

COMMODITY Insights Bulletin

Fe
IRON ORE

December 2015

Iron Ore (Q2, 2015–Q3, 2015)

Insight

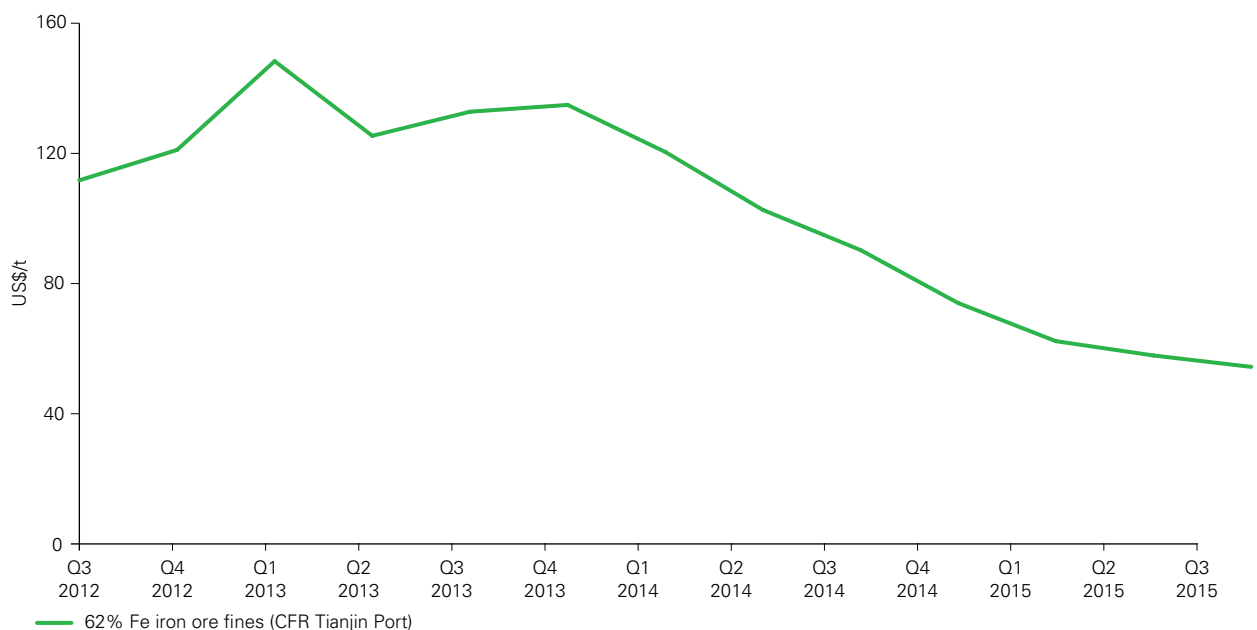
In the short-term, the ongoing increase in low-cost supply will continue to put pressure on the price of iron ore as it outstrips the increase in demand. Consequently, many higher cost producers are likely to shut down operations and this will drive some, but not a significant, reduction in the supply of iron ore. Medium and long-term, the expectation is that low-cost supply will continue to be higher than demand as a number of low-cost iron ore expansion projects, principally in Australia and Brazil, will be finalized and production ramped up. There should be less volatility in iron ore prices in 2016 than there has been in 2014 and 2015 and any price increases will be gradual.

The iron ore industry continues to wait for the pricing scenario to improve, but, as of yet, it has not occurred.

“Many higher cost producers are likely to shut down operations and this will drive some, but not a significant, reduction in the supply of iron ore.”

