

Rio Tinto releases third quarter production results

16 October 2018

Rio Tinto chief executive J-S Jacques said “We have delivered consistent operational performance in the third quarter, highlighted by strong production from the Group’s copper assets. We made strong strategic progress with the full exit from coal, the announcement of the additional \$3.2 billion of share buy-backs, and the signing of a binding conditional agreement to exit Grasberg for \$3.5 billion. We continue to pursue all opportunities to improve productivity and drive enhanced cash flow generation. This, combined with the disciplined allocation of capital, will ensure we continue to deliver superior returns to our shareholders in the short, medium and long-term.”

		Q3 2018	vs Q3 2017	vs Q2 2018	9 mths 2018	vs 9 mths 2017
Pilbara iron ore shipments (100% basis)	Mt	81.9	-5%	-7%	250.7	+4%
Pilbara iron ore production (100% basis)	Mt	82.5	-3%	-3%	251.2	+4%
Bauxite	kt	12,700	-1%	-4%	38,631	+4%
Aluminium	kt	880	-1%	+3%	2,584	-3%
Mined copper	kt	159.7	+32%	+2%	455.8	+38%
Titanium dioxide slag	kt	297	-9%	+28%	822	-16%
IOC iron ore pellets and concentrate	Mt	2.9	-9%	+231%	6.1	-27%

Key points

- On 15 August 2018, a truck operator was fatally injured at the Paraburdoo Iron Ore mine. An investigation is in progress.
- On 9 July 2018, a serious incident occurred at Richards Bay Minerals (RBM) mining operation, resulting in the fatality of a security contractor. The incident remains the subject of a police investigation.
- Pilbara iron ore shipments of 81.9 million tonnes (100 per cent basis) in the third quarter were five per cent lower than the third quarter of 2017, due to planned maintenance cycles and safety pauses across all operations following the fatality.
- Bauxite production of 12.7 million tonnes was one per cent lower than the corresponding quarter of 2017, with strong production at Weipa offset by lower production at the non-managed Sangaredi and Porto Trombetas (MRN) mines. Third party shipments increased by two per cent to 8.4 million tonnes, reflecting firm demand.
- Aluminium production of 0.9 million tonnes was one per cent lower than the third quarter of 2017 due primarily to ongoing labour disruptions at the non-managed Becancour smelter in Canada. Full year guidance has been revised to between 3.4 and 3.5 million tonnes (previously 3.5 to 3.7 million tonnes).
- Mined copper production of 159.7 thousand tonnes was 32 per cent higher than the corresponding quarter of 2017, primarily reflecting increased production from Rio Tinto Kennecott due to higher grades.
- Titanium dioxide slag production was nine per cent lower than the third quarter of 2017, but 28 per cent higher than the previous quarter as production at Rio Tinto Fer et Titane and RBM ramped up following disruptions in the second quarter.
- Production at Iron Ore Company of Canada was nine per cent lower than the third quarter of 2017, however significantly higher than the previous quarter as operations ramped up to normal production rates following a labour dispute in the previous quarter.

- The major growth projects continue to progress. First bauxite shipment from Amrun is now expected in the fourth quarter of 2018 with full ramp-up in 2019. Following an annual re-forecast of the Oyu Tolgoi underground development schedule and costs, capital costs remain in line with the overall \$5.3 billion budget and construction of the first draw bell is still expected in mid-2020. The preliminary re-forecast assessment indicates ground conditions and shaft sinking challenges that are ultimately expected to result in a revised ramp-up schedule to sustainable first production.
- On 1 August 2018, Rio Tinto completed the sale of its remaining coal assets for \$3.95 billion. This, along with the sale of the Winchester South development project in the first half of 2018, resulted in gross disposal proceeds of \$4.15 billion.
- On 20 September 2018, Rio Tinto subsequently announced the return to shareholders of the \$3.2 billion post-tax coal disposal proceeds via an off-market buy-back tender in Rio Tinto Limited shares totalling \$1.9 billion, and further on-market purchases of Rio Tinto plc shares of approximately \$1.3 billion.
- On 28 September 2018, Rio Tinto announced that it had signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum), Indonesia's state mining company, for \$3.5 billion. The transaction is subject to a number of conditions precedent being satisfied, including the receipt of regulatory approvals, with completion expected in the first half of 2019.

All figures in this report are unaudited. All currency figures in this report are US dollars, and comments refer to Rio Tinto's share of production, unless otherwise stated. To allow production numbers to be compared on a like-for-like basis, production from asset divestments completed in 2017 is excluded from Rio Tinto share of production data but assets sold in 2018 remain in comparisons.

IRON ORE

Rio Tinto share of production (million tonnes)

	Q3 2018	vs Q3 2017	vs Q2 2018	9 mths 2018	vs 9 mths 2017
Pilbara Blend Lump	20.6	-1%	-6%	63.2	+6%
Pilbara Blend Fines	29.9	-1%	-4%	90.9	+7%
Robe Valley Lump	1.5	-6%	+3%	4.5	+0%
Robe Valley Fines	2.7	-5%	+5%	8.4	+13%
Yandicoogina Fines (HIY)	14.4	-0%	+1%	42.6	+3%
Total Pilbara production	69.1			209.7	
Total Pilbara production (100% basis)	82.5			251.2	

Pilbara operations

On 15 August 2018, a truck operator was fatally injured at the Paraburdoo Iron Ore mine. An investigation is in progress.

Pilbara operations produced 251.2 million tonnes (Rio Tinto share 209.7 million tonnes) in the first nine months of 2018, four per cent higher than the same period of 2017 due to favourable weather conditions in the first half, a continued improvement in mine and rail capacity as Silvergrass ramps up and ongoing productivity improvements across the integrated system.

Third quarter production of 82.5 million tonnes (Rio Tinto share 69.1 million tonnes) was three per cent lower than the third quarter of 2017, due to planned maintenance cycles and safety pauses across all operations following the fatality at Paraburdoo operations.

Year to date sales of 250.7 million tonnes (Rio Tinto share 208.1 million tonnes) were four per cent higher than the corresponding period of 2017, with third quarter sales of 81.9 million tonnes (Rio Tinto share 68.0 million tonnes) five per cent lower than the same period of last year.

Approximately 17 per cent of sales in the quarter were priced by reference to the prior quarter's average index lagged by one month. The remainder was sold either on current quarter average, current month average or on the spot market.

Approximately 33 per cent of sales in the quarter were made free on board (FOB), with the remainder sold including freight.

Pilbara projects

The automation of the Pilbara train system (AutoHaul™) is in ramp-up, with a steady increase in the number of trains in autonomous mode over the third quarter. Autonomous mode operations have increased to an average of 34 trains per day, equating to 290,000 kilometres (or 45 per cent of daily kilometres) completed in this mode. Full implementation of AutoHaul™ is expected by the end of 2018.

