IRON ORE

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China was the engine of world iron ore demand in 2003. With Chinese crude steel output reaching over 220 Mt, an increase of 21.2%, its import demand for iron ore grew by a staggering 33%. Producers of iron ore responded swiftly and increased production by 10% to reach 1,100 Mt. International iron-ore trade also reached record levels at 580 Mt, an increase of 8.4% compared with 2002.

China passed Japan as the world's largest iron-ore importer. Chinese imports increased to 148.1 Mt, while Japan's imports increased by 2.4% in 2003, with 132.1 Mt. Together with the third largest importer, the Republic of Korea, these countries account for 60% of total world imports.

Price negotiations in 2004 were much smoother than in the preceding two years and the first agreement was reached in mid-January as compared to mid-May in 2003. The negotiated prices of iron ore are the highest ever in current prices. For example, Carajas fines FOB for Europe are sold at US$0.379/dmtu. The increase over 2003 is 18.6%, the second highest ever recorded and just a fraction below the increase in 1980. In constant dollars or in other currencies, however, the price is far from a record.

In Brazil, Cia Vale do Rio Doce (CVRD) increased its share of control over global iron ore production in 2003, from 14.5% at the end of 2002 to 17.8% 12 months later. The three largest companies, including also Rio Tinto and BHP Billiton, together controlled 36% of the global market.

Supply

Production increased in all the major producing countries except the US. Brazil is the largest producer at 245 Mt, an increase of 9.1% over the 2002 level. Exports grew at a slightly lower pace from 170 Mt in 2002 to 184 Mt in 2003. Australia remains the second-largest producer and the largest exporter, with a production of 212 Mt wet weight and exports of 187.5 Mt. Brazil increased its exports at a higher pace than Australia in 2003 and is slowly closing the gap between the two largest exporters. China's domestic producers managed to increase output by 13%, bringing production close to the previous all-time high. India also recorded healthy double-digit growth in both production (12%) and exports (20%) in 2003. South Africa, the fifth most important exporter at 24.1 Mt, did not manage to maintain its market share, which fell marginally. Because of the continued crisis in the US steel industry, pellet production in the US decreased by 5.9% to 48.5 Mt. Canadian production recovered and reached 33.2 Mt, up by 7.5%, in 2003 (Table 1).

Production of iron-ore pellets in 2003 reached the highest level ever, or 286 Mt. Thus pellet production grew by 7.3%, fully recovering from the sharp dip in 2001. Total world exports are estimated at around 117 Mt, including trade

between the CIS countries. Exports grew faster than production, by almost 12%. The share of pellets in total iron-ore production in 2003 was 25.7%, down slightly from the 2002 figure of 26.5%. The share was 26.8% in 1997 and has fallen slowly since then. One major factor behind this slow decrease in pellet production is the steep fall in the US in recent years. With the growth of Brazilian and Swedish pellet exports, it is likely that the share of pellets in total exports will continue to grow.

Demand

World crude steel production increased from 903 Mt in 2002 to 965 Mt in 2003, an increase of 6.9%. Production increased in most regions of the world, with China experiencing the highest rate of increase. In 2003, its production of crude steel grew by 21%, from 182 Mt to 220 Mt. Considering that China represents more than 20% of the total market for crude steel (in 2002 it passed the US to become the world's largest steel importer) it is obvious that this change is having an impact on the entire world market. The steel industry in the rest of the world experienced a more moderate growth rate. In both Canada and the US, steel production actually fell, resulting in a total North American decrease of 1.2%. European steel production recovered, to grow by 3.4% to 302 Mt. Japan's production of crude steel increased by 2.6%, from 108 Mt in 2002 to 110.5 Mt in 2003. Asia (excluding China and Japan) saw an increase in its production of 6%, mostly due to growth in India, the Republic of Korea, Taiwan province of China and Turkey. The ex-USSR republics experienced a growth of 6.3% to 107.5 Mt. In Africa, steel production increased by 3% and in Latin America (including Mexico) by 6%.

Trade

International iron ore trade also reached record levels in 2003 as exports surpassed the previous all-time high in 2002 of 536 Mt by 45 Mt or 8%. Total iron-ore exports (excluding intra-CIS trade) have increased by approximately 42% since 1990, ie, a growth almost twice of that in global iron-ore production. Exports by developed market economy countries, excluding Australia, have decreased by 33% while those of Australia have almost doubled, increasing by 88% in the same period. Exports (excluding trade between themselves) of the ex-USSR republics fell by 22% between 1990 and 2003. Chinese exports are zero and will remain at that level. Developing countries accounted for 51% of total iron-ore exports in 2003, and their exports have grown by 31% since 1990. The ex-USSR republics represented 8% and developed market economy countries accounted for the remaining 41% of total iron-ore exports in 2003.

Brazil's strong growth of 8-9% in 2003 made its exports almost reach the level of Australia, 184 Mt compared with 187 Mt for the latter country. Indian exports grew for the third consecutive year and the country is now, at 55 Mt, by far the third most important exporter, clearly ahead of South Africa and Canada, the exports of which are both around 25 Mt. Swedish exports regained some of the volumes lost in recent years and reached 16.1 Mt. Mauritanian and South African exports fell during 2003, South African exports just marginally, but in Mauritania by 8%. Since 1990, behind Australia, we find

India with a total increase in iron-ore exports of 72%, Brazil at 62%, followed by South Africa at 43% in spite of its recent decline.