Pieter van Dijk
KPMG in Brazil

Figure 1: Spot prices of China's iron ore imports (Q3, 2012–Q3, 2015)



Source: IMF Primary Commodity Prices, International Monetary Fund, <http://www.imf.org/external/np/res/commmod/index.aspx>, accessed November 2015

Price outlook¹

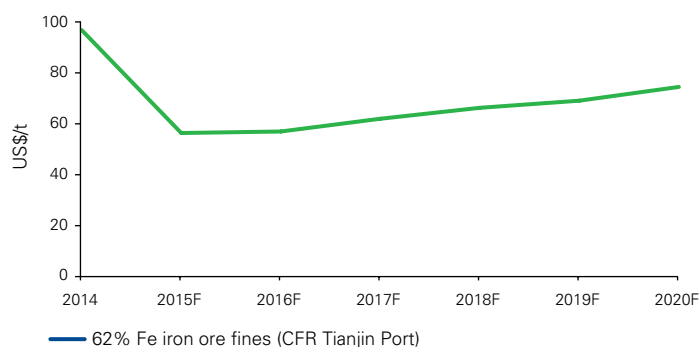
Iron ore prices for 62 percent fines Fe (CFR Tianjin Port) witnessed a 44 percent decline over Q1, 2015–Q3, 2015, as compared with the average prices over Q1, 2014–Q3, 2014. The decline in steel production in China and oversupply, through increased production in Australia and Brazil, resulted in the lower iron ore prices during H2, 2015. In Q2, 2015, iron ore spot prices declined about 43 percent year-on-year (y-o-y), however, the prices recovered during July and August and remained stable at about US\$54/t in Q3, 2015.^{2,3}

The Chinese stock market crash had a direct impact on the iron ore prices during Q3, 2015. China has been an engine of global growth and it has displayed an appetite for commodities. Any decline in the country's commodity consumption will have a direct and adverse effect on supplier countries such as Australia and Brazil.^{4,5}

China is considered the biggest producer of steel and the largest consumer of seaborne iron ore. Domestic iron ore is typically low-grade in China and needs to be crushed and concentrated to improve the quality. China's domestic iron concentrate, which contains around 66 percent iron ore, attracts a price premium of around US\$36/t (average in 2015). This is expected to encourage China's steel industry to recover from decreasing prices by increasing their use of cheaper seaborne iron ore. In the event of continued market-based reforms by the Chinese government, domestic production of iron ore may fall, which could increase dependence on imports and thus, could help recover the seaborne price of iron ore over the medium-term.^{6,7}

In 2016, the average iron prices are forecast to remain stable at about US\$56–57/t. Over the period, some of the high cost iron ore producers are expected to close down, resulting in a decline in steel production from key regions. Further, the net increase in iron ore supply is expected to keep downward pressure on prices in the seaborne market over the medium-term. In addition to this, the currency depreciation of major iron ore producing countries against the US dollar would help maintain cash margins, since the iron ore price is denominated in US dollars, and may delay cuts to supply.⁸

Figure 2: Prices of iron ore (2014–20F)

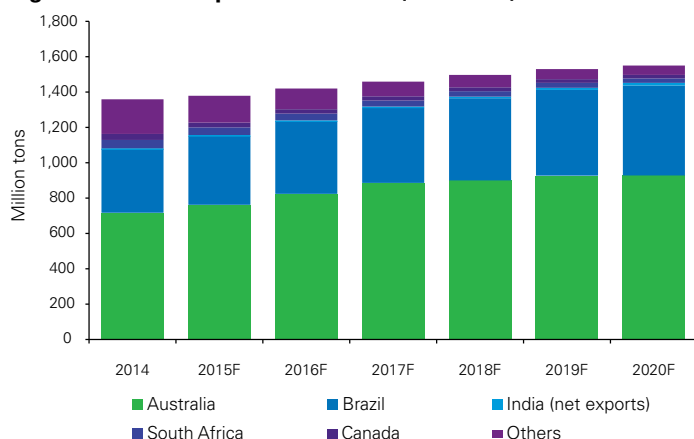


Source: JP Morgan, Steel and Iron ore — exploring the impact of China hitting peak steel, 5 October 2015; Morgan Stanley, “Steel — Iron Ore and Coal Primer”, 14 September 2015; RBC Capital Markets, “Diversified Metals & Mining — Iron ore and coal price revisions: Iron ore resilience unlikely to last”, 13 September 2015; “Macquarie Research, Rio Tinto — Iron Ore Seminar highlights”, 3 September 2015; Morgan Stanley Research — The Commodity Manual, 10 August 2015; Deutsche Bank — Commodity price review — LT iron ore cut 17%, d/g Mitsui & Co. to Hold, 14 July 2015; Société Générale, “Metals and Mining — Iron ore: managing the excess”, 8 June 2015; via Thomson Research, accessed November 2015