The Koodaideri feasibility study remains on track for completion in 2018. Early works funding of \$146 million was approved on 1 August 2018 ahead of a final investment decision expected by the end of the year.

The approval of the West Angelas Deposits C and D project, and the Robe Valley sustaining project was announced by Rio Tinto and its joint venture partners on 1 October 2018 for \$1.55 billion (Rio Tinto's 53 per cent share \$820 million). Construction is forecast to commence in 2019, subject to final environmental and government approvals.

2018 guidance

Rio Tinto's Pilbara shipments in 2018 are expected to be at the upper end of the existing guidance range (330 to 340 million tonnes, 100 per cent basis).

ALUMINIUM

Rio Tinto share of production ('000 tonnes)

	Q3 2018	vs Q3 2017	vs Q2 2018	9 mths 2018	vs 9 mths 2017
Rio Tinto Aluminium					
Bauxite	12,700	-1%	-4%	38,631	+4%
Alumina	1,972	-1%	-1%	5,960	-2%
Aluminium	880	-1%	+3%	2,584	-3%

Bauxite

Bauxite production of 12.7 million tonnes was one per cent lower than the third quarter of 2017, with strong production at Weipa offset by lower production at the non-managed Sangaredi and Porto Trombetas (MRN) mines. Production at Sangaredi was 24 per cent lower than the third quarter of 2017 due to tie-in works required to complete expansion works, whilst production was partly curtailed at MRN as a result of the declaration of force majeure at Norsk Hydro's Alunorte alumina refinery.

8.4 million tonnes of bauxite were shipped to third parties in the third quarter of 2018, two per cent higher than the third quarter of 2017, reflecting firm demand.

Amrun

The Amrun project is ahead of schedule, with first shipment now expected in the fourth quarter of 2018 and full ramp-up in 2019. Pre-commissioning has commenced on critical infrastructure such as the reclaimers and beneficiation plant, and the shiploader was successfully transported to site and installed on the wharf facility.

Alumina

Alumina production for the quarter was one per cent lower than the corresponding period in 2017.

Aluminium

Quarterly aluminium production was one per cent lower than the corresponding period of 2017, due to an ongoing lock-out at the non-managed Becancour smelter, which began on 11 January 2018. Excluding this impact, aluminium production for the third quarter was two per cent higher than the same period of 2017, reflecting continued productivity creep.

On 14 September 2018, Rio Tinto was informed by Hydro that it had withdrawn its offer to acquire the 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 sale of the Aluminium Dunkerque smelter in France for \$500 million is expected to complete in the fourth quarter of 2018, subject to satisfactory completion of consultations with key stakeholders and applicable regulatory clearances.

Market disruptions

Although Rio Tinto is broadly balanced in alumina, it is exposed to long-term legacy alumina sales contracts, which are LME linked. The negative impact on EBITDA of these legacy contracts, due to the significant escalation in the alumina index price as a result of industry supply disruptions, was \$178 million in the first half of 2018 and a further \$130 million in the third quarter.

The wind-down period for sanctions implemented by the United States Treasury Department on various Russian individuals and companies has been extended until 12 November 2018. Rio Tinto continues to monitor this situation closely and no force majeure declarations have been made to date.

2018 guidance

As announced on 11 October 2018, raw material cost headwinds (caustic soda, petroleum coke, green coke and tar pitch) are expected to have a \$400 million negative impact on EBITDA in full year 2018 compared with 2017. In addition, higher thermal coal prices are expected to have a \$100 million negative impact in 2018 for the Pacific Aluminium smelters.

Rio Tinto's expected share of bauxite production in 2018 has been revised to the upper end of the previous guidance range at between 50 and 51 million tonnes (previously 49 to 51 million tonnes).

Aluminium guidance is revised to between 3.4 and 3.5 million tonnes (previously 3.5 to 3.7 million tonnes), to reflect the impact of the ongoing lock-out at the non-managed Becancour smelter. This excludes any potential adjustment from the completion of the sale of the Aluminium Dunkerque smelter.

Alumina production guidance remains unchanged at 8.0 to 8.2 million tonnes.

COPPER & DIAMONDS

Rio Tinto share of production ('000 tonnes)

	Q3 2018	vs Q3 2017	vs Q2 2018	9 mths 2018	vs 9 mths 2017
Mined copper					
Rio Tinto Kennecott	59.1	+129%	+16%	145.7	+28%
Escondida	87.4	+6%	-5%	270.7	+52%
Grasberg	0.0	N/A	N/A	0.0	N/A
Oyu Tolgoi	13.2	+7%	+0%	39.4	+5%
Refined copper					
Rio Tinto Kennecott	54.2	+1%	+33%	130.2	+25%
Escondida	16.6	-23%	-21%	58.5	+20%
Diamonds ('000 carats)					
Argyle	3,830	-19%	+10%	10,857	-1%
Diavik	1,066	-9%	-7%	3,280	-4%

Rio Tinto Kennecott

Mined copper production in the third quarter of 2018 was significantly higher than the third quarter of 2017 as mining activity continued in a higher grade area of the pit, coupled with productivity improvements and increased plant throughput. The production profile is expected to experience increased variation in grade as operations mine in lower levels of the pit, together with waste stripping related to the south wall pushback expansion. Anticipated south wall pushback grade increases beginning in late 2020 are expected to offset this impact over the longer term.

Refined copper was one per cent higher than the corresponding period of 2017, and 33 per cent above the second quarter of 2018 as better mine grades improved concentrate quality and smelting throughput.

Rio Tinto Kennecott continues to toll and purchase third party concentrate to optimise smelter utilisation, with 6.3 thousand tonnes of concentrate received for processing in the third quarter of 2018. Purchased and tolled copper concentrate are excluded from reported production figures.

The pushback of the south wall progressed during the quarter. It will extend the life of mine and remains on track for completion in 2020.

Escondida

Third quarter mined copper production at Escondida was six per cent higher than the same period of 2017, reflecting the ramp-up of Escondida production to nameplate capacity following commissioning of the Los Colorados concentrator, which occurred in the second half of 2017.

Oyu Tolgoi

Mined copper production from the open pit in the third quarter of 2018 was seven per cent higher than the corresponding period of 2017, with higher grades partly offset by lower plant throughput due to the processing of harder ore.

Oyu Tolgoi Underground Project

The project workforce reached 8,800 at the end of September, with an 89 per cent participation rate of Mongolian nationals. A ground breaking ceremony was held at site to mark the commencement of shaft three and shaft four earthworks. Work continues on shaft two equipping and on the conveyor to surface decline.

Following an annual re-forecast of the underground development schedule and costs, capital costs remain in line with the overall \$5.3 billion budget and construction of the first draw bell is still expected in mid-2020. The preliminary re-forecast assessment indicates ground conditions and shaft sinking challenges that are ultimately expected to result in a revised ramp-up schedule to sustainable first production.

