	62.9	100.0		15	
– Silvergrass (Marra Mamba ore)	O/P	121	62.1	55	58.6	176	178	61.0	61.3	100.0		176	
– Western Turner Syncline	O/P	213	62.1	65	61.0	278	289	61.8	62.0	100.0		278	
(Brockman and Marra Mamba ore)													
– Yandicoogina (Pisolite ore)	O/P	589	58.5			589	642	58.5	58.5	100.0		589	
Channar JV (Australia)													
– Channar (Brockman ore) <sup>(aa)</sup>	O/P	5	61.3	22	60.9	27	37	61.0	62.0	60.0		16	
Eastern Range JV (Australia)													
– Eastern Range (Brockman ore) <sup>(bb)</sup>	O/P	34	61.8	9	60.2	43	52	61.5	61.7	54.0		23	
Hope Downs JV (Australia)													
– Hope Downs 1 (Marra Mamba ore) <sup>(cc)</sup>	O/P	99	62.7	105	60.4	204	238	61.5	61.5	50.0		102	
– Hope Downs 4 (Brockman ore)	O/P	68	63.5	79	63.0	147	162	63.2	63.0	50.0		73	
Robe River JV (Australia)													
– Robe Valley (Pisolite ore) <sup>(dd)</sup>	O/P	206	56.8	206	56.1	412	190	56.5	56.5	53.0		218	
– West Angelas (Marra Mamba ore) <sup>(ee)</sup>	O/P	181	62.1	81	61.1	262	182	61.8	61.6	53.0		139	
Iron Ore Company of Canada (Canada) <sup>(ff)</sup>	O/P	225	65.0	288	65.0	513	529	65.0	65.0	58.7		301	
Total												2,783	
Reserves at development projects													
Hamersley Iron (Australia)													
– Koodaideri (Brockman ore)	O/P	269	62.2	329	61.6	598	594	61.9	61.9	100.0		598	
– Turee Central (Brockman ore)	O/P	72	62.0	6	61.4	78	78	61.9	61.9	100.0		78	
Simandou (Guinea) <sup>(gg)</sup>	O/P					–	1,844	–	65.5	45.1		–	
Total												676	
													Recoverable metal
Molybdenum													
		millions of tonnes	% Mo	millions of tonnes	% Mo	millions of tonnes	millions of tonnes	% Mo	% Mo			millions of tonnes	
Reserves at operating mine													
Bingham Canyon (US) <sup>(hh)</sup>	O/P	405	0.040	239	0.021	644	668	0.033	0.033	61	100.0	0.128	
Total												0.128	

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		Proved ore reserves at end 2017		Probable ore reserves at end 2017		Total ore reserves 2017 compared with 2016				Average mill recovery % Interest %		Rio Tinto share
						2017	2016	2017	2016			
		Type of mine <sup>(a)</sup>	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage			Recoverable metal
		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	millions of tonnes	grammes per tonne	grammes per tonne			millions of ounces
<b>Silver</b>												
<b>Reserves at operating mines</b>												
Bingham Canyon (US)	O/P	405	2.06	239	2.13	<b>644</b>	668	<b>2.09</b>	2.06	66	100.0	<b>28.522</b>
Grasberg (Indonesia)	O/P+U/G	627	4.83	1,329	4.29	<b>1,956</b>	2,059	<b>4.46</b>	4.48	71	(q)	<b>73.019</b>
Oyu Tolgoi (Mongolia)												
– Oyut open pit	O/P	309	1.37	554	1.10	<b>863</b>	912	<b>1.20</b>	1.20	75	33.5	<b>8.373</b>
– Oyut stockpiles <sup>(r)</sup>		47	1.04			<b>47</b>	39	<b>1.04</b>	0.82	71	33.5	<b>0.372</b>
<b>Total</b>												<b>110.286</b>
<b>Reserves at development projects</b>												
Oyu Tolgoi (Mongolia)												
– Hugo Dummett North	U/G			464	3.37	<b>464</b>	464	<b>3.37</b>	3.37	86	33.5	<b>14.574</b>
– Hugo Dummett North Extension <sup>(s)</sup>	U/G			35	3.72	<b>35</b>	35	<b>3.72</b>	3.72	86	29.9	<b>1.074</b>
<b>Total</b>												<b>15.648</b>
<b>Titanium dioxide feedstock <sup>(ii)</sup></b>												
		millions of tonnes	% Ti Minerals	millions of tonnes	% Ti Minerals	millions of tonnes	millions of tonnes	% Ti Minerals	% Ti Minerals			Marketable Product
												millions of tonnes
<b>Reserves at operating mines</b>												
QMM (Madagascar)	D/O	433	3.5	14	3.5	<b>447</b>	449	<b>3.5</b>	3.5	80.0		<b>5.9</b>
RBM (South Africa)	D/O+O/P	1,069	2.2	618	2.6	<b>1,686</b>	1,801	<b>2.3</b>	2.2	74.0		<b>12.5</b>
RTFT (Canada) <sup>(iii)</sup>	O/P			120	83.2	<b>120</b>	128	<b>83.2</b>	83.1	100.0		<b>39.6</b>
<b>Total</b>												<b>58.0</b>
<b>Uranium</b>												
		millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	millions of tonnes	millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	% U <sub>3</sub> O <sub>8</sub>			Recoverable metal
												millions of tonnes
<b>Reserves at operating mines</b>												
Energy Resources of Australia (Australia)												
– Ranger #3 stockpiles <sup>(kk)</sup>				7.4	0.078	<b>7.4</b>	10.0	<b>0.078</b>	0.081	84	68.4	<b>0.003</b>
Rössing SJ (Namibia) <sup>(ll)</sup>	O/P	5.1	0.034	75	0.040	<b>80</b>	106	<b>0.040</b>	0.035	84	68.6	<b>0.019</b>
<b>Total</b>												<b>0.022</b>
<b>Zircon <sup>(mm)</sup></b>												
		millions of tonnes	% Zircon	millions of tonnes	% Zircon	millions of tonnes	millions of tonnes	% Zircon	% Zircon			Marketable Product
												millions of tonnes
<b>Reserves at operating mines</b>												
QMM (Madagascar)	D/O+O/P	433	0.2	14	0.2	<b>447</b>	449	<b>0.2</b>	0.2	80.0		<b>0.4</b>
RBM (South Africa)	D/O	1,069	0.3	618	0.4	<b>1,686</b>	1,801	<b>0.3</b>	0.3	74.0		<b>3.1</b>
<b>Total</b>												<b>3.5</b>

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## Notes

- (a) Type of mine: O/P = open pit, O/C = open cut, U/G = underground, D/O = dredging operation.
- (b) Reserves of bauxite, diamonds and iron ore are shown as recoverable Reserves of marketable product after accounting for all mining and processing losses. Mill recoveries are therefore not shown.
- (c) Gove Reserves are stated as dry tonnes and total alumina grade.
- (d) Porto Trombetas (MRN) Reserve tonnes decreased following mining depletion. Reserves are stated as dry tonnes and available alumina grade.
- (e) Sangaredi Reserves tonnes are reported on a three per cent moisture basis and alumina grades are reported as total alumina.
- (f) East Weipa and Andoom Reserves are stated as dry tonnes and total alumina grade.
- (g) The decrease in South of Embley Reserve tonnes is based on updated economic studies and changes to cut-off grades. The South of Embley region encompasses a number of bauxite deposits with Amrun being the first development, having commenced construction in 2016. The Reserves are stated as dry tonnes and total alumina grade.
- (h) Reserves of borates are expressed in terms of marketable product ( $B_2O_3$ ) after all mining and processing losses.
- (i) Rio Tinto Borates - Boron Reserve tonnes decreased following mining depletion and the write down of calcium borate Reserves to Resources as a result of a reassessment of processing assumptions. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (j) Coal type: SC: steam/thermal coal, MC: metallurgical/coking coal.
- (k) Coals have been analysed on an "air dried" moisture basis in accordance with Australian Standards and gross calorific value and sulphur content are reported here on that basis. Marketable Reserves tonnages are reported on a product moisture basis.
- (l) For coal, the yield factors shown reflect the impact of further processing, where necessary, to provide marketable coal.
- (m) The decrease in Hail Creek Reserve tonnes has resulted from an updated pit optimisation and pre-feasibility studies.
- (n) Rio Tinto sold its wholly-owned Australian subsidiary Coal & Allied Industries Limited with an effective date of 1 September 2017. This included its 67.6 per cent interest in the Hunter Valley Operations mine, 80 per cent interest in the Mount Thorley mine and 55.6 per cent interest in the Warkworth mine.
- (o) The increase in Kestrel Reserve tonnes is based on an updated geological model, updated mine layout, revised coal product classifications, productivity assumptions and loss and dilution parameters. This increase was released to the market by Rio Tinto on 5 September 2017.
- (p) Updated economic studies have resulted in a decrease in Escondida - sulphide leach Reserve tonnes.
- (q) Under the terms of a joint venture agreement between Rio Tinto and FCX, Rio Tinto is entitled to a direct 40 per cent share in Reserves discovered after 31 December 1994 and it is this entitlement that is shown.
- (r) Mine production and processing depletion resulted in an increase in Oyut stockpiles Reserves tonnes at a lower grade.
- (s) Rio Tinto's interest in Hugo Dummett North Extension decreased from 29.9 per cent to 29.5 per cent in 2017.
- (t) The decrease in Argyle Reserve tonnes follows mining depletion and an updated life of mine plan. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC). Argyle Reserves are based on a nominal 0.8 millimetre lower cut-off size and a final re-crushing size of 8 millimetres.
- (u) Changes in the Diavik Reserve tonnes follows mining depletion. Diavik Reserves are based on a nominal 1 millimetre lower cut-off size and a final re-crushing size of 5 millimetres.
- (v) Australian iron ore Reserves tonnes are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
- (w) Brockman 2 (Brockman ore) Reserve tonnes increased following changes to cut-off grades and addition of new pits.
- (x) Brockman 4 (Brockman and Marra Mamba ore) was previously reported as Brockman 4 (Brockman ore). Brockman South Marra Mamba Reserves are reported here for the first time and a JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC). The decrease in Brockman 4 (Brockman and Marra Mamba ore) Reserve tonnes is due to cut-off grade changes and mining depletion.
- (y) Mt Tom Price (Brockman and Marra Mamba ore) Reserve tonnes decreased due to mining depletion and geological model updates.
- (z) The increase in Nammuldi (Marra Mamba ore) Reserve tonnes is based on geological model updates and changes to cut-off grades.
- (aa) Channar (Brockman ore) Reserve tonnes decreased following mining depletion and changes to pit designs.
- (bb) Eastern Range (Brockman ore) Reserve tonnes decreased following mining depletion.
- (cc) Hope Downs 1 (Marra Mamba ore) Reserve tonnes decreased following mining depletion and changes to pit designs.
- (dd) Robe Valley (Pisolite ore) Reserve tonnes increased due to the addition of Mesa B, Mesa C and Mesa H deposits. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (ee) West Angelas (Marra Mamba ore) Reserve tonnes increased following geological model updates and the addition of West Angelas Deposit C and Deposit D. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (ff) Reserves at Iron Ore Company of Canada are reported as marketable product (63 per cent pellets and 37 per cent concentrate for sale) at a natural moisture content of two per cent. The marketable product is derived from mined material comprising 568 million dry tonnes at 38.4 per cent iron (Proved) and 733 million dry tonnes at 38.0 per cent iron (Probable) using process recovery factors derived from current IOC concentrating and pellet operations.
- (gg) All of Simandou's Reserves have been written down to Resources as a result of Rio Tinto's previously announced divestment process and uncertainty around development timing. Rio Tinto's interest in Simandou increased from 42.8 per cent to 45.1 per cent in 2017.
- (hh) Bingham Canyon Reserves molybdenum grades interpolated from exploration drilling assays have been factored based on a long reconciliation history to blast hole and mill samples.
- (ii) The marketable product ( $TiO_2$  slag) is shown after all mining and processing losses. The Reserves are expressed as in situ tonnes.
- (jj) The permitting process of a new waste dump to support full extraction of RTFT Reserves to 2063 is progressing with permit application submitted in 2017.
- (kk) The decrease in Ranger #3 stockpiles Reserves follows processing depletion.
- (ll) The change in Rössing Reserve tonnes and grade is based on updated processing studies, changes to cut-off grades and mining depletion.
- (mm) The marketable product (zircon at RBM and zirsil at QMM) is shown after all mining and processing losses. The Reserves are expressed as in situ tonnes.

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# Mineral resources

As required by the Australian Securities Exchange, the following tables contain details of other mineralisation that has a reasonable prospect of being economically extracted in the future but which is not yet classified as Proved or Probable Ore Reserves. This material is defined as Mineral Resources under the JORC Code. Estimates of such material are based largely on geological information with only preliminary consideration of mining, economic and other factors. While in the judgment of the Competent Person there are realistic expectations that all or part of the Mineral Resources will eventually become Proved or Probable Ore Reserves, there is no guarantee that this will occur as the result depends

on further technical and economic studies and prevailing economic conditions in the future. As in the case of Ore Reserves, managed operations' estimates are completed using or testing against Rio Tinto long-term pricing and market forecasts/scenarios. Mineral Resources are stated as additional to the Ore Reserves reported earlier. Where operations are not managed by Rio Tinto, the Mineral Resources are published as received from the managing company. Where new project Mineral Resources or Ore Reserves are footnoted as being reported for the first time, additional information about them can be viewed on the Rio Tinto website.

