



## Our iron ore business

Rio Tinto is a leading international business involved in each stage of metal and mineral production. The Group combines Rio Tinto plc, which is listed on the London Stock Exchange, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Rio Tinto is the second largest supplier to the world's iron ore trade. Iron is one of the most common elements on Earth, comprising about five per cent of the Earth's crust. Iron is the key ingredient in the production of steel, one of the most important and durable products for modern living.

We are the only iron ore producer with a truly global production and growth platform. Our integrated operations – including mines, rail and port infrastructure – are designed to respond rapidly to changes in demand for iron ore.

Rio Tinto's key iron ore operations are in Western Australia and North America. From these locations, we are well positioned to take advantage of demand in developed countries, and meet growth in demand from developing regions such as in Asia.

In December 2009, Rio Tinto signed a binding agreement with BHP Billiton to establish a production joint venture covering the entirety of both companies' Western Australian iron ore assets in the Pilbara.

Through projects such as our "Mine of the Future™", we're focusing on ways to produce more tonnes, more efficiently, in ways that minimise our impact on the environment and improve the lives of the people who work for us and the local communities.

We are investing in projects in new regions for the Iron Ore group, notably in Guinea, west Africa, and Orissa, India. Through these projects, new mines in the Pilbara and expansions at our existing operations, we have the scope to maintain and extend our leading role in the global iron ore sector.

**Top**  
Our integrated iron ore operations include mines, rail and port infrastructure.

## Iron

Iron is the most useful metal in the world. It is used in a variety of forms, in a multitude of applications in everyday life.

### Producing iron

We extract iron ore from beneath the surface rock, crush it and sort it, then either transport it by ship to customers, or send it to smelters in which we extract iron metal from the ore.

Most of the iron ore we sell is smelted by our customers in blast furnaces. The ore is fed into the furnace along with coke, and very hot air is blasted in. The chemical reactions that take place form a mixture of molten iron and slag.

The dense iron sinks to the bottom of the furnace and is tapped off. Once cooled, it is called pig iron. This is used to produce steel, or further refined to produce commercially pure iron.

Our HIs melt® subsidiary (Rio Tinto: 60 per cent) has developed an alternative process that is lower cost, more efficient and environmentally cleaner than the traditional blast furnace. HIs melt® is short for high intensity smelting. It is the world's first commercial direct smelting process, meaning that it produces premium quality pig iron – with no slag – directly from iron ore. The process allows iron ore fines with significant impurities to be used, and cheaper, non coking coal instead of coke.

### Using iron

Iron is the most useful metal in the world. It is used in a variety of forms, in a multitude of applications in everyday life:

#### Cast iron

Partly refined iron containing up to five per cent carbon. Cast iron is very hard, but brittle, and is ideal for moulded parts like car engine blocks.

#### Wrought iron

Nearly pure iron mixed with a glass-like material. Wrought iron is softer than cast iron and does not rust. It is used in outdoor furniture, railings and other decorations.

#### Steel

The most common form of iron. It contains around one per cent carbon and has thousands of uses.

#### Stainless steel

This contains chromium, making it very rust resistant. Stainless steel is ideal for vehicle parts, hospital equipment and cooking utensils.

#### Tool steel

Extremely hard, heat treated steel that is used in metalworking tools.

#### Right

Our Pilbara operations comprise 13 mines, three shipping terminals at two ports and a rail network spanning almost 1,400km.



## Our iron ore operations

### Pilbara operations

Rio Tinto's iron ore operations are concentrated in the Pilbara region of north west Western Australia. This includes our assets owned by Hamersley Iron and Robe River Iron Associates. Our Pilbara operations comprise 13 mines, three shipping terminals at two ports and a rail network spanning almost 1,400km. We export iron ore from our ports on the Western Australian coast predominantly to steelmakers in eastern Asia and Europe.

Our development programme for our Pilbara operations includes plans for brownfield expansion of existing mines, greenfield development of new mines and expansion of our key infrastructure that allows us to get our products to market.

In 2009, our share of production from our Pilbara operations was more than 170 million tonnes. We have already doubled our capacity in the Pilbara since 2000, and have introduced a suite of projects to expand capacity up to 220 million tonnes per year and beyond. To this end, a number of new mines are in various stages of pre-development study.