In February 2018, the Southern Region Power Sector Co-operation Agreement under which Oyu Tolgoi was committed to working with the Government of Mongolia on a Tavan Tolgoi Independent Power Provider project was cancelled. As a result the Government of Mongolia expects Oyu Tolgoi to deliver a domestic power source for the operation within four years (by February 2022).

Oyu Tolgoi is progressing studies and preparations for suitable power solutions and continues to discuss the provision of domestic power with the Government of Mongolia.

On 15 October 2018, a loader caught fire while operating in the Oyu Tolgoi underground mine. All employees working underground at the time were evacuated safely.

Grasberg

On 28 September 2018, Rio Tinto signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum), Indonesia's state mining company, for \$3.5 billion. Separately, Inalum signed a binding agreement with Freeport-McMoRan Inc. (FCX) in relation to the future ownership and operation of the Grasberg mine.

The transaction and the Inalum/FCX transaction (which are inter-conditional) are each subject to a number of conditions precedent being satisfied, including the receipt of regulatory approvals. Subject to these conditions being met, completion of both transactions is expected to occur in the first half of 2019. The proceeds of the sale are to be paid in cash to Rio Tinto at closing, with the funds to be used for general corporate purposes.

Rio Tinto is reporting its metal share for the third quarter as zero.

Diamonds

At Argyle, carat production was 19 per cent lower than the third quarter of 2017, when production was enhanced by the processing of higher grade alluvial tailings.

At Diavik, carats recovered in the third quarter of 2018 were nine per cent lower than the corresponding period in 2017 due to lower grades. The A21 project successfully mined first ore in March 2018 and is expected to reach commercial production during the fourth quarter of 2018. This fourth diamond pipe was officially opened on 20 August 2018.

2018 guidance

Rio Tinto's expected share of mined copper production for 2018 is expected to be at the upper end of the previously published range of between 510 and 610 thousand tonnes. Refined copper production is expected to be between 225 to 265 thousand tonnes.

Diamond production guidance for 2018 is between 17 and 20 million carats.

ENERGY & MINERALS

Rio Tinto share of production

	Q3 2018	vs Q3 2017	vs Q2 2018	9 mths 2018	vs 9 mths 2017
Coal ('000 tonnes)					
Hard coking coal	712	-68%	-67%	3,988	-26%
Thermal coal (a)	397	-63%	-61%	2,527	-18%
Iron ore pellets and concentrate (million tonnes)					
IOC	2.9	-9%	+231%	6.1	-27%
Minerals ('000 tonnes)					
Borates – B ₂ O ₃ content	137	-2%	+4%	394	-1%
Salt	1,481	+21%	-11%	4,657	+31%
Titanium dioxide slag	297	-9%	+28%	822	-16%
Uranium ('000 lbs)					
Energy Resources of Australia	820	-15%	+36%	2,090	-18%
Rössing	994	+31%	+7%	2,771	+21%

(a) Production from Coal & Allied of 9.9 million tonnes (Rio Tinto share) prior to divestment on 1 September 2017 has been excluded from the comparisons above.

Coal

Production of coal attributable to Rio Tinto ceased following the completion of the sale of Rio Tinto's interests in Kestrel and Hail Creek on 1 August 2018. The sale of these assets, along with the Valeria coal and Winchester South development projects resulted in gross disposal proceeds of \$4.15 billion.

Iron Ore Company of Canada (IOC)

Following a labour dispute in the second quarter of 2018, IOC achieved a safe and successful re-start and ramp-up of operations to normal production rates by the end of June 2018. Third quarter pellet production was 3.0 million tonnes (Rio Tinto share 1.7 million tonnes) and concentrate production for sale was 1.9 million tonnes (Rio Tinto share 1.1 million tonnes). Total third quarter production was nine per cent lower than the corresponding quarter in 2017, due to maintenance and the commissioning of a productivity improvement project on the spiral plant, which temporarily restricted throughput.

Resulting sales achieved for the quarter were 5.4 million tonnes (Rio Tinto share 3.2 million tonnes) of concentrate and pellets.

Borates

Borates production was comparable to the previous quarter and the third quarter of 2017, with production aligned to customer demand.

Iron and Titanium (RTIT)

Titanium dioxide slag production for the quarter was nine per cent lower compared to the third quarter of 2017.

During the quarter, slag production at Richards Bay Minerals (RBM) continued to be impacted by ongoing labour disputes between contractors and their employees. On 9 July 2018, a serious incident occurred at RBM's mining operation, resulting in the fatality of a security contractor. The incident remains the subject of a police investigation. With Rio Tinto's highest priority being the safety of its people, operations at RBM were temporarily suspended, and a safe, optimised re-start was achieved. The force majeure on deliveries from RBM has now been lifted.

Following a deflagration of a furnace at Rio Tinto Fer et Titane Sorel-Tracy (RTFT) on 23 July 2018, three of nine furnaces at RTFT are idle, two of which are being rebuilt. One of four furnaces at RBM remains idle. The focus remains on maximising the productivity of the furnaces currently in operation, and a decision to re-start idle furnaces will be based on maximising value over volume.

Salt

Salt production in the third quarter of 2018 was 21 per cent higher than the same quarter of 2017 to align to demand.

Uranium

Energy Resources of Australia continues to process existing low grade stockpiles. Third quarter production was 15 per cent lower than the same period of 2017 due to declining grades and completion of laterite processing.

Production at Rössing in the third quarter of 2018 was 31 per cent higher than the corresponding quarter of 2017 due to higher mill grades.

2018 guidance

Coal production for 2018 is 4.0 million tonnes of hard coking coal and 2.5 million tonnes of thermal coal, reflecting the completion of the asset disposals.

At IOC, guidance for 2018 production remains at 9.0 to 10.0 million tonnes of iron ore pellets and concentrates.

Guidance for Rio Tinto's expected share of titanium dioxide slag production in 2018 remains at 1.1 to 1.2 million tonnes.

Guidance for Rio Tinto's expected share of boric oxide equivalent production in 2018 is unchanged at 0.5 million tonnes and guidance for uranium production in 2018 is unchanged at 6.2 to 7.2 million pounds.

EXPLORATION AND EVALUATION

Pre-tax and pre-divestment expenditure on exploration and evaluation charged to the profit and loss account in the first nine months of 2018 was \$341 million, compared with \$297 million in the first nine months of 2017. Approximately 46 per cent of this expenditure was incurred by central exploration, 37 per cent by Copper & Diamonds, eight per cent by Energy & Minerals and the remainder by Iron Ore and Aluminium.

There were no significant divestments of central exploration properties in the first half of 2018.

Exploration highlights

Rio Tinto has a strong portfolio of projects with activity in 16 countries across some eight commodities. The bulk of the exploration expenditure in this quarter was focused on copper targets in Australia, Canada, Chile, Kazakhstan, Mongolia, Namibia, Papua New Guinea, Peru, Serbia, Uganda, United States and Zambia. Mine-lease exploration continued at a number of Rio Tinto managed businesses including Pilbara Iron, RTFT, Oyu Tolgoi and Weipa.