	Likely mining method <sup>(a)</sup>	Measured resources at end 2017		Indicated resources at end 2017		Inferred resources at end 2017		Total resources 2017 compared with 2016				Rio Tinto interest %
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	2017	2016	2017	2016	
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	
<b>Bauxite</b>		millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	millions of tonnes	millions of tonnes	% Al <sub>2</sub> O <sub>3</sub>	% Al <sub>2</sub> O <sub>3</sub>	
Gove (Australia) <sup>(b)</sup>	O/P	16	49.3	14	49.2	3	50.1	33	44	49.3	49.5	100.0
Porto Trombetas (MRN) (Brazil) <sup>(c)</sup>	O/P	293	49.6	40	48.9	134	49.9	468	468	49.6	49.6	12.0
Sangaredi (Guinea) <sup>(d)</sup>	O/P	60	44.8	5,149	47.3	641	46.4	5,850	5,850	47.2	47.2	23.0
Weipa (Australia) <sup>(e)</sup>												
– East Weipa and Andoom <sup>(f)</sup>	O/P	20	51.8	29	54.2			48	60	53.2	52.9	100.0
– North of Weipa	O/P			521	52.6	532	51.8	1,054	1,024	52.2	52.3	100.0
– South of Embley <sup>(g)</sup>	O/P	60	50.9	568	50.1			628	443	50.1	50.9	100.0
<b>Borates <sup>(h)</sup></b>		millions of tonnes		millions of tonnes		millions of tonnes		millions of tonnes	millions of tonnes			
Rio Tinto Borates – Boron (US) <sup>(i)</sup>	O/P	3.6		0.4		4.5		8.5	–			100.0
Jadar (Serbia) <sup>(j)</sup>	U/G			10		11		21	21			100.0
<b>Coal</b>												
	Coal			Coal resources at end 2017				2017	2016			
	type <sup>(k)</sup>			Measured	Indicated	Inferred						
				millions of tonnes	millions of tonnes	millions of tonnes		millions of tonnes	millions of tonnes			
<b>Coal <sup>(l)</sup></b>												
Rio Tinto Coal Australia												
Blair Athol <sup>(m)</sup>	O/C	SC						–	10			–
Hail Creek	O/C + U/GSC + MC			91	462	48		601	591			82.0
Hunter Valley Operations <sup>(n)</sup>	O/C + U/GSC + MC							–	1,831			–
Kestrel Coal <sup>(o)</sup>	U/GSC + MC			1	139	100		241	306			80.0
Lake Elphinstone	O/CSC + MC				120	42		162	162			82.0
Mount Robert	O/CSC + MC					31		31	31			82.0
Mount Thorley Operations <sup>(n)</sup>	O/CSC + MC							–	322			–
Oaklands <sup>(n)</sup>	O/C	SC						–	1,270			–
Valeria	O/C	SC			698	64		762	762			71.2
Warkworth <sup>(n)</sup>	O/C + U/GSC + MC							–	966			–
Winchester South	O/C	MC		78	146	132		356	356			75.0

See notes ►238

	Likely mining method <sup>(a)</sup>	Measured resources at end 2017		Indicated resources at end 2017		Inferred resources at end 2017		Total resources 2017 compared with 2016				Rio Tinto interest %
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	2017	2016	2017	2016	
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	
<b>Copper</b>		millions of tonnes	% Cu	millions of tonnes	% Cu	millions of tonnes	% Cu	millions of tonnes	millions of tonnes	% Cu	% Cu	
Bingham Canyon (US)												
– Open Pit <sup>(p)</sup>	O/P	66	0.37	37	0.28	12	0.18	115	72	0.32	0.28	100.0
– North Rim Skarn	U/G	1	3.50	9	3.60	10	3.70	20	20	3.65	3.65	100.0
Escondida (Chile)												
– Chimborazo – sulphide	O/P			139	0.50	84	0.60	223	223	0.54	0.54	30.0
– Escondida – sulphide	O/P	71	0.17	1,180	0.54	9,574	0.51	10,825	11,692	0.51	0.52	30.0
– Escondida – mixed <sup>(a)</sup>	O/P			6.9	0.44	59	0.44	66	76	0.44	0.42	30.0
– Escondida – oxide <sup>(r)</sup>	O/P	6.9	0.12	4.7	0.49	20	0.53	32	31	0.43	0.53	30.0
– Pampa Escondida – sulphide	O/P	294	0.53	1,150	0.55	6,000	0.43	7,444	7,444	0.45	0.45	30.0
– Pinta Verde – sulphide	O/P			23	0.50	37	0.45	60	60	0.47	0.47	30.0
– Pinta Verde – oxide	O/P	109	0.60	64	0.53	15	0.54	188	188	0.57	0.57	30.0
Grasberg (Indonesia)	O/P+U/G	297	0.88	1,590	0.71	82	0.51	1,969	2,116	0.73	0.71	(s)
La Granja (Peru)	O/P			130	0.85	4,190	0.50	4,320	4,320	0.51	0.51	100.0
Oyu Tolgoi (Mongolia)												
– Heruga ETG <sup>(t)</sup>	U/G					1,700	0.39	1,700	1,700	0.39	0.39	29.9
– Heruga OT	U/G					117	0.41	117	117	0.41	0.41	33.5
– Hugo Dummett North	U/G	41	1.56	365	1.15	807	0.77	1,213	1,213	0.91	0.91	33.5
– Hugo Dummett North Extension <sup>(t)</sup>	U/G			89	1.57	173	0.99	263	263	1.19	1.19	29.9
– Hugo Dummett South	U/G					839	0.77	839	839	0.77	0.77	33.5
– Oyut Open Pit	O/P	12	0.39	90	0.34	384	0.29	487	490	0.30	0.30	33.5
– Oyut Underground	U/G	14	0.40	94	0.35	158	0.39	265	265	0.38	0.38	33.5
Resolution (US)	U/G			132	2.63	1,655	1.45	1,787	1,787	1.54	1.54	55.0
<b>Diamonds</b>		millions of tonnes	carats per tonne	millions of tonnes	carats per tonne	millions of tonnes	carats per tonne	millions of tonnes	millions of tonnes	carats per tonne	carats per tonne	
Argyle (Australia) <sup>(u)</sup>	O/P + U/G							–	15	–	3.2	100.0
Diavik (Canada) <sup>(v)</sup>	O/P + U/G			0.4	2.4	2.5	3.0	2.9	2.3	2.9	2.8	60.0
<b>Gold</b>		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	millions of tonnes	grammes per tonne	grammes per tonne	
Bingham Canyon (US)												
– Open Pit <sup>(p)</sup>	O/P	66	0.17	37	0.14	12	0.13	115	72	0.16	0.17	100.0
– North Rim Skarn	U/G	1	2.10	9	1.70	10	1.50	20	20	1.62	1.62	100.0
Escondida (Chile)												
– Pampa Escondida – sulphide	O/P	294	0.07	1,150	0.10	6,000	0.04	7,444	7,444	0.05	0.05	30.0
Grasberg (Indonesia)	O/P+U/G	297	0.75	1,590	0.63	82	0.43	1,969	2,116	0.64	0.63	(s)
Oyu Tolgoi (Mongolia)												
– Heruga ETG <sup>(t)</sup>	U/G					1,700	0.37	1,700	1,700	0.37	0.37	29.9
– Heruga OT	U/G					117	0.29	117	117	0.29	0.29	33.5
– Hugo Dummett North	U/G	41	0.41	365	0.30	807	0.27	1,213	1,213	0.28	0.28	33.5
– Hugo Dummett North Extension <sup>(t)</sup>	U/G			89	0.53	173	0.35	263	263	0.41	0.41	29.9
– Hugo Dummett South	U/G					839	0.07	839	839	0.07	0.07	33.5
– Oyut Open Pit	O/P	12	0.36	90	0.23	384	0.16	487	490	0.18	0.18	33.5
– Oyut Underground	U/G	14	0.77	94	0.59	158	0.32	265	265	0.44	0.44	33.5

See notes ► 238

## Mineral resources

	Likely mining method <sup>(a)</sup>	Measured resources at end 2017		Indicated resources at end 2017		Inferred resources at end 2017		Total resources 2017 compared with 2016				Rio Tinto interest %
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	2017	2016	2017	2016	
								Tonnage	Grade			
Iron ore <sup>(w)</sup>		millions of tonnes	% Fe	millions of tonnes	% Fe	millions of tonnes	% Fe	millions of tonnes	millions of tonnes	% Fe	% Fe	
Hamersley Iron (Australia)												
– Brockman	O/P	426	62.6	684	62.5	2,031	62.0	3,141	2,965	62.2	62.1	100.0
– Brockman Process Ore	O/P	296	57.5	253	57.2	632	57.4	1,181	1,144	57.4	57.4	100.0
– Marra Mamba	O/P	235	62.3	452	61.9	907	61.4	1,594	1,580	61.7	61.6	100.0
– Detrital	O/P	6	62.3	117	61.3	543	61.2	666	688	61.2	61.1	100.0
– Channel Iron Deposit	O/P	455	56.7	82	58.2	2,354	56.9	2,891	2,877	56.9	56.9	100.0
Channar JV (Australia)												
– Brockman <sup>(x)</sup>	O/P	19	62.0	10	61.9	9	61.8	38	45	61.9	61.9	60.0
– Brockman Process Ore <sup>(y)</sup>	O/P	12	57.5	5	57.3	1	57.4	18	24	57.4	57.9	60.0
Eastern Range JV (Australia)												
– Brockman	O/P	18	62.0	7	61.5	3	61.8	28	26	61.9	61.8	54.0
– Brockman Process Ore <sup>(z)</sup>	O/P	14	56.6	2	56.5	1	58.1	17	22	56.7	57.3	54.0
Hope Downs JV (Australia)												
– Brockman	O/P	53	62.6	372	62.6	243	62.1	668	645	62.4	62.1	50.0
– Brockman Process Ore	O/P	28	57.1	259	56.5	106	56.4	393	398	56.6	56.4	50.0
– Marra Mamba	O/P	116	62.8	140	61.9	178	60.6	434	439	61.6	61.6	50.0
– Detrital <sup>(aa)</sup>	O/P			27	59.2	89	59.7	116	96	59.6	59.5	50.0
Rhodes Ridge JV (Australia)												
– Brockman	O/P			565	63.9	1,462	62.6	2,027	2,027	62.9	62.9	50.0
– Brockman Process Ore	O/P			176	57.6	484	56.5	660	660	56.8	56.8	50.0
– Marra Mamba	O/P			25	61.3	2,549	62.0	2,574	2,574	62.0	62.0	50.0
– Detrital	O/P					263	60.0	263	263	60.0	60.0	50.0
Robe JV (Australia)												
– Brockman <sup>(bb)</sup>	O/P					489	61.3	489	107	61.3	62.6	53.0
– Brockman Process Ore <sup>(cc)</sup>	O/P					359	56.7	359	71	56.7	56.5	53.0
– Marra Mamba	O/P	145	61.7	204	61.6	161	61.2	510	550	61.5	61.6	53.0
– Detrital	O/P			23	59.5	72	61.0	95	99	60.7	60.6	53.0
– Channel Iron Deposit	O/P	298	54.9	1,621	58.6	2,457	55.8	4,376	4,730	56.8	56.6	53.0
Iron Ore Company of Canada (Canada) <sup>(dd)</sup>	O/P	166	41.0	742	38.8	1,025	38.0	1,934	2,088	38.5	38.3	58.7
Simandou (Guinea) <sup>(ee)</sup>	O/P	324	66.8	1,709	65.3	723	65.1	2,757	835	65.5	65.0	45.1
Lithium		millions of tonnes	% Li <sub>2</sub> O	millions of tonnes	% Li <sub>2</sub> O	millions of tonnes	% Li <sub>2</sub> O	millions of tonnes	millions of tonnes	% Li <sub>2</sub> O	% Li <sub>2</sub> O	
Jadar (Serbia)	U/G			52	1.8	83	1.9	136	136	1.9	1.9	100.0

