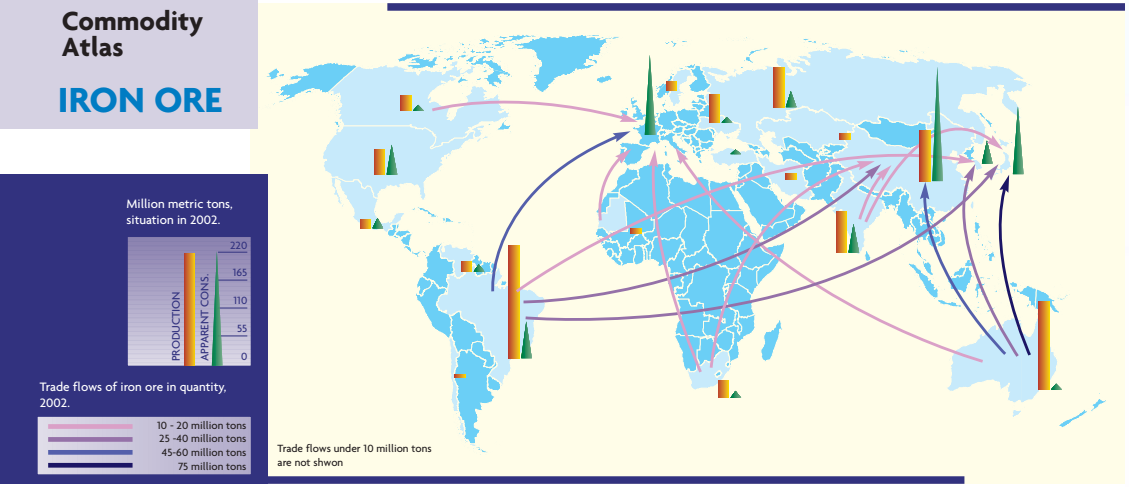


Production, consumption and trade of iron ore.

The United Nations SITC (revision 2) defines iron ore as iron ore and concentrates, not agglomerated SITC code 281.5 and iron ore agglomerates SITC code 281.6.

Iron is one of the most common chemical elements and constitutes 5% of the earth's crust. Iron ore is the raw material for steel. It is the most important mineral commodity in terms of production volume, with 1,000 million metric tons produced each year. In terms of value of global exports, it ranks third after aluminium and copper, at about $10,000 million per year.

Technology

After it has been mined and crushed into smaller pieces, iron ore can be shipped without further processing. If the ore's grade is low, however, the ore is ground and separated from non-ore-bearing rock. It is then either shipped as a concentrate or combined with a binding agent and roasted to produce iron ore pellets. Alternatively, sinter can be produced (in cake form), but this fragile product breaks easily during transport and is therefore little traded today. The iron content of iron ore can range from 30% to 70%, with 64% being an average for ore that is used without being first concentrated.

Iron ore is usually produced in open-pit mines, although some underground mines are major producers. The photograph shows the Kirunavaara mine in northern Sweden.

In the steel-making process, iron ore is first turned into pig iron, which is the primary raw material for steel production. It can be replaced by scrap, which accounts for about 30% of the raw material for crude steel, or by direct reduced iron, which is produced through another process and accounts for about 5% of crude steel production. Depending on the availability of scrap and its price relative to that of iron ore, the proportions of scrap and iron ore may vary over time and from one steelmaker to another

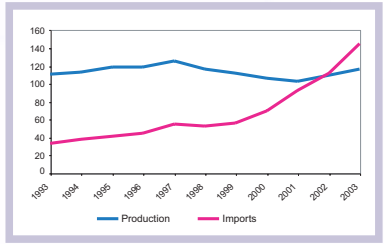
Because of iron ore's relatively low value, transport costs are a large proportion of the price. Dedicated railways for iron ore transport are common in the leading producer countries. The photo shows the railway between the Kiruna mine in northern Sweden and the export port in Narvik, Norway.

Commodity Atlas
IRON ORE

World production and trade: the emergence of China

World production of iron ore grew from 825 million metric tons in 1992 to more than a billion in 2002. About half of world iron ore production is exported, and international trade has increased faster than production. Most developing countries that export iron ore have relatively diversified commodity sectors; only Mauritania is strongly dependent on iron ore for its export revenues. Chinese imports have increased very rapidly in recent years as a result of the fast growth in Chinese steel production, and China has now become the world's largest steel producer and consumer as well as the leading importer of iron ore, followed by Japan.

China's iron ore production and imports *(million metric tons)*



Industry

The degree of corporate concentration in the iron ore industry is lower than for most other mineral commodities. It is also noteworthy that several state-owned companies are major producers. The table shows shares of world production controlled by the leading producers (including subsidiaries). Since some companies are vertically integrated and use their own iron ore to produce steel, a comparison based on shares of internationally traded iron ore would show a higher degree of concentration.

10 largest iron ore companies, 2002

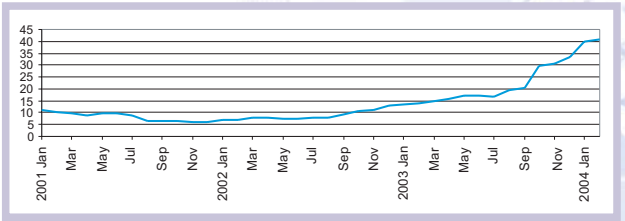
	Company	Country	Controlled production (million tons)	Share of world %
1	Cia Vale do Rio Doce	Brazil	167	14,8
2	Rio Tinto plc	UK	94	8,3
3	BHP Billiton Ltd	Australia	81	7,2
4	State of Ukraine	Ukraine	54	4,8
5	State of India	India	44	3,9
6	Mitsui & Co Ltd	Japan	35	3,1
7	Kumba Resources Ltd	South Africa	29	2,5
8	State of Russia	Russia	28	2,5
9	Rossiysky Kredit Bank	Russia	24	2,1
10	Luossavaara Kiirunavaara AB	Sweden	20	1,8
Total for 10 largest companies			576	51
China			231	20,5

Source: Raw Materials Group, Stockholm, 2003.

Prices

Most iron ore is traded under long-term contracts of at least one year, with prices established through annual price negotiations. Once a deal has been made between one exporter and one importer, the others usually follow quickly with similar deals. The price, which is set in US dollars, usually varies by only a few percentage points from one year to another. From the buyer's point of view, freight rates, which account for a large portion of costs (at times, as in 2003 for some buyers, they may be higher than the value of the iron ore itself) and are more volatile than iron ore prices, are also an important factor.

Iron ore spot freight rates, Brazil–China/Japan *(US$/metric ton)*



Source: SSY Consultancy & Research Ltd.

To learn more

UNCTAD/INFOCOMM, Market Information in the Commodities Area
www.unctad.org/infocomm

International Iron and Steel Institute
www.worldsteel.org

American Iron Ore Association
www.aioa.org

US Geological Survey
minerals.usgs.gov/minerals/pubs/commodity/iron_ore