A summary of activity for the quarter is as follows:

Product Groups	Studies stage	Advanced exploration projects	Greenfield/ Brownfield programmes
Aluminium	Cape York, Australia	Amargosa, Brazil Sanxai, Laos	Cape York, Australia
Copper & Diamonds	Copper/molybdenum: Resolution, US	Copper: La Granja, Peru Nickel: Tamarack, US Diamonds: FalCon (1), Canada	Copper: Australia, Chile, China, Kazakhstan, Mongolia, Namibia, Papua New Guinea, Peru, Serbia, US, Zambia Nickel: Canada, Uganda Diamonds: Canada
Energy & Minerals	Lithium borates: Jadar, Serbia Potash: KP405, Canada Heavy mineral sands: Mutamba, Mozambique and Zulti South, South Africa	Uranium: Roughrider, Canada	Heavy mineral sands: Canada, Tanzania
Iron Ore	Pilbara, Australia	Pilbara, Australia	

(1) Formerly Forte a la Corne

Forward-looking statements

This announcement may include "forward-looking statements" within the meaning of the US Private Securities Litigation Reform Act of 1995. All statements other than statements of historical facts included in this announcement, including, without limitation, those regarding Rio Tinto's production forecast or guidance, financial position, business strategy, plans and objectives of management for future operations (including development plans and objectives relating to Rio Tinto's products and reserve and resource positions), are forward-looking statements. The words "intend", "aim", "project", "anticipate", "estimate", "plan", "believes", "expects", "may", "should", "will", "target", "set to", "assumes" or similar expressions, commonly identify such forward looking statements.

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Nothing in this announcement should be interpreted to mean that future earnings per share of Rio Tinto plc or Rio Tinto Limited will necessarily match or exceed its historical published earnings per share.

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Rio Tinto production summary

Rio Tinto share of production

		Quarter			9 Months		% Change		
		2017 Q3	2018 Q2	2018 Q3	2017 9 MTHS	2018 9 MTHS	Q3 18 vs Q3 17	Q3 18 vs Q2 18	9 MTHS 18 vs 9 MTHS 17
Principal Commodities									
Alumina	('000 t)	1,984	1,999	1,972	6,055	5,960	-1%	-1%	-2%
Aluminium	('000 t)	887	858	880	2,664	2,584	-1%	3%	-3%
Bauxite	('000 t)	12,867	13,279	12,700	37,034	38,631	-1%	-4%	4%
Borates	('000 t)	140	132	137	396	394	-2%	4%	-1%
Coal - hard coking	('000 t)	2,244	2,174	712	5,382	3,988	-68%	-67%	-26%
Coal - thermal	('000 t)	1,076	1,011	397	3,099	2,527	-63%	-61%	-18%
Copper - mined	('000 t)	120.6	156.8	159.7	329.5	455.8	32%	2%	38%
Copper - refined	('000 t)	75.2	61.7	70.8	152.3	188.6	-6%	15%	24%
Diamonds	('000 cts)	5,933	4,626	4,896	14,420	14,137	-17%	6%	-2%
Iron Ore	('000 t)	72,903	72,336	72,010	206,828	215,782	-1%	0%	4%
Titanium dioxide slag	('000 t)	327	232	297	975	822	-9%	28%	-16%
Uranium	('000 lbs)	1,718	1,531	1,814	4,829	4,860	6%	19%	1%
Other Metals & Minerals									
Gold - mined	('000 oz)	59.1	82.8	101.4	197.5	253.7	72%	22%	28%
Gold - refined	('000 oz)	54.1	48.4	50.3	148.3	139.5	-7%	4%	-6%
Molybdenum	('000 t)	1.4	0.7	1.4	3.0	3.5	-4%	90%	16%
Salt	('000 t)	1,227	1,662	1,481	3,555	4,657	21%	-11%	31%
Silver - mined	('000 oz)	959	1,448	1,384	3,022	4,070	44%	-4%	35%
Silver - refined	('000 oz)	731	461	730	1,861	2,058	0%	58%	11%

Throughout this report, figures in italics indicate adjustments made since the figure was previously quoted on the equivalent page. Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

Rio Tinto share of production

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
ALUMINA								
Production ('000 tonnes)								
Jonquière (Vaudreuil)	100%	351	365	362	365	363	1,083	1,090
Jonquière (Vaudreuil) specialty Alumina plant	100%	30	29	31	32	31	93	95
Queensland Alumina	80%	720	773	717	752	748	2,216	2,216
São Luis (Alumar)	10%	94	93	87	87	85	276	259
Yarwun	100%	790	816	793	763	744	2,387	2,300
Rio Tinto total alumina production		1,984	2,077	1,990	1,999	1,972	6,055	5,960
ALUMINIUM								
Production ('000 tonnes)								
Australia - Bell Bay	100%	48	47	47	47	48	140	141
Australia - Boyne Island	59%	74	74	72	74	75	228	221
Australia - Tomago	52%	77	77	75	76	78	228	228
Canada - six wholly owned	100%	401	405	398	402	407	1,192	1,208
Canada - Alouette (Sept-Îles)	40%	60	60	58	58	59	179	175
Canada - Bécancour	25%	28	27	10	9	8	83	26
France - Dunkerque (a)	100%	71	72	51	52	66	212	170
Iceland - ISAL (Reykjavik)	100%	53	54	52	53	53	158	158
New Zealand - Tiwai Point	79%	67	67	66	67	68	200	200
Oman - Sohar	20%	7	5	17	19	20	45	56
Rio Tinto total aluminium production		887	887	846	858	880	2,664	2,584
(a) On 10 January 2018, Rio Tinto announced a binding offer to sell its 100% interest in the Dunkerque smelter.								
BAUXITE								
Production ('000 tonnes) (a)								
Gove	100%	2,809	3,224	3,124	3,274	2,893	7,977	9,290
Porto Trombetas	12%	492	426	353	393	342	1,338	1,087
Sangaredi	(b)	1,670	1,809	1,745	1,657	1,261	5,125	4,664
Weipa	100%	7,895	8,304	7,431	7,955	8,204	22,594	23,590
Rio Tinto total bauxite production		12,867	13,762	12,653	13,279	12,700	37,034	38,631

(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.