See notes ►238



	Likely mining method <sup>(a)</sup>	Measured resources at end 2017		Indicated resources at end 2017		Inferred resources at end 2017		Total resources 2017 compared with 2016				Rio Tinto interest %
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	2017	2016	2017	2016	
								Tonnage	Grade	Tonnage	Grade	
<b>Molybdenum</b>		millions of tonnes	% Mo of tonnes	millions of tonnes	% Mo of tonnes	millions of tonnes	% Mo	millions of tonnes	millions of tonnes	% Mo	% Mo	
Bingham Canyon (US)												
– Open Pit <sup>(ff)</sup>	O/P	66	0.049	37	0.058	12	0.005	115	72	0.047	0.063	100.0
Oyu Tolgoi (Mongolia)												
– Heruga ETG <sup>(t)</sup>	U/G					1,700	0.011	1,700	1,700	0.011	0.011	29.9
– Heruga OT	U/G					117	0.011	117	117	0.011	0.011	33.5
Resolution (US)	U/G			132	0.042	1,655	0.034	1,787	1,787	0.035	0.035	55.0
<b>Silver</b>		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	millions of tonnes	grammes per tonne	grammes per tonne	
Bingham Canyon (US)												
– Open Pit <sup>(p)</sup>	O/P	66	1.82	37	1.66	12	1.63	115	72	1.75	1.61	100.0
– North Rim Skarn	U/G	1	20.00	9	21.00	10	21.00	20	20	20.95	20.95	100.0
Grasberg (Indonesia)	O/P+U/G	297	4.16	1,590	3.65	82	2.64	1,969	2,116	3.69	3.59	(s)
Oyu Tolgoi (Mongolia)												
– Heruga ETG <sup>(t)</sup>	U/G					1,700	1.39	1,700	1,700	1.39	1.39	29.9
– Heruga OT	U/G					117	1.56	117	117	1.56	1.56	33.5
– Hugo Dummett North	U/G	41	3.71	365	2.84	807	2.34	1,213	1,213	2.54	2.54	33.5
– Hugo Dummett North Extension <sup>(t)</sup>	U/G			89	4.07	173	2.72	263	263	3.18	3.18	29.9
– Hugo Dummett South	U/G					839	1.78	839	839	1.78	1.78	33.5
– Oyut Open Pit	O/P	12	1.21	90	1.06	384	0.87	487	490	0.91	0.91	33.5
– Oyut Underground	U/G	14	1.16	94	1.19	158	0.86	265	265	0.99	0.99	33.5
<b>Titanium dioxide feedstock</b>		millions of tonnes	% Ti Minerals	millions of tonnes	% Ti Minerals	millions of tonnes	% Ti Minerals	millions of tonnes	millions of tonnes	% Ti Minerals	% Ti Minerals	
QMM (Madagascar)	D/O	455	4.3	804	4.3	154	3.1	1,413	1,435	4.2	4.2	80.0
RBM (South Africa)	D/O+O/P			15	14.6			15	16	14.6	14.8	74.0
RTFT (Canada)	O/P			19	84.6			19	19	84.6	84.6	100.0
<b>Uranium</b>		millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	millions of tonnes	millions of tonnes	% U <sub>3</sub> O <sub>8</sub>	% U <sub>3</sub> O <sub>8</sub>	
Energy Resources of Australia (Australia)												
– Jabiluka	U/G	1.2	0.887	14	0.520	10	0.545	25	25	0.547	0.547	68.4
– Ranger #3 Deepes	U/G	3.7	0.272	10	0.218	5.4	0.203	20	20	0.224	0.224	68.4
– Ranger #3 stockpiles				28	0.040			28	31	0.040	0.040	68.4
Rössing (Namibia)												
– Rössing SJ <sup>(gg)</sup>	O/P					0.7	0.016	0.7	104	0.016	0.023	68.6
<b>Zircon</b>		millions of tonnes	% Zircon	millions of tonnes	% Zircon	millions of tonnes	% Zircon	millions of tonnes	millions of tonnes	% Zircon	% Zircon	
QMM (Madagascar)	D/O	455	0.2	804	0.2	154	0.2	1,413	1,435	0.2	0.2	80.0
RBM (South Africa)	D/O+O/P			15	8.5			15	16	8.5	8.5	74.0

See notes ► 238

## Mineral resources

### Notes

- (a) Likely mining method: O/P = open pit; O/C = open cut; U/G = underground; D/O = dredging operation.
- (b) Gove Resource tonnes have decreased following conversion of Resources to Reserves. Resources are stated as dry tonnes and total alumina grade.
- (c) Porto Trombetas (MRN) Resources are stated as dry tonnes and available alumina grade.
- (d) Sangaredi Resources tonnes are reported on a three per cent moisture basis and alumina grades are reported as total alumina.
- (e) Weipa Resources are stated as dry tonnes and total alumina grade.
- (f) East Weipa and Andoom Resource tonnes have decreased following conversion of Resources to Reserves.
- (g) The increase in South of Embley Resource tonnes is due to the conversion of Reserve tonnes to Resources following an updated economic assessment. The South of Embley region encompasses a number of bauxite deposits with Amrun being the first development, having commenced construction in 2016.
- (h) Borates Resources are reported as in situ  $B_2O_3$ , rather than marketable product as in Reserves.
- (i) Rio Tinto Borates – Boron Resource tonnes increased following the transfer of calcium borate Reserves to Resources as a result of a reassessment of processing assumptions. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (j) Jadar equivalent in situ Resource is 52 million tonnes at 19.2 per cent  $B_2O_3$  (Indicated) and 83 million tonnes at 13.0 per cent  $B_2O_3$  (Inferred).
- (k) Coal type: SC = steam/thermal coal, MC = metallurgical/coking coal.
- (l) Rio Tinto reports coal Resources on an in situ moisture basis.
- (m) The sale of Rio Tinto's 71.2 per cent interest in Blair Athol was completed with an effective date of 31 May 2017.
- (n) Rio Tinto sold its wholly owned Australian subsidiary Coal & Allied Industries Limited with an effective date of 1 September 2017. This included its 67.6 per cent interest in the Hunter Valley Operations mine, 80 per cent interest in the Mount Thorley mine and Oaklands project and 55.6 per cent interest in the Warkworth mine.
- (o) Kestrel Resource tonnes have decreased following conversion of Resources to Reserves.
- (p) The increase in Bingham Canyon Resource tonnes is due to the addition of the East Wall Extension following additional drilling and a model update.
- (q) The decrease in Escondida – mixed Resource tonnes is due to Resource pit changes and updates to geological models.
- (r) The decrease in Escondida – oxide Resource grade is due to Resource pit changes and updates to geological models.
- (s) Under the terms of a joint venture agreement between Rio Tinto and FCX, Rio Tinto is entitled to a direct 40 per cent share in Resources discovered after 31 December 1994.
- (t) Rio Tinto's interest in Heruga ETG and Hugo Dummett North Extension decreased from 29.9 per cent to 29.5 per cent in 2017.
- (u) Argyle Resources have been written off following a revised economic assessment. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (v) The increase in Diavik Resource tonnes is based on updated geological models following additional drilling and sampling at A154N, A418 and A154S pipes. Diavik Resources are based on a nominal 1 millimetre lower cut-off size and a final re-crushing size of 5 millimetres.
- (w) Iron ore Resources tonnes are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
- (x) Channar JV (Brockman) Resource tonnes have decreased as a result of updates to geological models, cut-off grade changes and mining depletion.
- (y) Channar JV (Brockman Process Ore) Resource tonnes have decreased as a result of updates to geological models, cut-off grade changes and mining depletion.
- (z) Eastern Range (Brockman Process Ore) Resource Tonnes have decreased due to updates to the geological model, cut-off grade changes, pit design changes, and mining depletion.
- (aa) Hope Downs JV (Detrital) Resource tonnes have increased as a result of additional mineralisation identified by drilling and an updated geological model.
- (bb) Robe JV (Brockman) Resource tonnes have increased as a result of the inclusion of the Howard's Well deposit. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (cc) Robe JV (Brockman Process Ore) Resource tonnes have increased as a result of the inclusion of the Howard's Well deposit. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (dd) Resources at Iron Ore Company of Canada are reported on an in situ dry basis and are estimated to produce marketable product (63 per cent pellets and 37 per cent concentrate for sale), at a natural moisture content of two per cent, of 67 million tonnes at 65 per cent iron (Measured), 289 million tonnes at 65 per cent iron (Indicated) and 393 million tonnes at 65 per cent iron (Inferred) using process recovery factors derived from current IOC concentrating and pellet operations.
- (ee) All of Simandou's Reserves have been written down to Resources as a result of Rio Tinto's previously announced divestment process and uncertainty around development timing. Rio Tinto's interest in Simandou increased from 42.8 per cent to 45.1 per cent in 2017. A JORC Table 1 in support of these changes will be released to the market contemporaneously with the release of this Annual report and can be viewed at [riotinto.com/JORC](http://riotinto.com/JORC).
- (ff) The change in Bingham Canyon Resource tonnes and molybdenum grade is due to the addition of the East Wall Extension following additional drilling and a model update. Bingham Canyon open pit molybdenum grades interpolated from exploration drilling assays have been factored based on a long reconciliation history to blast hole and mill samples.
- (gg) Rössing Resources have been written off following a revised economic assessment.

## Mineral resources and ore reserves corporate governance

Rio Tinto has established a governance process supporting the generation and publication of Mineral Resources and Ore Reserves, which includes a series of structures and processes independent of the operational reporting through business units and product groups.

The Audit Committee has in its remit the governance of resources and reserves. This includes an annual review of Mineral Resources and Ore Reserves at a Group level, as well as the review of findings and progress from the Group Resources and Reserves internal audit programme within the regular meeting schedule.

Rio Tinto also has an Ore Reserves Steering Committee (ORSC), which meets at least quarterly, chaired by the Group executive, Growth & Innovation, and comprises senior representatives from technical, financial, governance and business groups within the Group. The ORSC role includes oversight of the appointment of Competent Persons nominated by the business units, review of Exploration results, Mineral Resources or Ore Reserve data prior to public reporting and development of Group Resource and Reserves standards and guidance.

The Resource and Reserve internal audit programme is conducted by independent external consulting personnel in a programme managed by Group Audit & Assurance with the assistance of the ORSC. In 2017, three internal audits were completed. Material findings are reported outside of the product group reporting line to the Audit Committee, and all reports and action plans are reviewed by the ORSC for alignment to internal and external reporting standards.

Mineral Resources and Ore Reserves from externally managed operations, where Rio Tinto holds a minority share, are reported as received from the managing entity. Figures from Rio Tinto managed operations are the responsibility of the managing directors of the business units and estimates are carried out by Competent Persons as defined by JORC.

Rio Tinto has continued the development of internal systems and controls to meet JORC (2012) compliance in all external reporting including the preparation of all reported data by Competent Persons as members of The Australasian Institute of Mining and Metallurgy (The AusIMM), Australian Institute of Geoscientists (AIG) or recognised professional organisations (RPOs). JORC Table 1 reports for new or materially upgraded significant deposits are released to market by Rio Tinto and are also available on the Group's website. JORC Table 1 and NI 43-101 technical reports generated by non-managed units or joint venture partners are referenced within the reporting footnotes with the location and initial reporting date identified.

As well as the establishment of an enhanced governance process, there have been a number of process improvements and training initiatives introduced by the ORSC over recent years, including a web-based Group reporting and sign-off database, annual internal Competent Person reports and Competent Person development and training workshops.

# Competent Persons

Association <sup>(a)</sup>	Employer	Accountability	Deposits
Bauxite			
L McAndrew	AusIMM	Reserve	Gove, East Weipa and Andoom, South of Embley
M Mills	AusIMM	Resource	Gove, East Weipa and Andoom, North of Weipa, South of Embley
J-F Durand-Smet	EFG	Reserve	Sangaredi
G Girouard	AusIMM	Resource	
C J da Silva	AusIMM	Reserve	Trombetas
M A H Monteiro	AusIMM	Resource	
Borates			
O Galvan	SME	Reserve	Rio Tinto Borates – Boron
B Griffiths	SME	Resource and Reserve	
Coal			
A McIntyre	AusIMM	Resource	Rio Tinto Coal Australia – Hail Creek, Lake Elphinstone, Mount Robert
A Prentice	AusIMM	Reserve	Rio Tinto Coal Australia – Hail Creek
R Ruddock	AusIMM	Resource and Reserve	Rio Tinto Coal Australia – Kestrel, Valeria, Winchester South
L Simmonds	AusIMM	Reserve	Rio Tinto Coal Australia – Kestrel
Copper			
C Hehnke	AusIMM	Resource	Resolution <sup>(c)</sup>
A Issel	APGO	Resource and Reserve	PT Freeport Indonesia – Grasberg <sup>(b) (d)</sup>
M Bixley	AusIMM	Reserve	Oyu Tolgoi <sup>(b) (c) (d)</sup>
J Dudley	AusIMM	Reserve	
O Togtokhbayar	AusIMM	Resource	
N Armstrong	AusIMM	Reserve	Bingham Canyon <sup>(b) (c) (d)</sup>
R Hayes	AusIMM	Resource	
P Rodriguez	AusIMM	Resource	
K Schroeder	AusIMM	Resource	
M Cortes	AusIMM	Resource	Escondida, Escondida – Chimborazo – sulphide, Pampa Escondida – sulphide <sup>(b)</sup> , Pinta Verde
L Soto	AusIMM	Resource	
P Sandoval	AusIMM	Reserve	Escondida
J Marshall	AusIMM	Resource	La Granja

Association <sup>(a)</sup>	Employer	Accountability	Deposits
Diamonds			
S Brennan	AusIMM	Resource and Reserve	Argyle Diamonds
D Ford	AIG	Resource and Reserve	
M Rayner	AusIMM	Resource and Reserve	
K Pollock	NAPEG	Resource and Reserve	Diavik
C Yip	AusIMM	Resource and Reserve	
Iron ore			
M Franks	AusIMM	Resource	Simandou
T Leriche	PEGNL	Resource and Reserve	Iron Ore Company of Canada
B Wallace	PEGNL	Resource	
R Way	PEGNL	Resource	
R Williams	PEGNL	Reserve	
A Bertram	AusIMM	Resource	Rio Tinto Iron Ore – Hamersley, Channar, Eastern Range, Hope Downs, Robe, Rhodes Ridge
P Savory	AusIMM	Resource	
B Sommerville	AusIMM	Resource	
C Tabb	AusIMM	Reserve	Rio Tinto Iron Ore – Hamersley, Channar, Eastern Range, Hope Downs, Robe
R Verma	AusIMM	Reserve	
Lithium			
J Garcia	EFG	Resource	Jadar <sup>(e)</sup>
N Grubin	EFG	Resource	
M Sweeney	AusIMM	Resource	
Titanium dioxide feedstock			
Y Bourque	OIQ	Resource	Rio Tinto Fer et Titane (RTFT)
D Gallant	OIQ	Reserve	
T Daling	SAIMM	Reserve	Richards Bay Minerals (RBM) <sup>(f)</sup>
S Mnunu	SACNASP	Resource	
P De Kock	SAIMM	Reserve	QMM Madagascar Minerals <sup>(f)</sup>
F Hees	AusIMM	Resource	
Uranium			
T Murasiki	SAIMM	Resource	Rössing
W-D Wieland	SAIMM	Reserve	
S Pevelv	AusIMM	Resource and Reserve	Enerav Resources of Australia - Ranger 3, Jabiluka