An interesting trend is the re-entry of Russia and Ukraine on international iron- ore export markets. In spite of their almost or wholly landlocked positions, export initiatives have been fairly successful in recent years. Kazakhstan has also concluded a deal with China and exports in that direction might grow considerably in the next few years. Transport capacity certainly limits the potential for expansion, but the most difficult years for the iron-ore miners of the former USSR republics seem to be over. There have, however, also been some announcements indicating that the high price increases in 2004 on domestic ores could trigger some imports from outside the CIS.

Seaborne iron-ore trade in 2003 increased by 7.8% to 518 Mt, from 481 Mt in 2002. These figures exclude trade on the Great Lakes between Canada and the US but include all other trade such as the Baltic and elsewhere. This represents 22.3% of total dry bulk shipments in 2003, up from 21.8% in 2002 according to Fearnleys.

Estimates of corporate control over seaborne trade have been made by the Raw Materials Group on the basis of a total figure for seaborne iron-ore trade presented by CVRD. Measured in this way, the shares of the major companies rise considerably. CVRD alone controls 33% of the total world market for seaborne iron ore and the three largest companies control almost 70%.

Spot iron-ore freight rates have been moving upwards since early 2002 and reached unprecedented highs in January 2004. The average rate for shipments from Brazil to China was then US$40.49/t (up from US$13.39 a year earlier), for South Africa to Rotterdam US$26.32 (up from US$9.44), and for Western Australia to Japan US$22.17 (up from US$6.10). Spot charter rates for iron ore from Brazil to China reached over US$50/t in February. The average spot rate in February 2003 was US$14/t and a year earlier only half of that or US$7/t. This means that in some cases the freight cost more than the iron ore itself.

China has passed Japan as the world's largest iron-ore importer. Imports increased by 33% to 148 Mt, accounting for 26% of total imports. Japan's imports increased by a modest 2.4% in 2003 to reach 132.1 Mt, the highest level ever. Together with the third largest importer, Republic of Korea, these three countries account for almost 60% (339 Mt) of total world imports. Only a year ago the figures were 58% and 299 Mt. European imports, which fell by 1.7% in 2003 to 153 Mt, are considerably smaller and account for 27% of total imports.

Among the European countries, Germany is still by far the most important importer at 34 Mt, in spite of a 24% decrease from 44 Mt in 2002. France imports roughly half this figure, and the only remaining countries with imports

exceeding 10 Mt are Belgium/Luxembourg, Italy and the UK. Canadian imports fell by 2.9% to 6.6 Mt while US import levels were constant at 12.6 Mt. Argentina's and Mexico's imports increased dramatically, but from low levels, by 21% and 34% respectively. As a group, developing countries accounted for 45% of total (excluding CIS republics) iron ore imports in 2003. The ex-USSR republics do not yet import iron ore from outside the CIS. Developed market economy countries account for about 55% of world imports. With the strong growth in Chinese imports, the developing world's share of total imports has increased quickly from only 40% in 2002.

Prices

Iron-ore price negotiations have been getting increasingly difficult. In 2002 and 2003 the first settlements were only made in the middle and end of May. But in 2004 the first agreement was reached during the second round on January 13, when CVRD and Arcelor (the world's largest steel company), agreed to an 18.6% increase in price for Carajas fines FOB to the European market. The new price is US$0.379/dry metric tonne unit (dmtu). Itabira fines increased by 17.4% to US$0.365/dmtu. The following day, Japan's leading steel maker, Nippon Steel, agreed to an identical increase, which translated into a new price of US$0.356/dmtu for a representative haematite fines FOB to Japan from Australia. The price of iron ore is at its the highest level ever and the annual increase has only been higher once - in 1980. But, in real terms, iron- ore prices have not followed inflation. In 1982 the price for Brazilian fines was US$0.33, which translates into US$0.50 in today's dollars. Moreover, the currencies of most producing countries have appreciated sharply against the US dollar in 2002 and 2003. The results of the successful negotiating rounds in 2004 for the individual iron-ore miners depend to a large degree on if, and how well, they have hedged their US dollar income.

Companies

The Brazilian producer, Cia Vale do Rio Doce (CVRD), increased its share of control over global iron-ore production in 2003, from 14.5% at the end of 2002 to 17.8% 12 months later. The three largest companies, including also Rio Tinto and BHP Billiton, together controlled 36% of the global market (Table 2). These developments are in contrast to 2002 when the level of concentration fell. The iron ore industry has, however, been consolidating more or less continuously since the 1970s. But although the trend is clear, developments have been by leaps and bounds. The pace has been slow in periods of only organic growth, such as the late 1990s, but much faster in times of intensive merger and acquisition (M&A) activity, for instance, during the past two years and in 1997 when CVRD was first privatised. The increase in the degree of concentration in 2003 is as a result of the fast growth in production rather than to mergers and acquisitions. The ability of the three major companies to respond rapidly to increasing demands in Asia made their production grow much faster than global output and hence their market shares shot up.