(b) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

Rio Tinto share of production

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
BORATES								
Production ('000 tonnes B₂O₃ content)								
Rio Tinto Borates - borates	100%	140	120	124	132	137	396	394
COAL - hard coking								
Rio Tinto Coal Australia ('000 tonnes)								
Hail Creek Coal (a) (c)	0%	1,276	1,275	758	1,131	325	3,028	2,214
Kestrel Coal (b) (c)	0%	968	1,048	344	1,043	387	2,354	1,774
Rio Tinto total hard coking coal production		2,244	2,322	1,102	2,174	712	5,382	3,988
(a) On 1 August 2018, Rio Tinto completed the sale of its 82% interest in the Hail Creek mine. Production is reported up to the date of completion.								
(b) On 1 August 2018, Rio Tinto completed the sale of its 80% interest in the Kestrel mine. Production is reported up to the date of completion.								
(c) Kestrel and Hail Creek produce hard coking coal and thermal coal through their mining operations. Both mines may blend coal types at ports.								
COAL - thermal								
Rio Tinto Coal Australia ('000 tonnes)								
Hail Creek Coal (a) (c)	0%	851	785	1,060	835	368	2,605	2,264
Kestrel Coal (b) (c)	0%	226	180	59	176	28	494	263
Rio Tinto total thermal coal production		1,076	966	1,119	1,011	397	3,099	2,527
(a) On 1 August 2018, Rio Tinto completed the sale of its 82% interest in the Hail Creek mine. Production is reported up to the date of completion.								
(b) On 1 August 2018, Rio Tinto completed the sale of its 80% interest in the Kestrel mine. Production is reported up to the date of completion.								
(c) Kestrel and Hail Creek produce hard coking coal and thermal coal through their mining operations. Both mines may blend coal types at ports.								

Rio Tinto share of production

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
COPPER								
Mine production ('000 tonnes) (a)								
Bingham Canyon	100%	25.8	34.8	35.4	51.2	59.1	114.0	145.7
Escondida	30%	82.5	92.9	90.9	92.4	87.4	177.9	270.7
Grasberg - Joint Venture (b)	40%	0.0	5.7	0.0	0.0	0.0	0.0	0.0
Oyu Tolgoi (c)	34%	12.4	15.2	13.0	13.2	13.2	37.6	39.4
Rio Tinto total mine production		120.6	148.6	139.3	156.8	159.7	329.5	455.8
Refined production ('000 tonnes)								
Escondida	30%	21.6	22.8	20.8	21.0	16.6	48.6	58.5
Rio Tinto Kennecott	100%	53.6	22.1	35.3	40.7	54.2	103.7	130.2
Rio Tinto total refined production		75.2	44.9	56.1	61.7	70.8	152.3	188.6

(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.

(b) Through a joint venture agreement with Freeport-McMoRan (FCX), Rio Tinto is entitled to 40% of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. On 28 September 2018, Rio Tinto signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum).

(c) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.

DIAMONDS								
Production ('000 carats)								
Argyle	100%	4,757	6,146	3,551	3,476	3,830	10,988	10,857
Diavik	60%	1,177	1,060	1,065	1,150	1,066	3,432	3,280
Rio Tinto total diamond production		5,933	7,207	4,616	4,626	4,896	14,420	14,137

GOLD								
Mine production ('000 ounces) (a)								
Bingham Canyon	100%	33.6	35.9	37.4	45.6	56.6	142.1	139.6
Escondida	30%	15.2	15.1	18.0	20.5	19.1	28.8	57.6
Grasberg - Joint Venture (b)	40%	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oyu Tolgoi (c)	34%	10.4	11.7	14.0	16.8	25.8	26.7	56.6
Rio Tinto total mine production		59.1	62.6	69.4	82.8	101.4	197.5	253.7
Refined production ('000 ounces)								
Rio Tinto Kennecott	100%	54.1	55.4	40.8	48.4	50.3	148.3	139.5

(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.

(b) Through a joint venture agreement with Freeport-McMoRan (FCX), Rio Tinto is entitled to 40% of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. On 28 September 2018, Rio Tinto signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum).

(c) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.

Rio Tinto share of production

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
IRON ORE								
Production ('000 tonnes) (a)								
Hamersley mines	(b)	52,921	56,501	53,631	56,034	54,583	150,259	164,248
Hamersley - Channar	60%	1,596	1,345	1,136	1,227	604	5,134	2,967
Hope Downs	50%	5,978	5,987	5,342	5,783	5,713	17,483	16,839
Iron Ore Company of Canada	59%	3,171	2,733	2,364	871	2,880	8,433	6,116
Robe River - Pannawonica (Mesas J and A)	53%	4,461	4,580	4,672	4,048	4,208	11,946	12,928
Robe River - West Angelas	53%	4,776	4,509	4,290	4,373	4,021	13,573	12,685
Rio Tinto iron ore production ('000 tonnes)		72,903	75,656	71,436	72,336	72,010	206,828	215,782
Breakdown of Production:								
Pilbara Blend Lump		20,700	21,082	20,714	21,901	20,554	59,687	63,169
Pilbara Blend Fines		30,113	31,172	29,769	31,239	29,921	85,187	90,930
Robe Valley Lump		1,570	1,646	1,587	1,431	1,470	4,482	4,488
Robe Valley Fines		2,891	2,934	3,086	2,617	2,738	7,465	8,441
Yandicoogina Fines (HIY)		14,458	16,088	13,916	14,277	14,446	41,575	42,639
Pilbara iron ore production ('000 tonnes)		69,732	72,922	69,072	71,465	69,129	198,395	209,666
IOC Concentrate		1,450	1,163	799	572	1,131	3,858	2,501
IOC Pellets		1,722	1,571	1,566	299	1,750	4,576	3,615
IOC iron ore production ('000 tonnes)		3,171	2,733	2,364	871	2,880	8,433	6,116
Breakdown of Sales:								
Pilbara Blend Lump		18,044	18,861	18,062	19,424	17,967	52,295	55,453
Pilbara Blend Fines		32,421	35,575	30,746	35,158	31,432	91,697	97,336
Robe Valley Lump		1,391	1,388	1,223	1,264	1,174	3,829	3,661
Robe Valley Fines		3,174	3,287	2,996	3,255	2,839	7,917	9,089
Yandicoogina Fines (HIY)		14,963	15,731	13,578	14,388	14,583	41,454	42,549
Pilbara iron ore sales ('000 tonnes)		69,993	74,843	66,604	73,489	67,995	197,191	208,088
IOC Concentrate		1,362	1,559	746	62	1,521	3,494	2,329
IOC Pellets		1,590	1,615	1,574	202	1,659	4,493	3,435
IOC Iron ore sales ('000 tonnes)		2,952	3,173	2,320	263	3,180	7,987	5,763
Rio Tinto iron ore sales ('000 tonnes)		72,944	78,016	68,925	73,752	71,175	205,179	213,851

(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.

(b) Includes 100% of production from Paraburdoo, Mt Tom Price, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass and the Eastern Range mines. Whilst Rio Tinto owns 54% 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.