- (a) AusIMM: Australasian Institute of Mining and Metallurgy  
AIG: Australasian Institute of Geoscientists  
APGO: Association of Professional Geoscientists of Ontario  
EFG: European Federation of Geologists  
NAPEG: Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories  
OIQ: L'Ordre des Ingénieurs du Québec  
PEGNL: Professional Engineers and Geoscientists Newfoundland and Labrador  
PEO: Professional Engineers Ontario  
SACNASP: South African Council for Natural Scientific Professions  
SAIMM: South African Institute of Mining and Metallurgy  
SME: Society of Mining, Metallurgy and Exploration

- (b) Includes gold  
(c) Includes molybdenum  
(d) Includes silver  
(e) Includes borates  
(f) Includes zircon

# Mines and production facilities

## Group mines as at 31 December 2017

(Rio Tinto's interest 100% unless otherwise shown)

Mine	Location	Access	Title/lease
<b>Iron Ore</b>			
<b>Hammersley Iron</b> Brockman 2 Brockman 4 Marandoo Mount Tom Price Nammuldi Paraburdoo Silvergrass Western Turner Syncline Yandicoogina Eastern Range (54%)	Pilbara region, Western Australia	Railway and port (owned by Hammersley Iron and operated by Pilbara Iron)	Agreements for life of mine with Government of Western Australia, save for the Yandicoogina mining lease, which expires in 2018 with two options to extend of 21 years each.
Channar (60%)	Pilbara region, Western Australia	Railway and port (owned by Hammersley Iron and operated by Pilbara Iron)	Mining lease expires in 2028 with an option to extend by five years.
Hope Downs 1 (50%)	Pilbara region, Western Australia	Railway and port (owned by Hammersley Iron and Robe River and operated by Pilbara Iron)	Mining lease expires in 2027 with two options to extend of 21 years each.
Hope Downs 4 (50%)	Pilbara region, Western Australia	Railway and port (owned by Hammersley Iron and Robe River and operated by Pilbara Iron)	Mining lease expires in 2027 with two options to extend of 21 years each.
<b>Robe River Iron Associates (53%)</b> Robe Valley (Mesa A and Mesa J) West Angelas	Pilbara region, Western Australia	Railway and port (owned by Robe River and operated by Pilbara Iron)	Agreements for life of mine with Government of Western Australia.
<b>Aluminium</b>			
<b>Bauxite</b>			
CBG Sangaredi (22.95%)	Sangaredi, Guinea	Road, air and port	Mining concession expires in 2040.
Gove	Gove, Northern Territory, Australia	Road, air and port	All leases were renewed in 2011 for a further period of 42 years. The residue disposal area is leased from the Arnhem Land Aboriginal Land Trust. The Northern Territory government is the lessor of the balance of the leases; however, on expiry of the 42-year renewed term, the land subject of the balances of the leases will all vest to the Arnhem Land Aboriginal Land Trust.
MRN Porto Trombetas (12%)	Porto Trombetas, Para, Brazil	Air or port	Mining concession granted under the Brazilian mining code with no expiration date.
Weipa/Ely	Weipa, Queensland, Australia	Road, air and port	The Queensland Government Comalco (ML7024) lease expires in 2042 with an option of a 21-year extension, then two years' notice of termination; the Queensland Government Alcan lease (ML7031) expires in 2048 with a 21-year right of renewal with a two-year notice period.



History	Type of mine	Power source
Mount Tom Price began operations in 1966, followed by Paraburdoo in 1974. In the 1990s, Channar, Brockman 2, Marandoo and Yandicoogina achieved first ore. Annual capacity increased to 68 million tonnes during the 1990s and has more than doubled in the past 25 years. Since 2000, Eastern Ranges, Nammuldi, Brockman 4 and Western Turner Syncline have joined the network of Hamersley Iron mines. The brownfield mine expansion at such sites as Paraburdoo, Brockman 2, Nammuldi and Yandicoogina will enable production to meet expanded port and rail capacity in the coming years.	Open pit	Supplied through the integrated Hamersley and Robe power network operated by Pilbara Iron
The Channar Mining Joint Venture, signed in 1987, was the first large-scale mining initiative between China and Australia. The joint venture is 60% owned by Rio Tinto (through Hamersley Iron) and 40% by Sinosteel Corporation. It has delivered more than 250 million tonnes to China.	Open pit	Supplied through the integrated Hamersley and Robe power network operated by Pilbara Iron
Joint venture between Rio Tinto and Hancock Prospecting. Construction of Stage 1 to 22 million tonnes per annum commenced 2006 and first production occurred 2007. Stage 2 to 30 million tonnes per annum completed 2009.	Open pit	Supplied through the integrated Hamersley and Robe power network operated by Pilbara Iron
Joint venture between Rio Tinto and Hancock Prospecting. Construction of wet plant processing to 15 million tonnes per annum commenced 2011 and first production occurred 2013.	Open pit	Supplied through the integrated Hamersley and Robe power network operated by Pilbara Iron
First shipment in 1972 from Robe Valley. Interest acquired in 2000 through North. First ore was shipped from West Angelas in 2002. In 2017, total production of the Robe River Iron Associates joint venture was 65 million tonnes.	Open pit	Supplied through the integrated Hamersley and Robe power network operated by Pilbara Iron
Bauxite mining commenced in 1973. Shareholders are 51% Halco and 49% Government of Guinea. Rio Tinto holds a 45% interest in Halco. Rated production capacity is 13.5 million tonnes per annum and actual annual production in 2017 was 15.6 million tonnes on a dry basis. Rio Tinto currently benefits from approximately 45% of the mine's production. Expansion of the CBG bauxite mine, processing plant and associated infrastructure is under way, increasing production capacity from 13.5 to 18.5 million tonnes per annum by 2018. CBG is currently studying other expansion options beyond 18.5 million tonnes per annum.	Open cut	On-site generation (fuel oil)
Bauxite mining commenced in 1970, feeding both the Gove refinery and export market, capped at two million tonnes per annum. Bauxite export ceased in 2006 with feed intended for the expanded Gove refinery. Bauxite exports recommenced in 2008 and will increase in the coming years following the curtailment of the refinery production in 2014 and permanent shut decision made by the board of Rio Tinto in October 2017. Current annual production capacity is 11.2 million tonnes on a dry basis.	Open cut	On-site diesel fired power station
Mineral extraction commenced in 1979. Initial production capacity 3.4 million tonnes annually. From 2003, production capacity up to 16.3 million tonnes per year on a dry basis. Capital structure currently: Vale (40%), BHP Billiton (14.8%), Rio Tinto (12%), CBA (10%), Alcoa/Abalco (18.2%), and Norsk Hydro (5%).	Open cut	On-site generation (diesel)
Bauxite mining commenced in 1961 at Weipa. Major upgrade completed in 1998. Rio Tinto interest increased from 72.4% to 100% in 2000. In 1997, Ely Bauxite Mining Project Agreement signed with local Aboriginal land owners. Bauxite Mining and Exchange Agreement signed in 1998 with Comalco to allow for extraction of ore at Ely. The Western Cape Communities Co-Existence Agreement, an Indigenous Land Use Agreement, was signed in 2001. The annual production of the Weipa mine has now reached 30.9 million tonnes following the execution of a series of projects since 2004. Approval for the Amrun project was granted in 2015 and it is in construction. Construction will take approximately three years. Amrun is expected to extend the Weipa mine life by approximately 40 years.	Open cut	On-site generation (diesel) supplemented by a solar generation facility

## Mines and production facilities continued

### Group mines as at 31 December 2017

(Rio Tinto's interest 100% unless otherwise shown)

Mine	Location	Access	Title/lease
<b>Copper &amp; Diamonds</b>			
<b>Copper</b>			
Escondida (30%)	Atacama Desert, Chile	Pipeline and road to deep sea port at Coloso; road and rail	Rights conferred by Government under Chilean Mining Code.
Grasberg joint venture agreement (40% share of production above specified levels)	Papua, Indonesia	Pipeline, road and port	Indonesian Government Contracts of Work expire in 2021 with option of two ten-year extensions.
Rio Tinto Kennecott Bingham Canyon	Near Salt Lake City, Utah, US	Pipeline, road and rail	Owned.
Oyu Tolgoi (51% of Turquoise Hill Resources Ltd. which owns 66% of Oyu Tolgoi LLC)	Gobi Desert, Mongolia	Air and road	Three mining licences are held by Oyu Tolgoi LLC and two further licences are held in joint venture with Entrée Gold LLC. The licence term under the Minerals Law of Mongolia is 30 years with two 20-year extensions. First renewals are due in 2033 and 2039 for the Oyu Tolgoi and Entrée Gold licences respectively.
<b>Diamonds</b>			
Argyle Diamonds	Kimberley Ranges, Western Australia	Road and air	Mining tenement held under Diamond (Argyle Diamond Mines Joint Venture) Agreement Act 1981; lease extended for 21 years from 2004 with option to renew.
Diavik (60%)	Northwest Territories (NWT), Canada	Air, ice road in winter	Mining leases are issued by the NWT Government. One lease was renewed in 2017 and two leases were renewed in February 2018. The new leases will expire after 21 years.
<b>Energy &amp; Minerals</b>			
<b>Coal</b>			
<b>Rio Tinto Coal Australia</b> Hail Creek (82%) Kestrel (80%)	Queensland, Australia	Road, rail, conveyor and port	Leases granted by Government of Queensland.
<b>Industrial minerals</b>			
Dampier Salt (68.4%)	Dampier, Lake MacLeod and Port Hedland, Western Australia	Road and port	State agreements (mining leases) expiring in 2034 at Dampier, 2018 at Port Hedland and 2021 at Lake MacLeod, with options to renew at the latter two sites.
Rio Tinto Borates – Boron	California, US	Road and rail	Owned.
Rio Tinto Fer et Titane Lac Tio	Havre-Saint-Pierre, Quebec, Canada	Rail and port (St Lawrence River)	Mining covered by two concessions granted by Quebec State in 1949 and 1951 which, subject to certain Mining Act restrictions, confer rights and obligations of an owner.
QIT Madagascar Minerals (80%)	Fort-Dauphin, Madagascar	Road and port	Mining lease granted by central government.
Richards Bay Minerals (74%)	Richards Bay, KwaZulu-Natal, South Africa	Rail, road and port	Mineral rights for Reserve 4 and Reserve 10 issued by South African State and converted to new order mining rights from 9 May 2012. Mining rights run until 8 May 2041 for both lease areas.
<b>Iron ore</b>			
Iron Ore Company of Canada (IOC) (58.7%)	Labrador City, Province of Labrador and Newfoundland	Railway and port facilities in Sept-Îles, Quebec (owned and operated by IOC)	Sublease with the Labrador Iron Ore Royalty Corporation, which has lease agreements with the Government of Newfoundland and Labrador that are due to be renewed in 2020, 2022, 2025 and 2031.
<b>Uranium</b>			
<b>Energy Resources of Australia (68.4%)</b> Ranger	Northern Territory, Australia	Road, rail and port	Mining tenure granted by Federal Government.
Rössing Uranium (68.6%)	Erongo Region, Namibia	Rail, road and port	Mining licence granted by Namibian State.