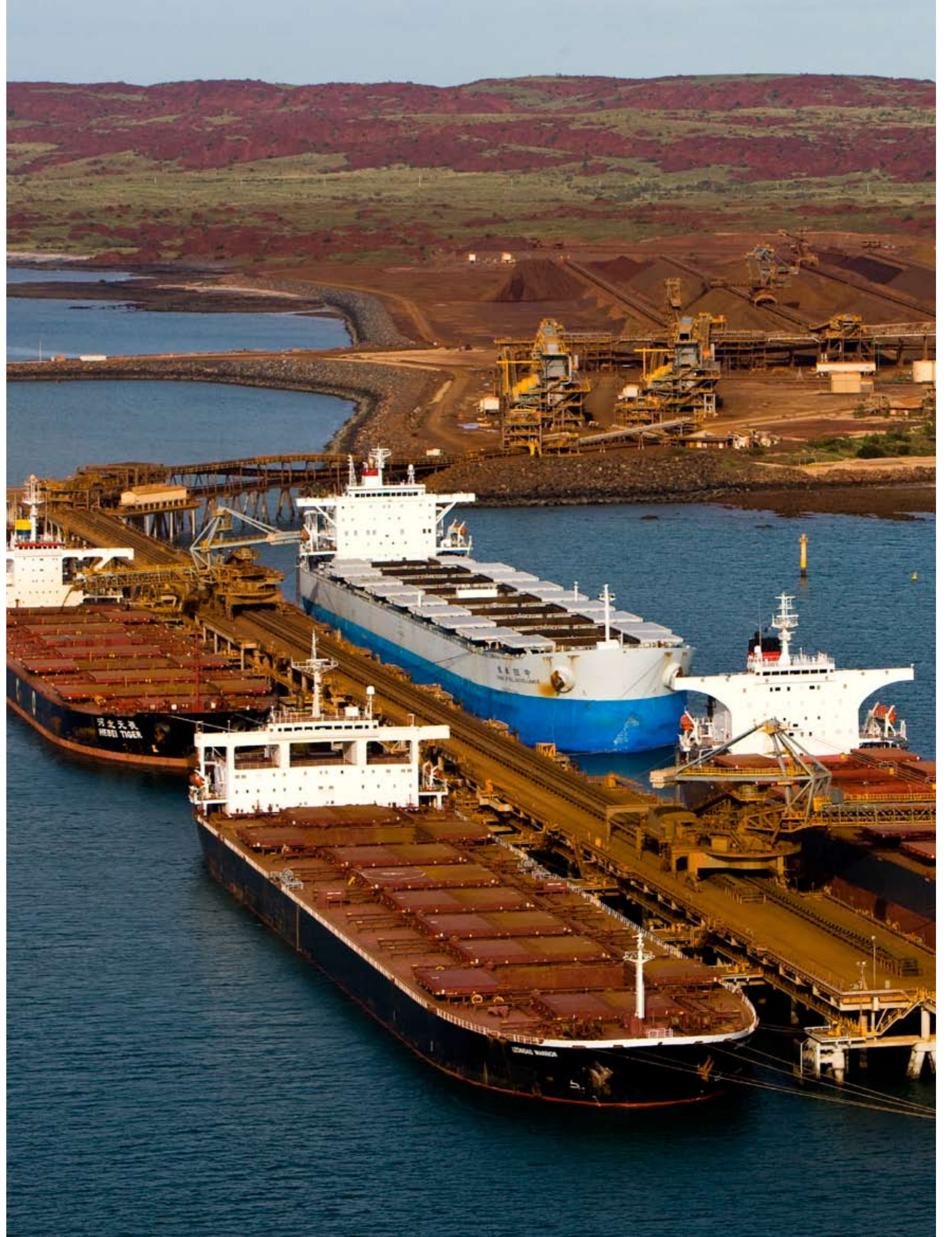
Our port facilities at Dampier (comprising Parker Point and East Intercourse Island terminals) and Cape Lambert are managed as a single port system. We will upgrade our infrastructure to cater for increased mine capacity. Cape Lambert has been nominated as the preferred site for expansion of our Pilbara port facilities. We have also invested more than US\$500 million in cleaner, more sustainable power generation to supply electricity to our port and mine operations.

Rio Tinto has a vision to develop the "Mine of the Future™", introducing new and improved ways of mining through automation and remote operation. We've started working towards this vision in the Pilbara as part of our current iron ore expansion plans. We've started an Operations Centre in Perth that will eventually direct most operations some 1,500km from our mines; remote controlled drills to enable drill-and-blast extraction of our ore; satellite guided haul trucks to transport ore at the mine site; driverless trains to carry it to port and tele-operated shiploading. These initiatives, and others, will let us reduce our environmental footprint and operating costs, be more efficient, and offer our staff more flexible working conditions and career options.

The Iron Ore group also has responsibility for Rio Tinto's interest in Dampier Salt, which produces salt and gypsum, because of the proximity of Dampier's operations to the Pilbara iron ore operations.

As the largest shipping user in the Group, Iron Ore is also responsible for Rio Tinto Marine, which owns and charters vessels for the transport of Rio Tinto's bulk products, including iron ore.