Rio Tinto share of production

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
MOLYBDENUM								
Mine production ('000 tonnes) (a)								
Bingham Canyon	100%	1.4	1.9	1.5	0.7	1.4	3.0	3.5
(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.								
SALT								
Production ('000 tonnes)								
Dampier Salt	68%	1,227	1,535	1,514	1,662	1,481	3,555	4,657
SILVER								
Mine production ('000 ounces) (a)								
Bingham Canyon	100%	357	418	461	615	708	1,737	1,784
Escondida	30%	521	658	702	758	599	1,054	2,059
Grasberg - Joint Venture (b)	40%	0	0	0	0	0	0	0
Oyu Tolgoi (c)	34%	80	96	74	75	77	231	227
Rio Tinto total mine production		959	1,172	1,237	1,448	1,384	3,022	4,070
Refined production ('000 ounces)								
Rio Tinto Kennecott	100%	731	516	867	461	730	1,861	2,058
(a) 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 represent production of marketable quantities of ore plus concentrates and pellets.								
(b) Through a joint venture agreement with Freeport-McMoRan (FCX), Rio Tinto is entitled to 40% of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. On 28 September 2018, Rio Tinto signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum).								
(c) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources Ltd.								
TITANIUM DIOXIDE SLAG								
Production ('000 tonnes)								
Rio Tinto Iron & Titanium (a)	100%	327	341	294	232	297	975	822
(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals (RBM).								
URANIUM								
Production ('000 lbs U₃O₈) (a)								
Energy Resources of Australia	68%	962	919	667	603	820	2,539	2,090
Rössing	69%	757	902	848	928	994	2,290	2,771
Rio Tinto total uranium production		1,718	1,821	1,515	1,531	1,814	4,829	4,860

(a) ERA and Rössing production reported are drummed U₃O₈.

Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result between the total of the quarter figures and the year to date figures.

The Rio Tinto percentage shown above is at 30 September 2018.

Rio Tinto's interest in the Coal and Allied mines were sold in 2017. No data for these operations are included in the Share of production table.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
ALUMINA								
Smelter Grade Alumina - Aluminium Group								
Alumina production ('000 tonnes)								
<i>Australia</i>								
Queensland Alumina Refinery - Queensland	80.0%	900	966	896	940	935	2,769	2,770
Yarwun refinery - Queensland	100.0%	790	816	793	763	744	2,387	2,300
<i>Brazil</i>								
São Luis (Alumar) refinery	10.0%	937	934	871	869	851	2,763	2,592
<i>Canada</i>								
Jonquière (Vaudreuil) refinery - Quebec (a)	100.0%	351	365	362	365	363	1,083	1,090
<i>(a) Jonquière's (Vaudreuil's) production shows smelter grade alumina only and excludes hydrate produced and used for specialty alumina.</i>								
Specialty Alumina - Aluminium Group								
Specialty alumina production ('000 tonnes)								
<i>Canada</i>								
Jonquière (Vaudreuil) plant – Quebec	100.0%	30	29	31	32	31	93	95
Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.								

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
ALUMINIUM								
Primary Aluminium								
Primary aluminium production ('000 tonnes)								
<i>Australia</i>								
Bell Bay smelter - Tasmania	100.0%	48	47	47	47	48	140	141
Boyne Island smelter - Queensland	59.4%	125	124	122	124	126	384	371
Tomago smelter - New South Wales	51.6%	149	149	145	148	151	441	443
<i>Canada</i>								
Alma smelter - Quebec	100.0%	115	116	115	116	117	341	347
Alouette (Sept-Îles) smelter - Quebec	40.0%	150	150	144	146	148	448	438
Arvida smelter - Quebec	100.0%	43	44	43	43	43	127	129
Arvida AP60 smelter - Quebec	100.0%	14	14	13	13	13	44	39
Bécancour smelter - Quebec	25.1%	113	108	39	35	32	331	105
Grande-Baie smelter - Quebec	100.0%	58	58	57	58	59	172	174
Kitimat smelter - British Columbia	100.0%	108	110	108	109	110	323	327
Laterrière smelter - Quebec	100.0%	63	64	63	64	65	185	191
<i>France</i>								
Dunkerque smelter (a)	100.0%	71	72	51	52	66	212	170
<i>Iceland</i>								
ISAL (Reykjavik) smelter	100.0%	53	54	52	53	53	158	158
<i>New Zealand</i>								
Tiwai Point smelter	79.4%	84	85	83	84	85	252	252
<i>Oman</i>								
Sohar smelter	20.0%	35	27	87	97	98	226	281

(a) On 10 January 2018, Rio Tinto announced a binding offer to sell its 100% interest in the Dunkerque smelter.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
BAUXITE								
Bauxite production ('000 tonnes)								
<i>Australia</i>								
Gove mine - Northern Territory	100.0%	2,809	3,224	3,124	3,274	2,893	7,977	9,290
Weipa mine - Queensland	100.0%	7,895	8,304	7,431	7,955	8,204	22,594	23,590
<i>Brazil</i>								
Porto Trombetas (MRN) mine	12.0%	4,103	3,550	2,939	3,273	2,848	11,148	9,061
<i>Guinea</i>								
Sangaredi mine (a)	23.0%	3,711	4,020	3,878	3,683	2,803	11,390	10,364
Rio Tinto share of bauxite shipments								
Share of total bauxite shipments ('000 tonnes)		12,913	13,557	12,551	12,936	12,427	36,683	37,914
Share of third party bauxite shipments ('000 tonnes)		8,250	9,164	8,248	8,738	8,441	23,140	25,427

(a) Rio Tinto has a 22.95% shareholding in the Sangaredi mine but benefits from 45.0% of production.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
BORATES								
Rio Tinto Borates - borates	100.0%							
<i>US</i>								
Borates ('000 tonnes) (a)		140	120	124	132	137	396	394
<i>(a) Production is expressed as B₂O₃ content.</i>								
COAL								
Rio Tinto Coal Australia								
Hail Creek Coal mine (a)	0.0%							
<i>Queensland</i>								
Hard coking coal ('000 tonnes)		1,556	1,555	924	1,380	396	3,692	2,700
Thermal coal ('000 tonnes)		1,037	958	1,293	1,018	449	3,177	2,760
Hunter Valley Operations (b)	0.0%							
<i>New South Wales</i>								
Semi-soft coking coal ('000 tonnes)		445	-	-	-	-	1,529	-
Thermal coal ('000 tonnes)		2,112	-	-	-	-	8,502	-
Kestrel Coal mine (c)	0.0%							
<i>Queensland</i>								
Hard coking coal ('000 tonnes)		1,210	1,309	430	1,303	484	2,943	2,217
Thermal coal ('000 tonnes)		282	226	74	220	35	617	329
Mount Thorley Operations (b)	0.0%							
<i>New South Wales</i>								
Semi-soft coking coal ('000 tonnes)		149	-	-	-	-	876	-
Thermal coal ('000 tonnes)		703	-	-	-	-	2,011	-