History	Type of mine	Power source
Production started in 1990 and since then capacity has been expanded numerous times. In 1998 first cathode was produced from the oxide leach plant, and during 2006 the sulphide leach plant was inaugurated, a year after the start of Escondida Norte pit production. During 2016, the third concentrator plant was commissioned.	Open pit	Supplied from SING grid under various contracts with local generating companies
Participant interest acquired 1995. Capacity expanded to over 200,000 tonnes of ore per day in 1998. Addition of underground production of more than 35,000 tonnes per day in 2003. Expansion to 50,000 tonnes per day in mid-2007 and to 80,000 tonnes in 2010.	Open pit and underground	Long-term contract with US-Indonesian consortium operated purpose-built coal-fired generating station
Interest acquired in 1989. In 2012, the pushback of the south wall commenced, extending the mine life from 2018 to 2032.	Open pit	On-site generation supplemented by long-term contracts with Rocky Mountain Power
Oyu Tolgoi was first discovered in 1996. Construction began in late 2009 after signing of an Investment Agreement with the Government of Mongolia, and first concentrate was produced in 2012. First sales of concentrate were made to Chinese customers in 2013.	Open pit and underground	Grid power from China and supplementary diesel power generation site
Interest increased from 59.7% following purchase of Ashton Mining in 2000. Underground mine project approved in 2005 to extend mine life to 2020.	Underground (previously open pit)	Long-term contract with Ord Hydro Consortium and on-site generation
Deposits discovered 1994-1995. Construction approved 2000. Diamond production started 2003. Second dike closed off in 2005 for mining of additional orebody. The underground mine started production in 2010, ramping up to full production in 2013.	Underground (previously open pit)	On-site diesel generators; installed capacity 44MW and 9.2MW of wind capacity
Kestrel Mine in Queensland, Rio Tinto Coal Australia's sole underground mine, was acquired and recommissioned in 1999, and Hail Creek Mine in Queensland was officially opened in 2003. On 31 May 2017 Rio Tinto completed the sale of Blair Athol Mine, which had ceased operations in 2012. Rio Tinto completed the sale of Coal & Allied Industries Limited on 1 September 2017, its thermal coal business in New South Wales, which held interests in Hunter Valley Operations (67.6%), Mount Thorley Operations (80%) and Warkworth (55.57%).	Open cut and underground	State-owned grid
Construction of the Dampier field started in 1969; first shipment in 1972. Lake MacLeod was acquired in 1978 as an operating field. Port Hedland was acquired in 2001 as an operating field.	Solar evaporation of seawater (Dampier and Port Hedland) and underground brine (Lake MacLeod); extraction of gypsum from surface of Lake MacLeod	Dampier supply from Hamersley Iron Pty Ltd; Lake MacLeod from Horizon Power and on-site generation units; Port Hedland from Horizon Power
Deposit discovered in 1925 and acquired by Rio Tinto in 1967.	Open pit	On-site co-generation units and local power grid
Production started 1950; interest acquired in 1989.	Open pit	Provincial power grid at regulated tariff
Exploration project started in 1986; construction approved 2005. Ilmenite and zircon production started 2008. QMM intends to extract ilmenite and zircon from heavy mineral sands over an area of about 6,000 hectares along the coast over the next 40 years.	Mineral sand dredging	On-site heavy fuel oil generators
Production started 1977; initial interest acquired 1989. Fifth mining plant commissioned in 2000. One mining plant decommissioned in 2008. In September 2012, Rio Tinto doubled its holding in Richards Bay Minerals to 74% following the acquisition of BHP Billiton's entire interests.	Dune sand dredging	Contract with ESKOM
Interest acquired in 2000 through North. Current operation began in 1962 and has processed over one billion tonnes of crude ore since. Annual capacity 23.3 million tonnes of concentrate of which 12.5 million tonnes can be pelletised.	Open pit	Supplied by Newfoundland Hydro
Mining commenced 1981. Interest acquired through acquisition of North 2000. Open pit mining ended 2012, since when ERA has been processing ore stockpiles.	Stockpile	On-site diesel generation
Production began in 1976.	Open pit	Supplied by NamPower via grid network

## Mines and production facilities continued

### Group smelters and refineries

(Rio Tinto's interest 100% unless otherwise shown)

Smelter/refinery	Location	Title/lease	Plant type/product	Capacity as of 31 December 2017 (based on 100% ownership)
<b>Aluminium</b>				
Alma	Alma, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium rod, t-foundry, molten metal, high purity, remelt	466,000 tonnes per year aluminium
Alouette (40%)	Sept-Îles, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium high purity, remelt	606,000 tonnes per year aluminium
Arvida	Saguenay, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium billet, molten metal, remelt	171,000 tonnes per year aluminium
Arvida AP60	Saguenay, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium high purity, remelt	60,000 tonnes per year aluminium
Bécancour (25.1%)	Bécancour, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium slab, billet, t-foundry, remelt, molten metal	446,000 tonnes per year aluminium
Bell Bay	Bell Bay, Northern Tasmania, Australia	100% freehold	Aluminium smelter producing aluminium slab, molten metal, small form and t-foundry, remelt	195,000 tonnes per year aluminium
Boyne Smelters (59.4%)	Boyne Island, Queensland, Australia	100% freehold	Aluminium smelter producing aluminium billet, EC grade, small form and t-foundry, remelt	584,000 tonnes per year aluminium
Dunkerque	Dunkerque, France	100% freehold	Aluminium smelter producing aluminium slab, small form foundry, remelt	284,000 tonnes per year aluminium
Grande-Baie	Saguenay, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium slab, molten metal, high purity, remelt	230,000 tonnes per year aluminium
ISAL	Reykjavik, Iceland	100% freehold	Aluminium smelter producing aluminium remelt, billet	212,000 tonnes per year aluminium
Jonquière (Vaudreuil)	Jonquière, Quebec, Canada	100% freehold	Refinery producing specialty alumina and smelter grade alumina	1,570,000 tonnes per year alumina
Kitimat	Kitimat, British Columbia, Canada	100% freehold	Aluminium smelter producing aluminium slab, remelt, high purity	432,000 tonnes per year aluminium
Laterrière	Saguenay, Quebec, Canada	100% freehold	Aluminium smelter producing aluminium slab, remelt, molten metal	249,000 tonnes per year aluminium
Queensland Alumina (80%)	Gladstone, Queensland, Australia	73.3% freehold; 26.7% leasehold (of which more than 80% expires in 2026 and after)	Refinery producing alumina	3,950,000 tonnes per year alumina
São Luis (Alumar) (10%)	São Luis, Maranhão, Brazil	100% freehold	Refinery producing alumina	3,700,000 tonnes per year alumina
Sohar (20%)	Sohar, Oman	100% leasehold (expiring 2039)	Aluminium smelter producing aluminium, high purity, remelt	389,000 tonnes per year aluminium
Tiwai Point (New Zealand Aluminium Smelters) (79.4%)	Invercargill, Southland, New Zealand	19.6% freehold; 80.4% leasehold (expiring in 2029 and use of certain Crown land)	Aluminium smelter producing aluminium billet, slab, small form foundry, high purity, remelt	373,000 tonnes per year aluminium
Tomago (51.6%)	Tomago, New South Wales, Australia	100% freehold	Aluminium smelter producing aluminium billet, slab, remelt	590,000 tonnes per year aluminium
Yarwun	Gladstone, Queensland, Australia	97% freehold; 3% leasehold (expiring 2101 and after)	Refinery producing alumina	3,200,000 tonnes per year alumina

Smelter/refinery	Location	Title/lease	Plant type/product	Capacity as of 31 December 2017 (based on 100% ownership)
<b>Copper &amp; Diamonds</b>				
Rio Tinto Kennecott	Magna, Salt Lake City, Utah, US	100% freehold	Flash smelting furnace/Flash convertor furnace copper refinery	335,000 tonnes per year refined copper
<b>Energy &amp; Minerals</b>				
Boron	California, US	100% freehold	Borates refinery	576,000 tonnes per year boric oxide
IOC Pellet Plant (58.7%)	Labrador City, Newfoundland and Labrador, Canada	100% freehold (asset), 100% leasehold (land) under sublease with Labrador Iron Ore Royalty Corporation for life of mine.	Pellet induration furnaces producing multiple iron ore pellet types	12.5 million tonnes per year pellet
Rio Tinto Fer et Titane Sorel Plant	Sorel-Tracy, Quebec, Canada	100% freehold	Ilmenite smelter	1,300,000 tonnes per year titanium dioxide slag, 1,000,000 tonnes per year iron
Richards Bay Minerals (74%)	Richards Bay, South Africa	100% freehold	Ilmenite smelter	1,050,000 tonnes per year titanium dioxide slag, 565,000 tonnes per year iron

## Mines and production facilities continued

### Information on Group power plants

(Rio Tinto's interest 100% unless otherwise shown)

Power plant	Location	Title/lease	Plant type/product	Capacity as of 31 December 2017 (based on 100% ownership)
<b>Iron Ore</b>				
Paraburdoo power station	Paraburdoo, Western Australia, Australia	Lease	Three LM6000PC gas-fired turbines One Frame5 dual-fuel turbine	138MW
Yurralyi Maya power station (Rio Tinto: 84.2%)	Dampier, Western Australia, Australia	Miscellaneous licence	Four LM6000PD gas-fired turbines One LM6000PF gas-fired turbine (dual-fuel potential)	200MW
West Angelas power station (Rio Tinto: 67%)	West Angelas, Western Australia, Australia	Miscellaneous licence	Two LM6000PF dual-fuel turbines	80MW
<b>Aluminium</b>				
Gladstone power station (42%)	Gladstone, Queensland, Australia	100% freehold	Thermal power station	1,680MW
Gove power station	Nhulunbuy, Northern Territory, Australia	100% leasehold	Diesel generation	24MW
Kemano power station	Kemano, British Columbia, Canada	100% freehold	Hydroelectric power	872.5MW
Quebec power stations	Saguenay, Quebec, Canada (Chute-à-Caron, Chute-à-la-Savane, Chute-des-Passes, Chute-du-Diable, Isle-Maligne, Shipshaw)	100% freehold (certain facilities leased from Quebec Government until 2058 pursuant to Peribonka Lease)	Hydroelectric power	3,147MW
Yarwun alumina refinery co-generation plant	Gladstone, Queensland, Australia	100% freehold	Gas turbine and heat recovery steam generator	160MW
Weipa power stations and solar generation facility	Lorim Point, Andoom, and Weipa	100% leasehold	Diesel generation supplemented by solar generation facility	38MW



				Capacity as of 31 December 2017 (based on 100% ownership)
Power plant	Location	Title/lease	Plant type/product	
Copper & Diamonds				
Rio Tinto Kennecott power stations	Salt Lake City, Utah, US	100% freehold	Thermal power station	175MW
			Steam turbine running off waste heat boilers at the copper smelter	31.8MW
			Combined heat and power plant supplying steam to the copper refinery	6.2MW
Energy & Minerals				
Boron co-generation plant	Boron, California, US	100% freehold	Co-generation uses natural gas to generate steam and electricity, used to run Boron's refining operations	48MW
Energy Resources of Australia (Rio Tinto: 68.4%)	Ranger Mine, Jabiru, Northern Territory, Australia	Lease	Five diesel generator sets rated at 5.1MW; one diesel generator set rated at 1.9MW; four diesel generator sets rated at 2MW	35.4MW
IOC power station	Sept Îles, Quebec, Canada	Statutory grant	Hydroelectric power	22MW
QMM power plant	Fort Dauphin, Madagascar	100% freehold	Diesel generation	24MW

# Shareholder information

## Organisational structure

The Rio Tinto Group consists of Rio Tinto plc, which is registered in England and Wales under company number 719885 under the UK Companies Act 2006, and is listed on the London Stock Exchange, and Rio Tinto Limited, which is registered in Australia under ABN 96 004 458 404 under the Australian Corporations Act 2001, and is listed on the Australian Securities Exchange.

Rio Tinto is headquartered in London and has a corporate office in Melbourne.

Rio Tinto plc has a sponsored ADR facility and the underlying shares are registered with the US Securities and Exchange Commission and are listed on the New York Stock Exchange.

## Nomenclature and financial data

Rio Tinto plc and Rio Tinto Limited operate together and are referred to in this report as Rio Tinto, the Rio Tinto Group or, more simply, the Group. These collective expressions are used for convenience only, since both companies, and the individual companies in which they directly or indirectly own investments, are separate and distinct legal entities. “Limited”, “plc”, “Pty”, “Inc.”, “Limitada”, “L.L.C.”, “A.S.” or “SA” have generally been omitted from Group company names, except to distinguish between Rio Tinto plc and Rio Tinto Limited. Financial data in US dollars (US\$) is derived from, and should be read in conjunction with, the 2017 financial statements. In general, financial data in pounds sterling (£) and Australian dollars (A\$) have been translated from the consolidated financial statements and have been provided solely for convenience; exceptions arise where data can be extracted directly from source records. Certain key information has been provided in all three currencies in the 2017 financial statements.

## History

Rio Tinto plc was incorporated on 30 March 1962 (then called The Rio Tinto-Zinc Corporation Limited (RTZ)) and was formed by the merger of The Rio Tinto Company Limited and The Consolidated Zinc Corporation Limited. The Rio Tinto Company was incorporated in 1873 to reopen ancient copper workings in Spain. The Consolidated Zinc Corporation Limited's origins trace back to the Australian mining industry in the early twentieth century. Operating out of Broken Hill in New South Wales, it came to prominence with the mining of silver, lead and zinc deposits and later expanded into lead and zinc smelting.

Rio Tinto Limited was incorporated on 17 December 1959 (then called The Rio Tinto Mining Company of Australia Pty Limited) and in 1962 the Australian interests of The Consolidated Zinc Corporation Limited and The Rio Tinto Company Limited were merged to form Conzinc Riotinto of Australia Limited as a limited liability company under the laws of the State of Victoria, Australia. In 1980, Conzinc Riotinto of Australia Limited changed its name to CRA Limited.

Between 1962 and 1995, both RTZ and CRA discovered important mineral deposits, developed major mining projects and also grew through acquisition.

RTZ and CRA began operating in 1995 through a dual listed companies structure. In 1997, RTZ became Rio Tinto plc and CRA became Rio Tinto Limited.

## Dual listed companies structure

In 1995, Rio Tinto shareholders approved the terms of the dual listed companies' merger (the DLC structure), which was designed to place the shareholders of both companies in substantially the same position as if they held shares in a single entity owning all the assets of both companies.

Following the approval of the DLC structure, both companies entered into a DLC Merger Sharing Agreement (the Sharing Agreement) through which each company agreed to ensure that the businesses of Rio Tinto plc

and Rio Tinto Limited are managed on a unified basis, to ensure that the boards of directors of each company are the same, and to give effect to certain arrangements designed to provide shareholders of each company with a common economic interest in the DLC structure.