Supply and demand⁹

Supply

Figure 3: Global exports of iron ore (2014–20F)



Source: “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

— In 2015, Australia's iron ore exports are forecast to increase by approximately 6 percent to 762 million tons (Mt) largely due to increased supply capacity. The major Pilbara miners have increased output and have showed that they may continue to do so over the short- to medium-term. The quarterly reports of most major producers indicate that the current environment of low prices is unlikely to impact production, as the Pilbara iron ore miners are among the world's cheapest producers. However, the low commodity prices will continue to encourage Australian iron ore miners to reduce costs and enhance productivity. Infrastructure improvements, particularly to rail and ports, and the start of production at Roy Hill are expected to support this growth.

— Over the outlook period, the growth in Australia's iron ore exports are projected to remain slow, from 15 percent annual growth recorded between 2010 and 2014 to about 4 percent a year over the medium-term.^{10,11}

¹ JP Morgan, Steel and Iron ore — exploring the impact of China hitting peak steel, 5 October 2015; Morgan Stanley — Steel — Iron Ore and Coal Primer, 14 September 2015; RBC Capital Markets — Diversified Metals & Mining — Iron ore and coal price revisions: Iron ore resilience unlikely to last, 13 September 2015; Macquarie Research, Rio Tinto — Iron Ore Seminar highlights, 3 September 2015; Morgan Stanley Research — The Commodity Manual, 10 August 2015; Deutsche Bank — Commodity price review — LT iron ore cut 17%, d/g Mitsui & Co. to Hold, 14 July 2015; Société Générale, “Metals and Mining — Iron ore: managing the excess”, 8 June 2015; via Thomson Research, accessed November 2015

² “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

³ “Business Standard, “Global iron ore prices to tumble to US\$50 by December”, http://www.business-standard.com/article/markets/global-iron-ore-prices-to-tumble-to-50-by-december-115100800805_1.html, 8 October 2015, accessed 4 November 2015

⁴ “CNN Money, “China fears crash into gold, copper markets”, <http://money.cnn.com/2015/07/07/investing/china-gold-copper-greece/index.html?iid=EL>, 7 July 2015, accessed 4 November 2015

⁵ “International Business Times, “China stock market crash explained in 90 seconds”, <http://www.ibtimes.co.uk/china-stock-market-crash-explained-90-seconds-1516957>, 25 August 2015, accessed 4 November 2015

⁶ “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

⁷ Reuters, “Iron ore under pressure from weak China steel demand”, <http://in.reuters.com/article/2015/09/17/markets-ironore-idINL4N11N1DH20150917>, 17 September 2015, accessed 4 November 2015

⁸ “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

⁹ “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

¹⁰ “Resources and Energy Quarterly”, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

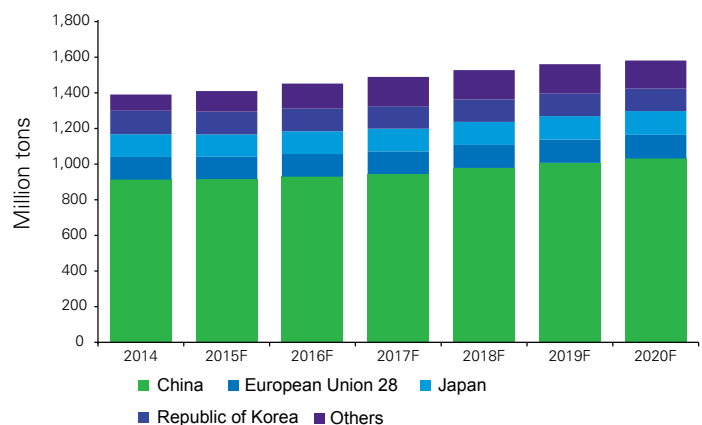
¹¹ Bloomberg, “Iron Ore Seen Back Below US\$50 as Australia Increases Supply”, <http://www.bloomberg.com/news/articles/2015-08-31/iron-ore-price-seen-back-below-50-as-australia-expands-supply>, 31 August 2015, accessed 4 November 2015