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
COAL (continued)								
Warkworth mine (b)	0.0%							
<i>New South Wales</i>								
Semi-soft coking coal ('000 tonnes)		44	-	-	-	-	514	-
Thermal coal ('000 tonnes)		1,305	-	-	-	-	4,521	-
Total hard coking coal production ('000 tonnes)		2,766	2,864	1,354	2,683	880	6,635	4,917
Total semi-soft coking coal production ('000 tonnes)		639	-	-	-	-	2,919	-
Total thermal coal production ('000 tonnes)		5,439	1,183	1,367	1,238	485	18,827	3,089
Total coal production ('000 tonnes)		8,844	4,047	2,721	3,921	1,365	28,382	8,007
Total coal sales ('000 tonnes)		9,298	4,092	3,050	3,717	1,725	27,962	8,492
Rio Tinto Coal Australia share (d)								
Share of hard coking coal sales ('000 tonnes)		2,511	2,429	1,368	2,228	650	5,753	4,246
Share of semi-soft coal sales ('000 tonnes) (e)		485	-	-	-	-	2,010	-
Share of thermal coal sales ('000 tonnes) (e)		3,804	896	1,119	791	754	12,289	2,664

(a) On 1 August 2018, Rio Tinto completed the sale of its 82% interest in the Hail Creek mine. Production is reported up to the date of completion.

(b) 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% interest in the Hunter Valley Operations mine, 80% interest in the Mount Thorley mine and 55.6% interest in the Warkworth mine. In an earlier restructuring of the Coal & Allied group completed on 3 February 2016, Rio Tinto had obtained 100% of Coal & Allied and retained a 67.6% 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%, 64% and 44.46% respectively.

(c) On 1 August 2018, Rio Tinto completed the sale of its 80% interest in the Kestrel mine. Production is reported up to the date of completion.

(d) Kestrel and Hail Creek produce hard coking coal and thermal coal through their mining operations. Both mines may blend coal types at ports.

(e) Sales relate only to coal mined by the operations and exclude traded coal.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
COPPER & GOLD								
Escondida	30.0%							
<i>Chile</i>								
Sulphide ore to concentrator ('000 tonnes)		24,080	30,260	32,203	31,732	30,513	50,911	94,449
Average copper grade (%)		1.06	0.98	0.96	0.96	0.94	1.06	0.95
Mill production (metals in concentrates):								
Contained copper ('000 tonnes)		204.1	245.7	252.6	253.6	241.9	438.8	748.1
Contained gold ('000 ounces)		51	50	60	68	64	96	192
Contained silver ('000 ounces)		1,737	2,193	2,339	2,527	1,997	3,514	6,863
Recoverable copper in ore stacked for leaching ('000 tonnes) (a)		70.8	63.9	50.4	54.4	49.4	154.3	154.2
Refined production from leach plants:								
Copper cathode production ('000 tonnes)		71.9	76.1	69.4	70.1	55.4	161.9	194.9
<i>(a) The calculation of copper in material mined for leaching is based on ore stacked at the leach pad.</i>								
Freeport-McMoRan								
Grasberg mine (a)	0.0% (b)							
<i>Papua, Indonesia</i>								
Ore treated ('000 tonnes)		15,791	16,381	15,625	17,101	17,647	34,881	50,372
Average mill head grades:								
Copper (%)		0.91	1.03	1.12	1.06	0.94	1.00	1.03
Gold (g/t)		0.98	1.28	1.63	1.77	1.59	1.08	1.67
Silver (g/t)		3.96	4.36	4.68	5.09	2.50	4.29	4.05
Production of metals in concentrates:								
Copper in concentrates ('000 tonnes)		130.1	153.2	159.9	165.7	146.6	315.0	472.1
Gold in concentrates ('000 ounces)		417	579	693	842	769	1,023	2,304
Silver in concentrates ('000 ounces)		1,016	1,293	1,513	1,548	839	2,583	3,900
Sales of payable metals in concentrates: (c)								
Copper in concentrates ('000 tonnes)		109.6	154.3	157.4	145.3	156.1	295.9	458.8
Gold in concentrates ('000 ounces)		343	584	676	740	821	956	2,238
Silver in concentrates ('000 ounces)		666	1,044	1,184	1,098	754	1,920	3,036

(a) Through a joint venture agreement with Freeport-McMoRan (FCX), Rio Tinto is entitled to 40% of additional material mined as a consequence of expansions and developments of the Grasberg facilities since 1998. The Q3 2018 results show the forecast from FCX's most recent five-year plan, because FCX is not releasing its actual 100% operating data for Q3 2018 until the release of its 2018 third-quarter results on 24 October 2018. On 28 September 2018, Rio Tinto signed a binding agreement to sell its entire interest in the Grasberg mine in Indonesia to PT Indonesia Asahan Aluminium (Persero) (Inalum).

(b) Rio Tinto share of Grasberg production is 40% of the expansion.

(c) Net of smelter deductions.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
COPPER & GOLD (continued)								
Rio Tinto Kennecott								
Bingham Canyon mine	100.0%							
<i>Utah, US</i>								
Ore treated ('000 tonnes)		10,092	9,074	9,260	8,974	11,173	30,309	29,407
Average ore grade:								
Copper (%)		0.29	0.43	0.43	0.63	0.58	0.42	0.55
Gold (g/t)		0.18	0.21	0.23	0.26	0.26	0.26	0.25
Silver (g/t)		1.51	1.89	2.25	2.73	2.62	2.46	2.53
Molybdenum (%)		0.032	0.036	0.025	0.025	0.030	0.028	0.027
Copper concentrates produced ('000 tonnes)		148	162	171	194	233	542	598
Average concentrate grade (% Cu)		17.3	21.5	20.7	26.4	25.3	21.0	24.3
Production of metals in copper concentrates:								
Copper ('000 tonnes) (a)		25.8	34.8	35.4	51.2	59.1	114.0	145.7
Gold ('000 ounces)		34	36	37	46	57	142	140
Silver ('000 ounces)		357	418	461	615	708	1,737	1,784
Molybdenum concentrates produced ('000 tonnes):		2.8	3.8	2.8	1.5	2.8	6.0	7.0
Molybdenum in concentrates ('000 tonnes)		1.4	1.9	1.5	0.7	1.4	3.0	3.5
Kennecott smelter & refinery								
	100.0%							
Copper concentrates smelted ('000 tonnes)		258	90	200	224	246	554	670
Copper anodes produced ('000 tonnes) (b)		50.6	12.1	42.4	44.4	58.1	117.0	144.9
Production of refined metal:								
Copper ('000 tonnes)		53.6	22.1	35.3	40.7	54.2	103.7	130.2
Gold ('000 ounces) (c)		54.1	55.4	40.8	48.4	50.3	148.3	139.5
Silver ('000 ounces) (c)		731	516	867	461	730	1,861	2,058

(a) Includes a small amount of copper in precipitates.

(b) New metal excluding recycled material.