To achieve this third objective, the Sharing Agreement provided for the ratio of dividend, voting and capital distribution rights attached to each Rio Tinto plc share and to each Rio Tinto Limited share to be fixed in an Equalisation Ratio that has remained unchanged at 1:1. The Sharing Agreement has provided for this ratio to be revised in special circumstances where, for example, certain modifications are made to the share capital of one company, such as rights issues, bonus issues, share splits and share consolidations, but not to the share capital of the other.

Outside these specified circumstances, the Equalisation Ratio can only be altered with the approval of shareholders under the Class Rights Action approval procedure described under Voting rights below. In addition, any adjustments are required to be confirmed by the Group's external auditors.

Consistent with the creation of the DLC structure, directors of each company seek to act in the best interests of Rio Tinto as a whole. The Class Rights Action approval procedure is intended to deal with instances where there may be a conflict of interest between the shareholders of each company.

To ensure that the boards of both companies are identical, resolutions to appoint or remove directors must be put to shareholders of both companies as a joint electorate (as Joint Decisions as described under Voting rights). It is a requirement of the constitution of each company that a person can only be a director of one company if that person is also a director of the other company. So, for example, if a person was removed as a director of Rio Tinto plc, he or she would also cease to be a director of Rio Tinto Limited.

One consequence of the DLC merger is that Rio Tinto is subject to a wide range of laws, rules and regulatory review across multiple jurisdictions. Where these rules differ, Rio Tinto will comply at a minimum with the requirements in each jurisdiction.

## Dividend arrangements

The Sharing Agreement provides for dividends paid on Rio Tinto plc and Rio Tinto Limited shares to be equalised on a net cash basis, that is without taking into account any associated tax credits. Dividends are determined in US dollars and are then, except for ADR holders, translated and paid in sterling and Australian dollars. The companies are also required to announce and pay their dividends and other distributions as close in time to each other as possible.

In the unlikely event that one company did not have sufficient distributable reserves to pay the equalised dividend or the equalised capital distribution, it would be entitled to receive a top-up payment from the other relevant company. The top-up payment could be made as a dividend on the DLC Dividend Share, or by way of a contractual payment.

If the payment of an equalised dividend would contravene the law applicable to one of the companies, they may depart from the Equalisation Ratio. However, should such a departure occur, the relevant company will put aside reserves to be held for payment on the relevant shares at a later date.

Rio Tinto shareholders have no direct rights to enforce the dividend equalisation provisions of the Sharing Agreement.

The DLC Dividend Shares can also be utilised to provide the Group with flexibility for internal funds management by allowing dividends to be paid between the companies and their subsidiaries.

## Voting arrangements

In principle, the Sharing Agreement provides for the shareholders of Rio Tinto plc and Rio Tinto Limited to vote as a joint electorate on all matters that affect shareholders of both companies in similar ways. These are referred to as Joint Decisions. Such Joint Decisions include the creation of new classes of share capital, the appointment or removal of directors and auditors and the receiving of the annual financial statements. All shareholder resolutions including Joint Decisions are voted on a poll.

The Sharing Agreement also provides for the protection of shareholders of each company by requiring their separate approval for decisions that do not affect the shareholders of both companies equally. Matters requiring this approval procedure are referred to as Class Rights Actions and are voted on a poll. For example, fundamental elements of the DLC structure cannot be changed unless approved separately by shareholders of both companies under the Class Rights Action approval procedure.

Exceptions to these principles can arise in situations such as where legislation requires the separate approval of a decision by the appropriate majority of shareholders in one company, and approval of the matter by shareholders of the other company is not required.

Where a matter has been expressly categorised as either a Joint Decision or a Class Rights Action, the directors do not have the power to change that categorisation. If a matter falls within both categories, it is treated as a Class Rights Action. In addition, the directors can determine that matters not expressly listed in either category should be put to shareholders for their approval under either procedure.

To facilitate the joint voting arrangements, each company has entered into shareholder voting agreements. Each company has issued a Special Voting Share to a special purpose company held in trust for shareholders by a common Trustee.

Rio Tinto plc has issued its Special Voting Share (RTP Special Voting Share) to RTL Shareholder SVC and Rio Tinto Limited has issued its Special Voting Share (RTL Special Voting Share) to RTP Shareholder SVC. The total number of votes cast on Joint Decisions by the shareholders of one company are voted at the parallel meeting of the other company. The role of these special purpose companies in achieving this is described below.

In exceptional circumstances, certain shareholders of the companies can be excluded from voting at the respective company's general meetings because they have acquired shares in one company in excess of a given threshold without making an offer for all the shares in the other company. If this should occur, the votes cast by these excluded shareholders will be disregarded.

Following the companies' general meetings, the overall results of the voting are announced to the stock exchanges, to the media and published on the Rio Tinto website.

At a Rio Tinto plc shareholders' meeting at which a Joint Decision is considered, each Rio Tinto plc share carries one vote and the holder of its Special Voting Share has one vote for each vote cast by the public shareholders of Rio Tinto Limited in their parallel meeting. The holder of the Special Voting Share is required to vote strictly, and only, in accordance with the votes cast by public shareholders for and against the equivalent resolution at the parallel Rio Tinto Limited shareholders' meeting.

The holders of Rio Tinto Limited ordinary shares do not actually hold any voting shares in Rio Tinto plc by virtue of their holding in Rio Tinto Limited and cannot enforce the voting arrangements relating to the Special Voting Share.

At a Rio Tinto Limited shareholders' meeting at which a Joint Decision is considered, each Rio Tinto Limited share carries one vote and the holder of its Special Voting Share will have one vote for each vote cast by the public shareholders of Rio Tinto plc in their parallel meeting. The holder of the Special Voting Share is required to vote strictly, and only, in accordance with the votes cast for and against the equivalent resolution at the parallel Rio Tinto plc shareholders' meeting.

The holders of Rio Tinto plc ordinary shares do not actually hold any voting shares in Rio Tinto Limited by virtue of their holding in Rio Tinto plc and cannot enforce the voting arrangements relating to the Special Voting Share.

#### Capital distribution arrangements

If either of the companies goes into liquidation, the Sharing Agreement provides for a valuation to be made of the surplus assets of both companies. If the surplus assets available for distribution by one company on each of the shares held by its shareholders exceed the surplus assets available for distribution by the other company on each of the shares held by its shareholders, then an equalising payment between the two companies shall be made, to the extent permitted by applicable law, such that the amount available for distribution on each share held by shareholders of each company conforms to the Equalisation Ratio. The objective is to ensure that the shareholders of both companies have

equivalent entitlements to the assets of the combined Group on a per share basis, taking account of the Equalisation Ratio.

The Sharing Agreement does not grant any enforceable rights to the shareholders of either company upon liquidation of a company.

#### Limitations on ownership of shares and merger obligations

The laws and regulations of the UK and Australia impose restrictions and obligations on persons who control interests in publicly listed companies in excess of defined thresholds that, under certain circumstances, include obligations to make a public offer for all of the outstanding issued shares of the relevant company. The threshold applicable to Rio Tinto plc under UK law and regulations is 30 per cent and to Rio Tinto Limited under Australian law and regulations is 20 per cent (on a standalone basis or, taking into account only Rio Tinto plc interests, on a Joint Decision basis).

As part of the DLC merger, the Articles of Association of Rio Tinto plc and the Constitution of Rio Tinto Limited were amended with the intention of extending these laws and regulations to the combined enterprise and, in particular, to ensure that a person cannot exercise control over one company without having made offers to the public shareholders of both companies.

It is consistent with the creation of the single economic enterprise, and the equal treatment of the two sets of shareholders, that these laws and regulations should operate in this way. The Articles of Association of Rio Tinto plc and the Constitution of Rio Tinto Limited impose restrictions on any person who controls, directly or indirectly, 20 per cent or more of the votes on a Joint Decision. If, however, such a person only has an interest in either Rio Tinto Limited or Rio Tinto plc, the restrictions will only apply if they control, directly or indirectly, 30 per cent or more of the votes at that company's general meetings.

If one of the thresholds specified above is breached, subject to certain limited exceptions and notification by the relevant company, such persons may not attend or vote at general meetings of the relevant company, may not receive dividends or other distributions from the relevant company and may be divested of their interest by the directors of the relevant company. These restrictions continue to apply until such persons have either made a public offer for all the publicly held shares of the other company, or have reduced their controlling interest below the thresholds specified, or have acquired through a permitted means at least 50 per cent of the publicly held shares of each company.

These provisions are designed to ensure that offers for the publicly held shares of both companies would be required to avoid the restrictions set out above, even if the interests which breach the thresholds are only held in one of the companies. The directors do not have the discretion to exempt a person from the operation of these rules.

Under the Sharing Agreement, the companies agree to co-operate to enforce the above restrictions contained in their Articles of Association and Constitution.

#### Guarantees

In 1995, each company entered into a Deed Poll Guarantee in favour of creditors of the other company. Pursuant to the Deed Poll Guarantees, each company guaranteed the contractual obligations of the other company and the obligations of other persons which are guaranteed by the other company, subject to certain limited exceptions. Beneficiaries under the Deed Poll Guarantees may make demands upon the guarantor thereunder without first having recourse to the company or persons whose obligations are being guaranteed. The obligations of the guarantor under each Deed Poll Guarantee expire upon termination of the Sharing Agreement and under other limited circumstances, but only in respect of obligations arising after such termination and, in the case of other limited circumstances, the publication and expiry of due notice. The shareholders of the companies cannot enforce the provisions of the Deed Poll Guarantees in relation to their interest in the shares of the other company.

## Markets

### Rio Tinto plc

The principal market for Rio Tinto plc shares is the London Stock Exchange with the shares trading through the Stock Exchange Electronic Trading Service (SETS) system.

Rio Tinto plc American depositary receipts are listed on the New York Stock Exchange.

Further details relating to Rio Tinto plc American depositary receipts are available in Rio Tinto's Annual report on Form 20-F.

### Rio Tinto Limited

Rio Tinto Limited shares are listed on the Australian Securities Exchange (ASX).

The ASX is the principal trading market for Rio Tinto Limited shares. The ASX is a national stock exchange with an automated trading system.

## Share ownership

### Substantial shareholders

Under the UK Disclosure and Transparency Rules and the Australian Corporations Act, any shareholder of Rio Tinto plc with voting rights of three per cent or more, or any person with voting power of five per cent or more in Rio Tinto Limited, is required to provide the relevant companies with notice.

The shareholders who have provided such, or an equivalent, notice as of 16 February 2018 are:

	Date of notice	Number of shares	Percentage of issued share capital
<b>Rio Tinto plc</b>			
BlackRock, Inc.	4 Dec 2009	127,744,871	8.38
The Capital Group Companies, Inc.	24 Feb 2015	56,647,518	4.01
The Capital Group Companies, Inc.	17 Sep 2015	54,763,331	3.93
The Capital Group Companies, Inc.	9 Oct 2015	55,867,795	4.02
Shining Prospect Pte. Ltd	26 Jan 2016	182,550,329	13.10
The Capital Group Companies, Inc.	8 Jan 2018	67,470,318	5.03
<b>Rio Tinto Limited</b>			
BlackRock, Inc.	24 Mar 2015	22,161,984	5.13
BlackRock, Inc.	13 Apr 2015	See footnote (a)	See footnote (a)
BlackRock, Inc.	30 Oct 2015	See footnote (b)	See footnote (b)
BlackRock, Inc.	14 Apr 2016	21,479,771	5.06
BlackRock, Inc.	11 Oct 2016	26,656,003	6.28
Shining Prospect Pte. Ltd	09 Feb 2018	See footnote (c)	See footnote (c)
The Vanguard Group, Inc.	16 Feb 2018	See footnote (d)	See footnote (d)

- (a) In its substantial holding notice filed on 13 April 2015, BlackRock, Inc. and its associates disclosed a holding of 120,174,604 shares in Rio Tinto plc and 22,330,443 shares in Rio Tinto Limited. Through the operation of the Australian Corporations Act as modified, these interests gave BlackRock, Inc. and its associates voting power of 7.7 per cent in the Rio Tinto Group on a Joint Decision matter, making them substantial shareholders of Rio Tinto Limited, as well as of Rio Tinto plc.
- (b) By subsequent notice dated 30 October 2015, BlackRock, Inc. and its associates disclosed that they no longer held a relevant interest in five per cent or more of Rio Tinto Limited's issued capital.
- (c) In its notice of change of interests of substantial holder filed on 9 February 2018 Shining Prospect Pte. Ltd, a Singapore-based entity owned by Chinalco (Aluminium Corporation of China), disclosed a holding of 182,550,329 Rio Tinto plc shares which, as at 28 November 2017, gave these entities and their associates voting power of 10.32 per cent in the Rio Tinto Group on a Joint Decision matter. Accordingly, in addition to being substantial shareholders of Rio Tinto plc, through the operation of the Australian Corporations Act as modified and the DLC structure, these entities are substantial shareholders of Rio Tinto Limited. Shining Prospect Pte. Ltd's previous notification of an interest in Rio Tinto Limited was filed on 10 June 2009, in which it disclosed a holding in Rio Tinto plc that represented voting power of 9.32 per cent in the Rio Tinto Group on a Joint Decision matter. The increase in voting power to 10.32 per cent as at 28 November 2017 is due to Rio Tinto's 2015 and 2017 buy-back programmes and the consequential reduction of shares on issue in the combined voting share capitals of Rio Tinto plc and Rio Tinto Limited, and is not due to any acquisition of shares by Shining Prospect Pte. Ltd, Chinalco or their associates.
- (d) In its substantial holding notice filed on 16 February 2018, The Vanguard Group, Inc. and its associate Vanguard Investments Australia Ltd ("Vanguard") disclosed that on 16 June 2017 it held 21,914,711 shares in Rio Tinto Limited, giving it voting power of 5.166 per cent. By separate notice dated 16 February 2018, Vanguard disclosed that on 15 December 2017 it had ceased to be a substantial holder of shares in Rio Tinto Limited.