- In 2015, Brazil's iron ore exports are forecast to increase 7 percent to 390Mt, backed by increased production in the Carajás region. Brazil's exports of iron ore received a boost in June 2015 after China's transport ministry announced that Vale's 400,000 dead weight tons Valemax vessel could dock at several ports, including Qingdao, Dalian, Tangshan and Ningbo. According to Vale's estimates, the use of Valemax should reduce shipping costs by about US\$4–6/ton.
- Over the outlook period, Brazil's iron ore exports are projected to increase about 5 percent a year to 509Mt in 2020. The increment is propped by improved infrastructure (primarily in the northern Carajás region) and the start of production at the Serra Sul (S11D) mine, which is scheduled to begin in late 2016. The Serra Sul, once fully operational, is expected to be one of the lowest-cost iron ore producer mines in the world, and given the quality of the iron ore, it is likely to be profitable in an environment of low prices.^{12,13}
- The recent collapse of a mining dam at Samarco's Germano iron ore mine (Vale/BHP JV) in Minas Gerais, Brazil, may lead to higher pellet premiums, if Samarco is forced to halt operations for a longer period of time. The global seaborne market is around 1,550Mtpa and Samarco contributes about 2 percent (29Mtpa) of global supply.^{14,15}
- Despite the current low iron ore prices, India's output is forecast to increase through 2015 and over the outlook period, as several mines restart operations. India's iron ore mines have been slow to restart, after the lifting of the ban on operations in April 2014, due to which the local steel mills have been increasing their imports of iron ore. In 2014–15, India's imports of iron ore reached 15Mt, a significant outcome given that India was the fourth-largest exporter of iron ore in 2010 (prior to court-imposed closure of domestic iron ore mines).
- Over the outlook period, India is expected to return to be a net exporter of iron ore, as mines in Karnataka, Goa and Odisha slowly ramp-up to full capacity. Small export volumes to Japan and South Korea are already occurring; however, the ability to export large quantities of iron ore profitably, given the current and forecast price, is a key risk to this assessment.^{16,17}
- Iron ore exports from South Africa, Canada, Ukraine and other minor producers are expected to contract over the outlook period. Output from the smaller producers is expected to be displaced by the lower cost, higher quality iron ore produced by Australia and Brazil. The smaller producers may face infrastructure constraints and lower grades of iron ore, which make it difficult to export profitably in an environment of falling prices.¹⁸

Demand

- China's domestic iron ore producers struggled in the first 7 months of 2015 with output falling 9 percent y-o-y. The number of mines that reported a loss increased from 22 percent to 29 percent. As the price of seaborne iron ore fell, China's iron ore miners have found it difficult to match the decline in prices and remain profitable. Consequently, China's imports of seaborne iron ore remained stable through the first 7 months of 2015, despite lower steel production.¹⁹

Figure 4: Global imports of iron ore (2014–20F)



Source: "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

- Australia's exports of iron ore to China increased 13 percent y-o-y in the first 7 months of 2015 to 348Mt. Australia's share of China's total iron ore imports increased from 60 percent in 2014 to 65 percent in the first half of 2015. The rise in Australia's share of China's imports came at the expense of the smaller, high cost producers such as Iran, Ukraine, Canada and South Africa. The share of China's imports from these smaller producers has fallen from about 30 percent at the beginning of 2014 to 15 percent in mid-2015. Brazil's share of China's imports has remained stable at 20 percent.²⁰
- China's imports of iron ore are projected to grow by 2.4 percent a year to 1.1 billion tons in 2020. Low domestic steel prices, overcapacity and weak consumption growth are expected to be key features of China's steel market over most of the outlook period, and this situation would encourage steel mills to switch from higher cost domestic concentrate to cheaper seaborne iron ore.²¹
- High cost, low-quality producers of iron ore (both in China and around the world) are expected to exit the market and remove some seaborne supply over the medium-term. As a result, China's imports of iron ore from Australia and Brazil are projected to rise over the outlook period. However, the native iron ore mines are the key employers and taxpayers in some districts, and any substantial cessations may obstruct the government's effort to market reform.
- Japan's imports of iron ore are forecast to fall 3 percent in 2015 to 131Mt, as falling steel production reduces their iron ore requirements. Japan relies entirely on imports for its iron ore needs. Over the outlook period, Japan's iron ore imports are projected to fall less than 1 percent a year to 129Mt in 2020, as an expected fall in steel production over the medium-term reduces Japan's consumption of iron ore.²²
- In 2015, South Korea's iron ore imports are forecast to fall 3 percent to 66Mt, weighed down by falling steel production. South Korean steel production is projected to grow over the medium-term and support an increase in iron ore imports to 70Mt a year in 2020, an increase of about 1.2 percent a year.