(c) Includes gold and silver in intermediate products.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
COPPER & GOLD (continued)								
Turquoise Hill Resources								
Oyu Tolgoi mine (a)	33.5%							
<i>Mongolia</i>								
Ore Treated ('000 tonnes)		10,615	10,838	9,561	10,164	9,652	30,339	29,377
Average mill head grades:								
Copper (%)		0.48	0.53	0.51	0.48	0.51	0.50	0.50
Gold (g/t)		0.18	0.20	0.25	0.26	0.38	0.16	0.29
Silver (g/t)		1.34	1.54	1.32	1.17	1.19	1.34	1.22
Copper concentrates produced ('000 tonnes)		170.0	205.5	177.3	178.8	179.8	517.0	535.9
Average concentrate grade (% Cu)		21.7	22.0	21.9	22.0	21.9	21.7	21.9
Production of metals in concentrates:								
Copper in concentrates ('000 tonnes)		36.9	45.3	38.8	39.4	39.4	112.1	117.6
Gold in concentrates ('000 ounces)		30.9	34.8	41.8	50.0	77.0	79.5	168.8
Silver in concentrates ('000 ounces)		239	285	221	225	230	689	676
Sales of metals in concentrates:								
Copper in concentrates ('000 tonnes)		36.9	35.7	34.3	46.1	36.0	113.6	116.4
Gold in concentrates ('000 ounces)		28	27	31	51	55	84	137
Silver in concentrates ('000 ounces)		229	205	206	250	201	656	657

(a) Rio Tinto owns a 33.52% indirect interest in Oyu Tolgoi through its 50.79% interest in Turquoise Hill Resources.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
DIAMONDS								
Argyle Diamonds	100.0%							
<i>Western Australia</i>								
AK1 ore processed ('000 tonnes)		1,255	1,446	1,260	1,428	1,465	3,511	4,153
AK1 diamonds produced ('000 carats)		4,757	6,146	3,551	3,476	3,830	10,988	10,857
Diavik Diamonds	60.0%							
<i>Northwest Territories, Canada</i>								
Ore processed ('000 tonnes)		578	525	556	652	670	1,664	1,879
Diamonds recovered ('000 carats)		1,961	1,767	1,774	1,916	1,776	5,719	5,467

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
IRON ORE								
Rio Tinto Iron Ore								
<i>Western Australia</i>								
Pilbara Operations								
Saleable iron ore production ('000 tonnes)								
Hamersley mines	(a)	52,921	56,501	53,631	56,034	54,583	150,259	164,248
Hamersley - Channar	60.0%	2,661	2,241	1,893	2,045	1,007	8,557	4,945
Hope Downs	50.0%	11,956	11,975	10,685	11,567	11,426	34,966	33,677
Robe River - Pannawonica (Mesas J and A)	53.0%	8,416	8,642	8,816	7,637	7,940	22,540	24,393
Robe River - West Angelas	53.0%	9,011	8,507	8,094	8,252	7,587	25,609	23,933
Total production ('000 tonnes)		84,965	87,866	83,120	85,534	82,542	241,931	251,196
Breakdown of total production:								
Pilbara Blend Lump		25,342	25,496	24,831	26,253	24,461	73,631	75,545
Pilbara Blend Fines		36,748	37,641	35,556	37,368	35,696	104,185	108,620
Robe Valley Lump		2,962	3,106	2,993	2,699	2,774	8,456	8,467
Robe Valley Fines		5,454	5,535	5,823	4,937	5,166	14,084	15,926
Yandicoogina Fines (HIY)		14,458	16,088	13,916	14,277	14,446	41,575	42,639
Breakdown of total sales:								
Pilbara Blend Lump		21,959	22,377	21,457	22,954	21,644	63,682	66,054
Pilbara Blend Fines		40,305	43,039	37,320	42,638	38,100	112,856	118,058
Robe Valley Lump		2,624	2,619	2,307	2,386	2,215	7,224	6,908
Robe Valley Fines		5,989	6,202	5,652	6,141	5,356	14,938	17,149
Yandicoogina Fines (HIY)		14,963	15,731	13,578	14,388	14,583	41,454	42,549
Total sales ('000 tonnes) (b)		85,840	89,968	80,314	88,506	81,898	240,153	250,718
(a) Includes 100% of production from Paraburdoo, Mt Tom Price, Marandoo, Yandicoogina, Brockman, Nammuldi, Silvergrass and the Eastern Range mines. Whilst Rio Tinto owns 54% 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.								
(b) Sales represent iron ore exported from Western Australian ports.								
Iron Ore Company of Canada								
	58.7%							
<i>Newfoundland & Labrador and Quebec in Canada</i>								
Saleable iron ore production:								
Concentrates ('000 tonnes)		2,469	1,980	1,360	974	1,926	6,569	4,260
Pellets ('000 tonnes)		2,932	2,675	2,667	510	2,979	7,792	6,156
IOC Total production ('000 tonnes)		5,401	4,655	4,027	1,484	4,905	14,362	10,416
Sales:								
Concentrates ('000 tonnes)		2,319	2,655	1,271	105	2,590	5,950	3,966
Pellets ('000 tonnes)		2,707	2,750	2,681	343	2,825	7,652	5,849
IOC Total Sales ('000 tonnes)		5,027	5,404	3,951	449	5,415	13,602	9,815
Global Iron Ore Totals								
Iron Ore Production ('000 tonnes)		90,365	92,521	87,146	87,018	87,448	256,293	261,612
Iron Ore Sales ('000 tonnes)		90,867	95,373	84,265	88,954	87,314	253,755	260,533

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.

Rio Tinto operational data

	Rio Tinto interest	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	9 MTHS 2017	9 MTHS 2018
SALT								
Dampier Salt	68.4%							
<i>Western Australia</i>								
Salt production ('000 tonnes)		1,795	2,246	2,215	2,431	2,167	5,200	6,813
TITANIUM DIOXIDE SLAG								
Rio Tinto Iron & Titanium	100.0%							
<i>Canada and South Africa</i>								
<i>(Rio Tinto share) (a)</i>								
Titanium dioxide slag ('000 tonnes)		327	341	294	232	297	975	822

(a) Quantities comprise 100% of Rio Tinto Fer et Titane and Rio Tinto's 74% interest in Richards Bay Minerals' production. Ilmenite mined in Madagascar is being processed in Canada.

URANIUM								
Energy Resources of Australia Ltd								
Ranger mine (a)	68.4%							
<i>Northern Territory, Australia</i>								
U ₃ O ₈ Production ('000 lbs)		1,407	1,343	975	881	1,199	3,713	3,056
<i>(a) ERA production data are drummed U₃O₈.</i>								
Rössing Uranium Ltd (a)	68.6%							
<i>Namibia</i>								
U ₃ O ₈ Production ('000 lbs)		1,103	1,314	1,236	1,352	1,449	3,337	4,038

(a) Rössing production data are drummed U₃O₈.

Rio Tinto percentage interest shown above is at 30 September 2018. The data represent full production and sales on a 100% basis unless otherwise stated.