Right  
The Iron Ore product group is the largest shipping user in our business.





#### Hamersley Iron

Hamersley Iron operates ten iron ore mines, three of which are held in joint venture. Two of the joint ventures are with members of the Chinese steel industry. The third mine – Hope Downs – a Rio Tinto joint venture with Hancock Prospecting – started production in November 2007. Brockman 4, is expected to be operational from quarter two, 2010. Hamersley Iron has a dedicated heavy haul railway that transports the iron ore from our inland mines to the port terminals at Dampier.

#### Robe River Iron Associates

Rio Tinto has a 53 per cent stake in Robe River, which is the world's fourth largest seaborne trader in iron ore. Rio Tinto gained its stake in Robe River through the acquisition of North Limited in 2000. Robe River has three open pit mines: Mesa A, Mesa J and West Angelas. Rio Tinto has plans to expand Robe River's port at Cape Lambert to accommodate any increased production that may come from Pilbara expansion projects.

#### Iron Ore Company of Canada

Iron Ore Company of Canada (IOC) has been Canada's leading supplier of iron ore for more than 50 years. Rio Tinto acquired a 59 per cent stake in IOC when it acquired North Limited. This gave us our first iron ore production in North America, and also a new product – iron ore pellets.

IOC mines iron ore from its open pit mine in Labrador City, Newfoundland and Labrador. The company processes the ore to produce iron ore concentrate and pellets, rails these products to its port at Sept-Îles, Quebec, then exports them to major North American, European and Asian steelmakers.

#### Hismelt®

Rio Tinto has a 60 per cent interest in the Hismelt® iron making plant in Kwinana, Western Australia. The plant is ramping up towards planned capacity of 800,000 tonnes per year. Hismelt® is a lower cost, more efficient, cleaner alternative to conventional iron making technology. It can offer iron and steelmakers around the world significant environmental benefits compared to the traditional blast furnace process.

**Our key operations are in Western Australia and North America**

#### Top

The St Lawrence river, Quebec. Iron Ore Company of Canada exports iron ore concentrate and pellets from its ports at Sept-Îles on the St Lawrence.

#### Left

We operate 13 iron ore mines in the Pilbara, with another mine under construction.

**Our iron ore projects**

The Iron Ore group's growth strategy has involved a commitment of more than US\$9 billion to expand the global production platform for iron ore since 2003. In addition to further planned expansions in Western Australia, we have an exciting portfolio of new projects, in Africa and Asia.

Among the substantial synergies expected to come from the proposed iron ore joint venture with BHP Billiton are opportunities to optimise future growth through the development of consolidated, larger and more capital-efficient expansion projects.

**Pilbara projects**

Rio Tinto has previously prepared for an aggressive expansion programme in the Pilbara over the next decade and remains well positioned to execute the next phase in its strategy. An array of projects designed to support increased capacity up to 330 million tonnes per year is under way or awaiting decision.

Cape Lambert was early identified as the preferred site for any significant expansion of Pilbara port facilities, with plans to construct a new terminal.

In the Robe Valley, a new mine – Mesa A/Warrambo – has just commenced production and is expected to ramp up to 25 million tonnes per year capacity from 2011. Brockman 4 mine is expected to begin production from mid 2010, as is the Western Turner Syncline development near Tom Price, and the proposed Hope Downs 4 development is awaiting a final investment decision.

**Simandou**

A pre-feasibility study has been undertaken for the development of the Simandou iron ore project in Guinea. This greenfield discovery is in one of the best undeveloped major iron ore provinces in the world. Initial capacity of 70 million tonnes per year was targeted, with estimates of potential future capacity ranging as high as 170 million tonnes a year.

**Orissa**

Rio Tinto has a joint venture with the state owned Orissa Mining Corporation, which is seeking to develop iron ore leases in Orissa, India, one of the key iron ore regions of the world. With expectations of significant infrastructure and industrial development in India in the medium and long term, Rio Tinto is keen to contribute to the development of the Indian iron ore sector.