¹² "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

¹³ Hellenic shipping news, "Brazil iron ore exports jump 8% in September", <http://www.hellenicshippingnews.com/brazil-iron-ore-exports-jump-8-in-september/>, 4 November 2015, accessed 4 November 2015

¹⁴ BMO Capital Markets, Global Commodities Research — Samarco incident, 6 November 2015, accessed December 2015

¹⁵ JP Morgan, Serious tailings dam failure at Samarco JV, 6 November 2015, accessed December 2015

¹⁶ Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

¹⁷ Reuters, "India to auction 20 major iron ore mines to revive industry", <http://in.reuters.com/article/2015/08/25/india-mining-iron-ore-idINKCNOQU0T920150825>, 25 August 2015, accessed 4 November 2015

¹⁸ "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

¹⁹ "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

²⁰ "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

²¹ JP Morgan, Steel and Iron ore — exploring the impact of China hitting peak steel, 05 October 2015, accessed November 2015

²² "Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

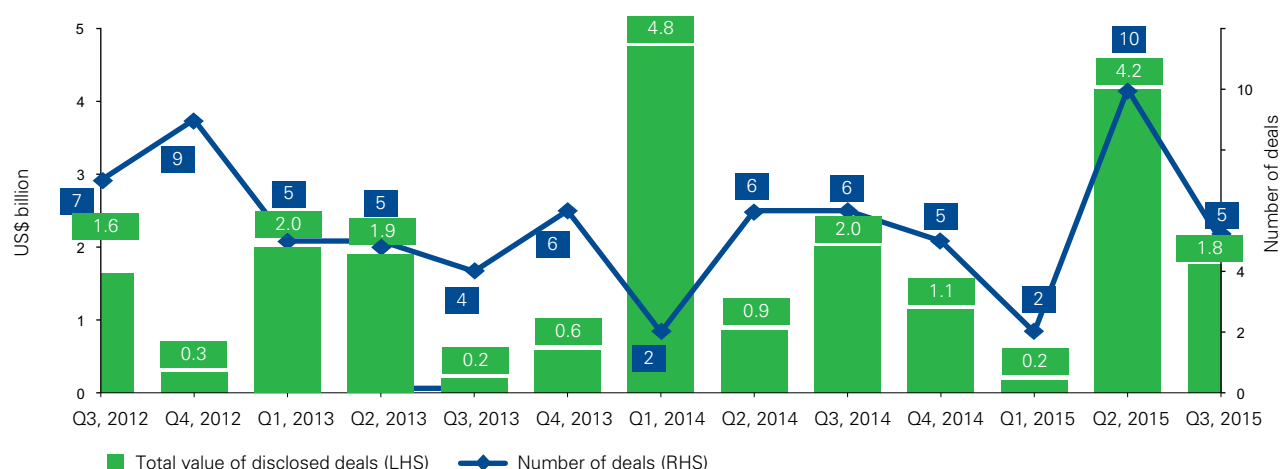
Key developments

Ownership changes²³

The total value of the five major deals announced in Q3, 2015 was valued at US\$1.8 billion, compared with 10 major deals

announced in Q2, 2015 at US\$4.2 billion and two deals in Q1, 2015 valued at US\$0.2 billion.