As far as is known, Rio Tinto plc and Rio Tinto Limited are not directly or indirectly owned or controlled by another corporation or by any government or natural person. Rio Tinto is not aware of any arrangement which may result in a change in control of Rio Tinto plc or Rio Tinto Limited. No shareholder possesses voting rights that differ from those attaching to Rio Tinto plc's and Rio Tinto Limited's securities.

As of 16 February 2018, the total amount of the Group's voting securities owned by the directors and executives in Rio Tinto plc was 190,508 ordinary shares of 10p each or ADRs and in Rio Tinto Limited was 98,353 ordinary shares, in aggregate representing less than one per cent of the Group's total number of ordinary shares in issue.

## Analysis of ordinary shareholders

	Rio Tinto plc				Rio Tinto Limited			
	No. of accounts	%	Shares	%	No. of accounts	%	Shares	%
As at 16 February 2018								
1 to 1,000 shares	25,859	75.26	8,074,098	0.60	135,946	83.60	39,560,226	9.59
1,001 to 5,000 shares	6,237	18.15	12,428,588	0.93	23,874	14.68	47,599,162	11.54
5,001 to 10,000 shares	679	1.98	4,691,797	0.35	1,870	1.15	12,885,744	3.12
10,001 to 25,000 shares	465	1.35	7,375,517	0.55	720	0.44	10,564,765	2.56
25,001 to 125,000 shares	567	1.65	34,236,167	2.56	149	0.09	6,642,021	1.61
125,001 to 250,000 shares	172	0.50	30,749,907	2.30	20	0.01	3,627,357	0.88
250,001 to 1,250,000 shares	257	0.75	144,418,742	10.80	26	0.02	12,232,612	2.97
1,250,001 to 2,500,000 shares	60	0.17	105,275,675	7.87	3	0.00	6,290,040	1.53
2,500,001 shares and over <sup>(a)</sup>	65	0.19	990,214,732 <sup>(b)</sup>	74.04	9	0.01	273,012,421	66.20
			1,337,465,223 <sup>(c)</sup>	100			412,414,348 <sup>(d)</sup>	100
Number of holdings less than marketable parcel of A\$500					3,348			

(a) Excludes shares held in Treasury.

(b) This includes 118,080,965 shares held in the name of a nominee on the share register. The shares are listed on the NYSE in the form of American Depositary Receipts (ADRs).

(c) The total issued share capital is made up of 1,346,930,822 publicly held shares; of which 9,465,599 shares are held in Treasury.

(d) Publicly held shares in Rio Tinto Limited.

## Twenty largest registered shareholders

In accordance with the ASX Listing Rules, below are the names of the 20 largest registered holders of Rio Tinto Limited shares and the number of shares and the percentage of issued capital each holds as of 16 February 2018:

	Number of shares	Percentage of issued share capital
<b>Rio Tinto Limited</b>		
HSBC Custody Nominees (Australia) Limited	119,800,845	29.05
J. P. Morgan Nominees Australia Limited	79,457,620	19.27
Citicorp Nominees Pty Ltd	22,205,679	5.38
National Nominees Limited	19,676,058	4.77
BNP Paribas Nominees Pty Ltd (Agency Lending DRP A/C)	12,368,565	3.00
Citicorp Nominees Pty Limited (Colonial First State Inv A/C)	6,382,410	1.55
BNP Paribas Noms Pty Ltd (DRP)	5,847,370	1.42
HSBC Custody Nominees (Australia) Limited (NT-Commonwealth Super Corp A/C)	3,817,009	0.93
Australian Foundation Investment Company Limited	3,456,865	0.84
Argo Investments Limited	2,370,739	0.57
Computershare Trustees Jey Ltd (RE 3000086 A/C)	2,214,313	0.54
AMP Life Limited	1,704,988	0.41
National Nominees Limited	1,138,271	0.28
Custodial Services Limited (Beneficiaries Holding A/C)	644,957	0.16
BNP Paribas Noms (NZ) Ltd (DRP)	621,541	0.15
The Senior Master of the Supreme Court (Common Fund No.3 A/C)	586,563	0.14
Milton Corporation Limited	583,618	0.14
Computershare Trustees Jey Ltd (RE 3000091 A/C)	569,440	0.14
Navigator Australia Ltd (MLC Investment Sett A/C)	562,607	0.14
HSBC Custody Nominees (Australia) Limited	550,952	0.13



## Dividends

Both companies have paid dividends on their ordinary shares every year since incorporation in 1962. The process by which Rio Tinto shareholders receive dividends is explained under the description of the DLC structure on page 250.

### Dividend policy

The dividend policy adopted by the board in February 2016 provides that, at the end of each financial period, the board will determine an appropriate total level of ordinary dividend per share, taking into account the results for the financial year, the outlook for our major commodities, the board's view of the long-term growth prospects of the business and the company's objective of maintaining a strong balance sheet. The intention is that the balance between the interim and final dividend is weighted to the final dividend.

The board expects total cash returns to shareholders over the longer term to be in a range of 40 to 60 per cent of underlying earnings in aggregate through the cycle.

The board is committed to maintaining an appropriate balance between cash returns to shareholders and investment in the business, with the intention of maximising shareholder value.

Acknowledging the cyclical nature of the industry, in periods of strong earnings and cash generation, it is the board's intention to supplement the ordinary dividends with additional returns to shareholders.

### Dividend determination

The majority of our sales are transacted in US dollars, making this the most appropriate measure for our global business performance. It is our main reporting currency and, consequently, the natural currency for dividend determination. Dividends determined in US dollars are translated at exchange rates prevailing two days prior to the declaration and payable in sterling by Rio Tinto plc and in Australian dollars by Rio Tinto Limited.

On request, shareholders of Rio Tinto plc can elect to receive dividends in Australian dollars and Rio Tinto Limited shareholders can elect to receive dividends in pounds sterling. If such an election is made, the dividend amounts received will be calculated by converting the declared dividend using the exchange rates applicable to sterling and Australian dollars – five days prior to the dividend payment date.

Shareholders who wish to receive their dividends in any other currencies should contact the companies' share registrars, who offer payment services in other currencies, subject to a fee.

### 2017 dividends

The 2017 interim and final dividends were determined at 110.00 US cents and at 180.00 US cents per share respectively and the applicable conversion rates for the interim and final dividend were US\$1.32315 and US\$1.39075 to the pound sterling and US\$0.79875 and US\$0.78765 to the Australian dollar respectively. For those Rio Tinto plc shareholders who elected to receive their interim dividend in Australian dollars the applicable conversion rate was A\$1.67325 to the pound sterling and for Rio Tinto Limited shareholders who elected to receive their dividend in sterling the applicable conversion rate was £0.59764 to the Australian dollar.

Final dividends of 129.43 pence or 228.53 Australian cents per share will be paid on 12 April 2018. For those Rio Tinto plc shareholders requesting the 2017 final dividend be paid in Australian dollars, those holders of Rio Tinto plc ADRs (each representing one share) and those Rio Tinto Limited shareholders requesting the 2017 final dividend be paid in pounds sterling, the applicable conversion rates will be determined on 5 April 2018.

### Dividend reinvestment plan (DRP)

Rio Tinto offers a DRP to registered shareholders, which provides the opportunity to use cash dividends to purchase Rio Tinto shares in the market.

## Material contracts

### Articles of Association and Constitution, and DLC Sharing Agreement

As explained on pages 250 to 251 under the terms of the DLC structure the shareholders of Rio Tinto plc and of Rio Tinto Limited entered into certain contractual arrangements which are designed to place the shareholders of both companies in substantially the same position as if they held shares in a single entity which owned all the assets of both companies. Generally, and as far as is permitted by the UK Companies Act and the Australian Corporations Act and ASX Listing Rules, this principle is reflected in the Articles of Association of Rio Tinto plc and in the Constitution of Rio Tinto Limited. The summaries below include descriptions of material rights of the shareholders of both Rio Tinto plc and Rio Tinto Limited.

#### Objects

At the 2009 annual general meetings, shareholders of Rio Tinto plc and Rio Tinto Limited approved amendments to the constitutional documents whereby the object clauses were removed to allow the companies to have the widest possible scope of activities.

#### Directors

Under Rio Tinto plc's Articles of Association, a director may not vote in respect of any proposal in which he or she, or any other person connected with him or her, has any interest, other than by virtue of his or her interests in shares or debentures or other securities of, or otherwise in or through, the company, except in certain prescribed circumstances, including in respect of resolutions:

- indemnifying him or her or a third party in respect of obligations incurred by the director on behalf of, or for the benefit of, the company, or in respect of obligations of the company, for which the director has assumed responsibility under an indemnity, security or guarantee;
- relating to an offer of securities in which he or she may be interested as a holder of securities or as an underwriter;
- concerning another body corporate in which the director is beneficially interested in less than one per cent of the issued shares of any class of shares of such a body corporate;
- relating to an employee benefit in which the director will share equally with other employees;
- relating to liability insurance that the company is empowered to purchase for the benefit of directors of the company in respect of actions undertaken as directors (or officers) of the company; and
- concerning the giving of indemnities in favour of directors or the funding of expenditure by directors to defend criminal, civil or regulatory proceedings or actions against a director.

Under Rio Tinto Limited's Constitution, except where a director is constrained by Australian law, a director may be present at a meeting of the board while a matter in which the director has a material personal interest is being considered and may vote in respect of that matter.

The directors are empowered to exercise all the powers of the companies to borrow money, to charge any property or business of the companies or all, or any, of their uncalled capital and to issue debentures or give any other security for a debt, liability or obligation of the companies or of any other person. The directors shall restrict the borrowings of Rio Tinto plc to the limitation that the aggregate amount of all moneys borrowed by the company and its subsidiaries shall not exceed an amount equal to one and one-half times the companies' share capital plus aggregate reserves unless sanctioned by an ordinary resolution of the company.

Directors are not required to hold any shares of either company by way of qualification. The Remuneration Report on pages 70 to 105 provides information on shareholding policies relating to executive and non-executive directors. Please refer to the Governance report for information on the appointment of directors.

#### Rights attaching to shares

Under English law, dividends on shares may only be paid out of profits available for distribution, as determined in accordance with generally accepted accounting principles and by the relevant law. Shareholders are entitled to receive such dividends as may be declared by the directors. The directors may also pay shareholders such interim dividends as appear to them to be justified by the financial position of the Group.

Under the Australian Corporations Act, dividends on shares may only be paid if the company's assets exceed its liabilities immediately before the dividend is declared and the excess is sufficient for the payment of the dividend, the payment of the dividend is fair and reasonable to the company's shareholders as a whole, and the payment of the dividend does not materially prejudice the company's ability to pay its creditors. Any Rio Tinto plc dividend unclaimed after 12 years from the date the



dividend was declared, or became due for payment, will be forfeited and returned to the company. Any Rio Tinto Limited dividend unclaimed may be invested or otherwise used by the board for the benefit of the company until claimed or otherwise disposed of according to Australian law. Rio Tinto Limited is governed by Victorian unclaimed monies legislation, which requires the company to pay to the State Revenue Office any unclaimed dividend payments of A\$20 or more that at 1 March each year have remained unclaimed for over 12 months.

#### Voting

Voting at any general meeting of shareholders on a resolution on which the holder of the Special Voting Share is entitled to vote shall be decided by a poll, and any other resolution shall be decided by a show of hands unless a poll has been duly demanded. On a show of hands, every shareholder who is present in person or by proxy or other duly authorised representative and is entitled to vote has one vote regardless of the number of shares held. The holder of the Special Voting Share is not entitled to vote on a show of hands. On a poll, every shareholder who is present in person or by proxy or other duly authorised representative and is entitled to vote has one vote for every ordinary share for which he or she is the holder and, in the case of Joint Decisions, the holder of the Special Voting Share has one vote for each vote cast in respect of the publicly held shares of the other company.

A poll may be demanded by any of the following:

- the chairman of the meeting;
- at least five shareholders entitled to vote on the resolution;
- any shareholder or shareholders representing in the aggregate not less than one tenth (Rio Tinto plc) or one 20th (Rio Tinto Limited) of the total voting rights of all shareholders entitled to vote on the resolution;
- any shareholder or shareholders holding Rio Tinto plc shares conferring a right to vote at the meeting on which there have been paid-up sums in the aggregate equal to not less than one tenth of the total sum paid up on all the shares conferring that right; or
- the holder of the Special Voting Share of either company.

A proxy form will be treated as giving the proxy the authority to demand a poll, or to join others in demanding one.

The necessary quorum for a Rio Tinto plc general meeting is three members present (in person or by proxy or other duly authorised representative) and entitled to vote, and for a Rio Tinto Limited general meeting is two members present (in person or by proxy or other duly authorised representative).