**Top**  
We are evaluating new iron ore opportunities in Guinea and India.



**Iron ore operations and projects<sup>1</sup>**

**Iron ore operations**

- 1 Hamersley Iron mines
  - Brockman 2
  - Brockman 4
  - Channar (60%)
  - Eastern Range (54%)
  - Hope Downs (50% joint venture)
  - Marandoo
  - Mt Tom Price
  - Nammuldi
  - Paraburdoo
  - Yandicoogina

- 1 Robe River mines (53%)
  - Mesa A
  - Mesa J
  - West Angelas
- 2 Hismelt® (60%)
- 3 Iron Ore Company of Canada (59%)

**Iron ore projects**

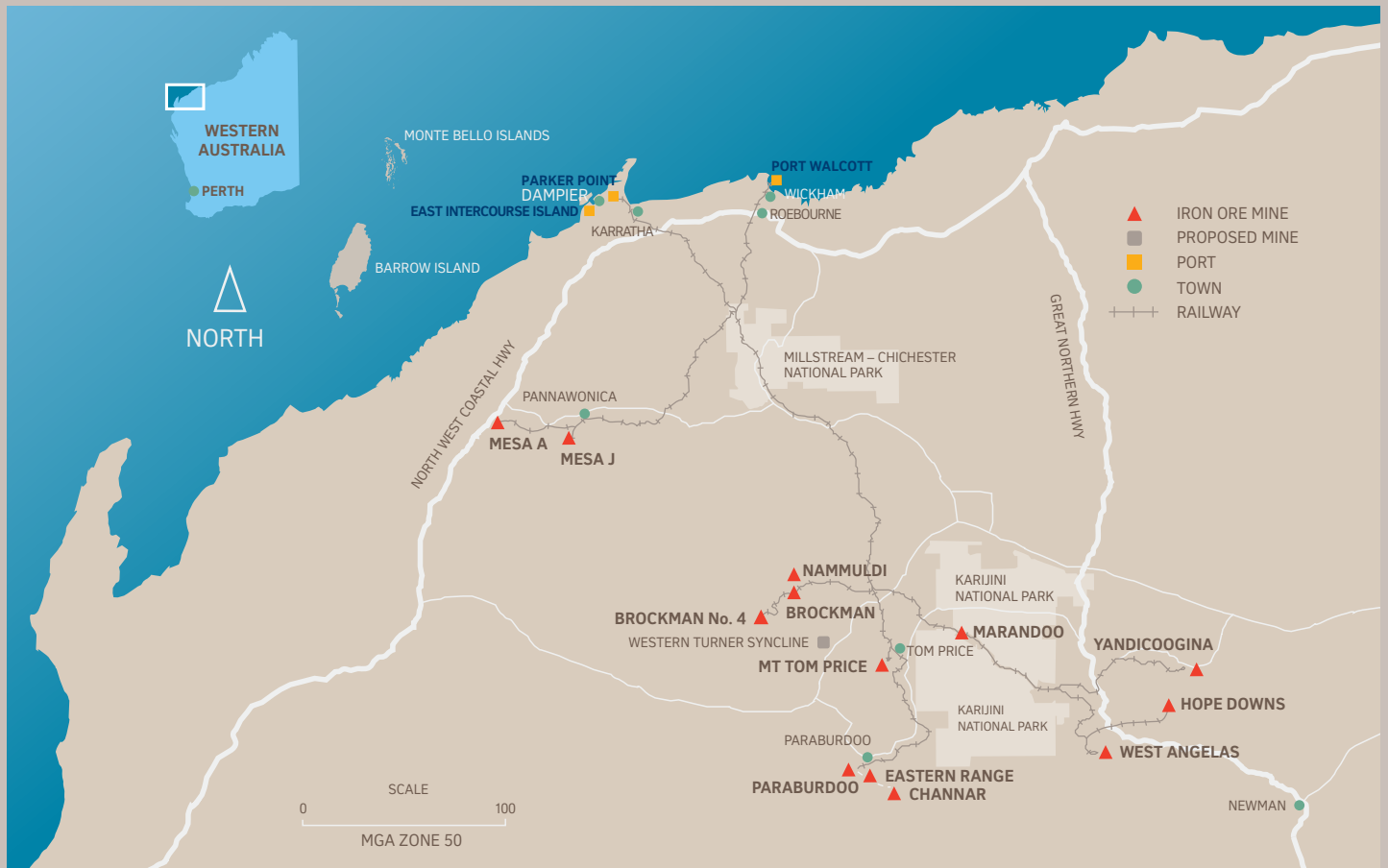
- 4 Orissa (51%)
- 5 Simandou (95%)

<sup>1</sup>Locations on the map are indicative  
Operations and projects are wholly owned unless otherwise shown.



# Fact sheets

- Corporate profile
- Aluminium
- Copper
- Diamonds
- Energy
- Industrial minerals
- Iron ore**
- Technology and innovation
- Exploration
- Sustainable development



Rio Tinto plc  
 2 Eastbourne Terrace  
 London W2 6LG  
 United Kingdom

Rio Tinto Limited  
 120 Collins Street  
 Melbourne, Victoria 3000  
 Australia

Rio Tinto Iron Ore  
 152-158 St Georges Terrace  
 Perth, WA 6000  
 Australia

T +44 (0)20 7781 2000

T +61 (0)3 9283 3333

T +61 (0)8 9327 2000

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