Figure 5: Value of major deals announced in iron ore industry



Source: Deals: Search, MergerMarket and Thomson, accessed October 2015; KPMG analysis

Table 1: Top iron ore deals in Q2, 2015–Q3, 2015

Date announced	Target	Target nation	Acquirer	Acquirer nation	Status	Value of transaction (US\$ million)	Stake (%)
20 Apr 2015	African Minerals Limited (Tonkolili Iron Ore Project)	South Africa	Shandong Iron and Steel Group Co., Ltd.	China	Completed	170	75
22 Sep 2015	Arafura Iron Pty Ltd.	Australia	Arafura Resources Ltd	Australia	Announced	N/A	51
10 Jul 2015	Cabral Resources Ltd-Cert Asts	Australia	CPS Capital Group Pty Ltd.	Australia	Announced	N/A	N/A
6 Apr 2015	CML Metals Corp.	US	Gilbert Development Corp.	US	Announced	14	N/A
30 Apr 2015	Coast to Coast Minerals, LLC	US	Double Crown Resources Inc.	US	Announced	N/A	N/A
30 Apr 2015	Ferrous Resources do Brasil SA	Brazil	IEP Ferrous Brazil LLC	US	Completed	42	15.5
5 May 2015	Ferrum Iron Ore (Pty) Ltd.	South Africa	Principle Monarchy Investments (Pty) Limited	South Africa	Announced	12	39
6 May 2015	Hannukainen Iron Ore Mine	Finland	Tapojarvi Oy	Finland	Completed	N/A	100
29 Jun 2015	Iron Mineral Beneficiation Services Pty Ltd	South Africa	Mine Restoration Investments Ltd.	Namibia	Announced	N/A	39
30 Jul 2015	Minerações Brasileiras Reunidas S.A.	Brazil	FIP Multisetorial Plus II	Brazil	Completed	1,185	36.4
12 May 2015	Mongolia New La Le Gao Te	Mongolia	Zhongrun Resources Invest Corp	China	Announced	62	N/A
12 May 2015	Shiny Glow Ltd	British Virgin Islands	Zhongrun Resources Invest Corp.	China	Announced	1,935	N/A
14 Sep 2015	Sphere Mauritania SA	Mauritania	Al Rawda Resources Ltd	UAE	Announced	10	80

Source: Deals: Search, MergerMarket, accessed April 2015; KPMG analysis

* An investor group comprised of Huaxia Xinxing Investment Co Ltd and Huaxia Xinxing Investment Co Ltd.

²³ Deals: Search, MergerMarket and Thomson, accessed October 2015

Regulatory updates

Table 2: Recent regulations in the iron ore industry

Country/ Region	Regulation/Topic	Description
China	China to revise rules for granting mining rights ²⁴	— On 2 September 2015, China's Ministry of Land and Resources announced that the state-backed Chinese Association of Mineral Resources Appraisers would work with other government departments to revise regulations related to the granting of mining rights.
India	Delay in obtaining mining licenses and revocation of environment clearances pose serious threat in resuming mining activities in Goa ²⁵	— Goa Foundation has challenged the state government's renewal of 88 mining leases and the revocation of environment clearances by the Ministry of Environment, Forest and Climate Change in the Supreme Court of India, which pose a major hurdle in the path of resumption of iron ore mining activities in the state.
India	Indian government to auction mines ²⁶	— In August 2015, the Government of India announced the auction of about 20 major iron ore mines.