Matters are transacted at general meetings by the proposing and passing of resolutions as:

- ordinary resolutions, which require the affirmative vote of a majority of the votes of those persons voting at a meeting at which there is a quorum, for example the election of directors; and
- special resolutions, which require the affirmative vote of not less than three-fourths of the persons voting at a meeting at which there is a quorum, for example amending the Articles of Association of Rio Tinto plc or the Constitution of Rio Tinto Limited.

The Sharing Agreement further classifies resolutions as “Joint Decisions” and “Class Rights Actions” as explained under Voting arrangements on pages 250 and 251.

Annual general meetings must be convened with 21 days’ written notice for Rio Tinto plc and with 28 days’ notice for Rio Tinto Limited. In accordance with the authority granted by shareholders at the Rio Tinto plc annual general meeting in 2017, other meetings of Rio Tinto plc may be convened with 14 days’ written notice for the passing of a special resolution and with 14 days’ notice for any other resolution, depending on the nature of the business to be transacted. All meetings of Rio Tinto Limited require 28 days’ notice. In calculating the period of notice the days of delivery or receipt of the notice and the date of the meeting are not included. Among other things, the notice must specify the nature of the business to be transacted.

#### Variation of rights

If, at any time, the share capital is divided into different classes of shares, the rights attached to any class may be varied, subject to the provisions of the relevant legislation, with the consent in writing of holders of three-fourths in value of the shares of that class or upon the adoption of an extraordinary resolution passed at a separate meeting of the holders of the shares of that class. At every such separate meeting, all of the provisions of the Articles of Association and Constitution relating to proceedings at a general meeting apply, except that the quorum for Rio Tinto plc should be two or more persons who hold or represent by proxy not less than one-third in nominal value of the issued shares of the class.

#### Rights upon a winding-up

Except as the shareholders have agreed or may otherwise agree, upon a winding-up, the balance of assets available for distribution:

- after the payment of all creditors including certain preferential creditors, whether statutorily preferred creditors or normal creditors; and
- subject to any special rights attaching to any class of shares,

is to be distributed among the holders of ordinary shares according to the amounts paid-up on the shares held by them. This distribution is generally to be made in cash. A liquidator may, however, upon the adoption of a special resolution of the shareholders, divide among the shareholders the whole or any part of the assets in specie or kind.

The Sharing Agreement further sets out further arrangements relating to the distribution of assets of each of the companies in the event of a liquidation as explained on pages 250 and 251.

#### Facility agreement

Details of the Group’s US\$7.5 billion multi-currency committed revolving credit facilities are set out in note 30 to the 2017 financial statements.

### Exchange controls and foreign investment

#### Rio Tinto plc

There are no UK foreign exchange controls or other UK restrictions on the import or export of capital or on the payment of dividends to non-resident holders of Rio Tinto plc shares or that materially affect the conduct of Rio Tinto plc’s operations. It should be noted, however, that various sanctions, laws, regulations or conventions may restrict the import or export of capital by, or the payment of dividends to, non-resident holders of Rio Tinto plc shares. There are no restrictions under Rio Tinto plc’s Articles of Association or under UK law that limit the right of non-resident owners to hold or vote Rio Tinto plc shares. However, certain of the provisions of the Australian Foreign Acquisitions and Takeovers Act 1975 described below also apply to the acquisition by non-Australian persons of interests in securities of Rio Tinto plc.

#### Rio Tinto Limited

Under current Australian legislation, Australia does not impose general exchange or foreign currency controls. Subject to some specific requirements and restrictions, Australian and foreign currency may be freely brought into and sent out of Australia. There are requirements to report cash transfers in or out of Australia of A\$10,000 or more. There is a prohibition on, or in some cases the specific prior approval of the Department of Foreign Affairs and Trade or Minister for Foreign Affairs must be obtained for, certain payments or other dealings connected with countries or parties identified with terrorism, or to whom United Nations or autonomous Australian sanctions apply. Sanction, anti-money laundering and counterterrorism laws may restrict or prohibit payments, transactions and dealings or require reporting of certain transactions.

Rio Tinto Limited may be required to deduct withholding tax from foreign remittances of dividends, to the extent that they are unfranked, and from payments of interest.

Acquisitions of interests in shares, and certain other equity instruments in Australian companies by non-Australian ("foreign") persons are subject to review and approval by the Treasurer of the Commonwealth of Australia under the Foreign Acquisitions and Takeovers Act 1975 (the Takeovers Act). In broad terms, the Takeovers Act applies to acquisitions of interests in securities in an Australian entity by a foreign person where, as a result, a single foreign person (and any associate) would control 20 per cent or more of the voting power or potential voting power in the entity, or several foreign persons (and any associates) would control 40 per cent or more of the voting power or the potential voting power in the entity. The potential voting power in an entity is determined having regard to the voting shares in the entity that would be on issue if all rights (whether or not presently exercisable) to be issued voting shares in the entity were exercised. The Takeovers Act also applies to

direct investments by foreign government investors, in certain circumstances regardless of the size of the investment. Persons who are proposing relevant acquisitions or transactions may be required to provide notice to the Treasurer before proceeding with the acquisition or transaction. The Treasurer has the power to order divestment in cases where relevant acquisitions or transactions have already occurred, including where prior notice to the Treasurer was not required. The Takeovers Act does not affect the rights of owners whose interests are held in compliance with the legislation.

#### Limitations on voting and shareholding

Except for the provisions of the Takeovers Act, there are no limitations imposed by law, Rio Tinto plc's Articles of Association or Rio Tinto Limited's Constitution, on the rights of non-residents or foreigners to hold the Group's ordinary shares or ADRs or vote that would not apply generally to all shareholders.

#### UK Listing Rules cross reference table

The following table contains cross references identifying the location of information required to be disclosed in the Annual report by the UK Listing Authority's Listing Rule 9.8.4 R.

Listing Rule	Description of Listing Rule	Reference in report
9.8.4 (1)	A statement of any interest capitalised by the Group during the year	Note 8 Finance income and finance costs and note 17 Deferred taxation
9.8.4 (2)	Any information required by Listing Rule 9.2.18 R	N/A
9.8.4 (4)	Details of any long-term incentive scheme as required by LR 9.4.3R	N/A
9.8.4 (5)	Details of any arrangement under which a director has waived any emoluments	N/A
9.8.4 (6)	Details of any arrangement under which a director has agreed to waive future emoluments	N/A
9.8.4 (7)	Details of any allotments of shares by the company for cash not previously authorised by shareholders	N/A
9.8.4 (8)	Details of any allotments of shares for cash by a major subsidiary of the company	N/A
9.8.4 (9)	Details of the participation by the company in any placing made by its parent company	N/A
9.8.4 (10)	Details of any contract of significance with the company in which a director has a material interest; or a contract between the company and a controlling shareholder	N/A
9.8.4 (11)	Details of any contract for the provision of services to the company by a controlling shareholder	N/A
9.8.4 (12)	Details of any arrangement under which a shareholder has waived or agreed to waive any dividends	Note 11 Dividends
9.8.4 (13)	Details of where a shareholder has agreed to waive future dividends	N/A
9.8.4 (14)	Information required by LR 9.2.2AR (2)(a)	N/A

#### Boiler room scams

Shareholders tell us that they sometimes receive unsolicited approaches, usually by telephone, inviting them to undertake a transaction in shares they own.

If you do not know the source of the call, check the details against the FCA website below and, if you have specific information, report it to the FCA under the Consumer helpline or the online reporting form.

If you have any concerns whatsoever, do not take any action and do not part with any money without being certain that:

- you fully understand the transaction;
- you know who you are dealing with and they are registered with and authorised by the FCA; and
- you have consulted a financial adviser if you have any doubts. Remember, if it sounds too good to be true, it almost certainly is. You run the risk of losing any money you part with.

If you are worried that you may already have been a victim of fraud, report the facts immediately using the Action Fraud helpline. Should you require any more information about "boiler room" scams and other investment-based fraud, this can be found on two websites:

#### Action Fraud helpline

0300 123 2040

#### Action Fraud website

[actionfraud.police.uk](http://actionfraud.police.uk)

#### FCA Consumer helpline

0800 111 6768

#### FCA scams website

[fca.org.uk/scams](http://fca.org.uk/scams)

# Financial calendar

## 2018

15	January	Fourth quarter 2017 operations review (Sydney 16 January)
7	February	Announcement of results for 2017
1	March	Rio Tinto plc and Rio Tinto Limited ordinary shares quoted "ex-dividend" for the 2017 final dividend
1	March	Rio Tinto plc ADRs quoted "ex-dividend" for the 2017 final dividend
1	March	Publication of 2017 Annual report, 20-F and Notices of annual general meetings
2	March	Record date for the 2017 final dividend for Rio Tinto plc and Rio Tinto Limited shares and Rio Tinto plc ADRs
20	March	Final date for elections under the Rio Tinto plc and Rio Tinto Limited dividend reinvestment plans and under facilities for dividends to be paid in alternative currency for the 2017 final dividend
5	April	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
11	April	Annual general meeting for Rio Tinto plc, London
12	April	Payment date for the 2017 final dividend to holders of ordinary shares and ADRs
17	April	First quarter 2018 operations review (Sydney 18 April)
2	May	Annual general meeting for Rio Tinto Limited, Melbourne
16	July	Second quarter 2018 operations review (Sydney 17 July)
1	August	Announcement of half year results for 2018
9	August	Rio Tinto plc and Rio Tinto Limited ordinary shares quoted "ex-dividend" for the 2018 interim dividend
9	August	Rio Tinto plc ADRs quoted "ex-dividend" for the 2018 interim dividend
10	August	Record date for the 2018 interim dividend for Rio Tinto plc and Rio Tinto Limited shares and Rio Tinto plc ADRs
30	August	Final date for elections under the Rio Tinto plc and Rio Tinto Limited dividend reinvestment plans and under facilities for dividends to be paid in alternative currency for the 2018 interim dividend
13	September	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
20	September	Payment date for the 2018 interim dividend to holders of ordinary shares and ADRs
15	October	Third quarter 2018 operations review (Sydney 16 October)

## 2019

January	Fourth quarter 2018 operations review
February	Announcement of results for 2018
April	Annual general meeting for Rio Tinto plc, London
April	First quarter 2019 operations review
May	Annual general meeting for Rio Tinto Limited, Perth
July	Second quarter 2019 operations review
August	Announcement of half year results for 2019
October	Third quarter 2019 operations review

# Contact details

## Registered offices

### Rio Tinto plc

6 St James's Square  
London  
SW1Y 4AD  
Registered in England No. 719885

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Website: riotinto.com

### Rio Tinto Limited

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Melbourne  
Victoria 3000  
ABN 96 004 458 404

Telephone: +61 (0) 3 9283 3333  
Fax: +61 (0) 3 9283 3707  
Website: riotinto.com

*Rio Tinto's agent in the US is Cheree Finan, who may be contacted at  
Rio Tinto Services Inc. 80 State Street  
Albany, NY 12207-2543*

## Shareholders

Please refer to the Investor Centre of the respective registrar if you have any queries about your shareholding.

### Rio Tinto plc

*Computershare Investor Services PLC*  
The Pavilions  
Bridgwater Road Bristol  
BS99 6ZZ

Telephone: +44 (0) 370 703 6364  
Fax: +44 (0) 370 703 6119  
UK residents only,  
Freephone: 0800 435021  
Website: computershare.com

*Holders of Rio Tinto American Depositary Receipts (ADRs)*  
Please contact the ADR administrator if you have any queries about your ADRs.

### ADR administrator

JPMorgan Chase & Co  
PO Box 64504  
St. Paul, MN 55164-0854

Telephone: +1 (651) 453 2128  
US residents only, toll free general:  
(800) 990 1135  
US residents only, toll free Global invest direct:  
(800) 428 4267  
Website: adr.com  
Email: jpmorgan.adr@wellsfargo.com

### Rio Tinto Limited

*Computershare Investor Services Pty Limited*  
GPO Box 2975  
Melbourne  
Victoria 3001

Telephone: +61 (0) 3 9415 4030  
Fax: +61 (0) 3 9473 2500  
Australian residents only, toll free:  
1800 813 292  
New Zealand residents only, toll free:  
0800 450 740  
Website: computershare.com

### Former Alcan Inc. shareholders

*Computershare Investor Services Inc.*  
8th Floor  
100 University Avenue  
Toronto, ON  
M5J 2Y1

Telephone: +1 514-982-7555  
North American residents only,  
toll free: +1 (800) 564-6253  
Website: computershare.com

### Investor Centre

Investor Centre is Computershare's free, secure, self-service website, where shareholders can manage their holdings online. The website enables shareholders to:

- View share balances
- Change address details
- View payment and tax information
- Update payment instructions

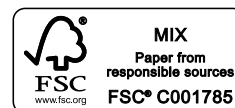
In addition, shareholders who register their email address on Investor Centre can be notified electronically of events such as annual general meetings, and can receive shareholder communications such as the Annual report or Notice of meeting electronically online.

### Rio Tinto plc shareholders

Website: investorcentre.co.uk/riotinto

### Rio Tinto Limited shareholders

Website: investorcentre.com/rio



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## Get more information online

Find out more about our business and performance:  
**[riotinto.com](http://riotinto.com)**

View our 2017 Annual report:  
**[riotinto.com/ar2017](http://riotinto.com/ar2017)**

View our 2017 Sustainable development online report:  
**[riotinto.com/sd2017](http://riotinto.com/sd2017)**