Project updates

Table 3: Cross-section of global iron ore projects

Project	Country	Owner/ Operator	Capex (US\$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
Carajás plant 2 (formerly known as Carajás Additional 40Mtpa)	Brazil	Vale (100%)	3,475	H2, 2013	40	Brown	Carajás production reached 33.9Mt in Q3, 2015, the highest for a third quarter and 2.3Mt higher than in Q2, 2015 and 1.7Mt higher than in Q3, 2014, mostly due to the ramp-up of the N4WS and N5S mines and the greater capacity utilization of Plant 2.
Carajás Serra Sul (mine S11D)	Brazil	Vale (100%)	6,878	H2, 2016	90	Green	The earthworks at the mine have been initiated. All mobile crushing rigs (truck-less system) have been received on-site. The transportation of the modules for the plant area have been initiated. The electro-mechanical assembly of modules achieved 83 percent completion and a total physical progress of 54 percent was achieved.
Cauê Itabirito	Brazil	Vale (100%)	1,317	H2, 2015	28	Brown	Civil works of the gridding substation has concluded and mechanical assembly of the strainer, 50 percent, has concluded. The total physical progress of 71 percent was achieved.
Chichester Project [#]	Australia	Fortescue Metals Group (100%)	N/A	December 2013	90	Green	The Chichester projects include Christmas Creek 2, Christmas Creek jigs plant and the Cloudbreak wet processing plant. The Christmas Creek operation fully ramped-up throughout 2013 and Chichester Hub is now operating at full capacity. Fortescue implemented cost savings in mining and processing operations through enhanced mining hygiene and ore recovery, optimization of mining fleet, operational efficiencies and productivity enhancements.
CLN S11D	Brazil	Vale (100%)	9,484	H1, 2014 to H2, 2018	230	Brown	The civil foundation works on the port expansion is ongoing. The total physical progress of 25 percent was achieved. Pile driving in the offshore north berth 31 percent completed. Pile driving for the bridges over Sossego and Parauapebas rivers initiated.

²⁴ "China to revise rules for granting mining rights", SNL metal and mining daily, 7 September 2015, via Factiva, accessed November 2015

²⁵ Herald, "Mining resumption hits another hurdle", 25 September 2015, accessed November 2015

²⁶ "Government to auction 20 iron ore mines this year: report", Domain-b.com, 25 August 2015, via Factiva, accessed November 2015

Table 3: Cross-section of global iron ore projects (continued)

Conceição Itabiritos	Brazil	Vale (100%)	1,174	H2, 2013	12	Brown	The construction of a concentration plant in the southeastern system was completed in H2, 2013.
Conceição Itabiritos II	Brazil	Vale (100%)	1,137	H1, 2015	19	Brown	The mechanical assembly of the secondary and tertiary crushing buildings of the hematite was concluded. The total physical progress of 91 percent was achieved.
Development of Hope Downs 4 mine	Australia	Rio Tinto (50%)	2,100	H1, 2013	15	Green	Approved in August 2010, the first production occurred in H1, 2013. The new mine is anticipated to have a capacity of 15Mtpa. Production reached 5.7Mt in Q1, 2015.
Expansion of the Pilbara port and rail capacity	Australia	Rio Tinto (100%)	5,900	Phase II by H1, 2015	360	Brown	The infrastructure for the expansion is 80 percent complete, with all rail, marine and wharf works in place. Rio Tinto announced in 2014 that the mine has reached a run rate of 290Mt per annum — two months ahead of schedule. As a result, production from Pilbara in 2015 is expected to reach 330Mt in 2015 (100 percent basis).
Guinea Iron Ore	Guinea	BHP Billiton (41.3%)	N/A	N/A	N/A	N/A	ArcelorMittal is in serious discussions with BHP Billiton to acquire the 41.3 percent stake in Mount Nimba, a major Guinean iron ore deposit.
Investment to extend the life of the Yandicoogina mine	Australia	Rio Tinto (100%)	1,700	N/A	56	Brown	Approved in June 2012, the investment includes a wet processing plant to maintain product specification levels and provide a platform for future potential expansion. It will extend the life of the mine to 2021 and expand its nameplate capacity to 56Mtpa.
Iron Bridge Project	Australia	Fortescue Metals Group (88%)	N/A	Q1, 2015	1.5 (Stage I), 9.5 (Stage II)	N/A	Concrete works are complete; structural, mechanical and piping works are well advanced; electrical and instrumentation works have commenced, and the commissioning team has started planning and documenting the start-up of the plant. First production from the 1.5Mtpa plant is expected in Q1, 2015. Testing and commissioning of the plant has been planned for Q2, 2015. The Iron Bridge Stage 1 plant trials continue with future development subject to successful completion of Stage 1 and joint venture approval.
Liberia Iron Ore	Liberia	BHP Billiton (100%)	N/A	N/A	N/A	N/A	Cavalla Resources Limited acquired BHP's Liberia iron ore assets in August 2014.
Phase two of the Marandoo mine expansion	Australia	Rio Tinto (100%)	1,100	N/A	15	Brown	Approved in February 2011, the expansion is expected to sustain production at 15Mtpa for 16 further years until 2030. Rio Tinto is expected to spend US\$933 million to extend the mine's life.
Samarco Fourth pellet Plant	Brazil	BHP Billiton (50%); Vale (50%)	3,500	H1, 2014	22	Brown	Samarco production for the September 2015 quarter increased by 9 percent to 7.5Mt (100 percent basis) underpinned by the ramp-up of the fourth pellet plant to full capacity during the March 2015 quarter.
Serra Leste	Brazil	Vale (100%)	446	H2, 2014	6	Green	It initiated its ramp-up in Q3, 2014. The plant, with a nominal capacity of 6Mtpa, produced 1.0Mt of iron ore in Q3, 2014. The project is on time and on budget with a total investment of US\$446 million.
Solomon Hub	Australia	Fortescue Metals Group (100%)	3,500	2012	60	Green	Fortescue opened the expansion to 155Mtpa with the official opening of the Kings Valley project at the Solomon Hub on 28 March 2014. The work continues on identifying and defining new targets for bedded mineralization in and around the Solomon Hub with a drill program completed at Frederick.

Table 3: Cross-section of global iron ore projects (continued)

Teluk Rubiah	Malaysia	Vale**	1,371	H2, 2014	30	Green	Construction of the distribution center completed in Q3, 2014. The distribution center has the capacity to receive and export 30Mtpa of iron ore, comprising of three ship unloaders, one ship loader and five storage yards.
Tubarão VIII	Brazil	Vale**	1,321	H1, 2014	7.5	NA	Vale's pellet production, excluding Samarco's attributable production of 3.6Mt, reached 12.2Mt in Q3, 2015. Production in Q3, 2015 was in line with Q2, 2015 and 6.6 percent higher than in Q3, 2014, mainly due to the ramp-up of the Tubarão 8 pellet plant.
Two-phased expansion of Iron Ore Company of Canada (IOC)	Canada	Rio Tinto (58.7%), Mitsubishi Corporation (26.2%) and the Labrador Iron Ore Royalty Income Corporation (15.1%)	N/A	Phase I completed	23.3	Brown	Pellet production was 2 percent higher in 2014 as compared with 2013, primarily driven by the improvements in operational efficiency achieved at the production plants. During Q1, 2015, concentrate and pellet production was 28 percent and 15 percent higher, respectively, as compared to Q1, 2014, driven by improved performance.
Vargem Grande — Itabirito	Brazil	Vale (100%)	1,910	H2, 2014	10	Brown	Production at the Vargem Grande pellet plant reached the historical record of 1.7Mt, 2.1 percent and 10.2 percent higher than in Q2, 2015 and in Q3, 2014, respectively, due to higher productivity of the plant.
WAIO Jimblebar Mine Expansion	Australia	BHP Billiton (85%)	3,640*	Q3, 2013	188	Brown	The ramp-up of additional capacity at the Jimblebar mining hub, along with further productivity improvements, will deliver an increase in system capacity to 290Mtpa over time.
WAIO Port Blending and Rail Yard Facilities	Australia	BHP Billiton (85%)	1,000*	2015	N/A	Brown	It handled first ore during H2, 2013. The project intends to optimize resources and enhance efficiency across the WAIO supply chain.
Zanaga Project	Republic of the Congo	Glencore plc (50% plus one share)	N/A	N/A	14	Green	The project has now advanced to the next phase of development, in which financing initiatives are being advanced and the commencement of front-end engineering design is being prepared, ahead of a potential investment and construction decision.

1) The list is not exhaustive and contains only a limited number of projects.

*Excludes announced pre-commitment funding

**Equity share of Vale in the project is not available

#Total Chichester Hub produces 90 mtpa of Iron ore plus an additional six Mtpa from a joint venture with BC Iron

Source: Company presentations, company websites, company quarterly reviews, latest news and articles

The above analysis includes projects of BHP Billiton, Rio Tinto, Vale, Fortescue Metals Group and Glencore plc.



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