New projects

Iron-ore miners of the world managed to meet the strong growth in demand for iron ore during 2003 surprisingly well. Projects in the pipeline were

speeded up and the capacity utilisation rate of operating mines was stretched. High spot prices contributed positively to these successes. Rio Tinto and BHP Billiton in some cases cut as much as several years off their original time schedules for key projects. In Brazil, CVRD and the other producers managed to squeeze an additional 10% of production out of existing installations, through de-bottlenecking and focused investment in infrastructure necessary to bring ore onto the market. Towards the end of 2003, CVRD had an additional 33-35 Mt of capacity in operation and BHP Billiton brought 19 Mt of new capacity on stream.

With continuously growing demand for iron ore, the pressure for additional capacity increases will continue over the next few years. There is no shortage of new project ideas. The major companies continue their expansion in the well-known areas of Western Australia and in Brazil's Minas Gerais and Carajas, but it is also obvious that smaller entities and even the juniors, earlier prominent mainly in gold, have made their definite entry into iron ore. The Australians are spearheading this sector and companies with limited capital resources, such as Hancock, Mount Gibson, Fortescue Metals and Midwest, push both large and small projects. Sometimes this is done with the support of future customers such as CITIC in China. Other new projects are developed by steel producers wanting to guarantee a stable (both in terms of volumes and costs) supply of iron ore for the future. One Steel's revitalisation of the Whyalla Range mines in Australia is a good example of this. The LNM Group (Ispat) expansion in the Balkans is another. However, strikingly few, if any, really large green-field projects outside the established mining areas have been advanced since last year's survey. The only exception could be Rio Tinto's project in Guinea, West Africa. A few old mines have been repackaged, such as Hiparsa in Argentina and Koolan Island in Australia.

China's capability to increase production, given its generally low grades and also dwindling resource base, is a bit surprising. There are probably several factors at play: a political will not to increase import dependence too much, transport problems for inland steelworks, the need to create employment in rural areas and the strong price increase for imported ore. Russian and Kazakhstan iron-ore producers have been expanding their production rapidly in the past couple of years. They are fast approaching the top level of production from the 1980s and probably their capacity limits as well. So far this has been possible without any large investments in finding new deposits, in infrastructure or in completely new mines. The demand from China in particular could become the factor that tips the investment balance over in favour of new projects in Kazakhstan and Far Eastern parts of Russia.

The total project pipeline contains well above 450 Mt of new production capacity planned to come on stream until 2009, up considerably since last year's comparable figure of some 200 Mt. Of this total, around 250-260 Mt is considered to be more or less dedicated and can be assumed to be realised until 2007, and another 20-30 Mt by 2009. In addition there are over 50 Mt that were taken into operation late in 2003 or early 2004 and hence have not been in operation for a full year yet. Another 160 Mt are much more speculative and are either 'on hold' or postponed, and depend on a continued

and strong demand for iron ore to be completed. It seems that iron ore miners will be able to meet increased demands from the Chinese steel industry as well as all others. We are aware that many of the projects in the pipeline will not be taken forward if the iron-ore market does not continue to expand and that others might not get the financing they need, but a risk of excess capacity might soon develop. However, iron-ore producers are used to managing supply at the margin and would be expected to adjust the timing of capacity expansions to growth in demand in order to avoid oversupply.

Outlook

Chinese demand for iron ore, whether imported or domestically produced, is the key determinant of the outlook for the global iron-ore market in the short term: 2004 and 2005. Our estimates one year ago were fairly conservative and we also discussed the effects of a potential slowdown in the growth rate of Chinese steel production in 2003. The first quarter of 2004 has, however, proved to be yet another period of sustained growth in steel output and iron-ore consumption. Crude steel production in China increased by 25% in 2004 over the same period in 2003 and iron-ore production increased by 12%, from 73 Mt to almost 82 Mt. Iron-ore imports shot up by an impressive 48% in the same period, reaching more than 50 Mt. While these growth rates may not be sustainable they have, nevertheless, been sustained at least during 2003.

Steel demand is expected to continue increasing at respectable rates in both 2004 and 2005. China will continue to account for most of the growth in global steel consumption. If the attempts by the Chinese authorities to moderate growth succeed in achieving a 'soft landing' for the Chinese economy, the overall situation for steel consumption looks excellent. The balance between domestic and imported iron-ore supply in China is crucial to the development of the overall market.

For the medium-term outlook we are somewhat concerned that the massive projected increases in iron-ore mining capacity may overshoot even the most optimistic demand projections in the next three to four years, particularly if Chinese demand fails to grow at the expected rate. However, iron-ore producers are used to managing supply and to time capacity additions so as to match demand increases and avoid oversupply.

In all, this would seem to point to a situation with continued strong demand for iron ore and a finely balanced world market over at least the next two years and possibly longer, depending on both developments in the world economy and the speed with which new capacity can be brought into production. We forecast good possibilities for further increases in demand for iron ore during 2004, but considering that new iron ore capacities are continuously coming on stream we believe iron-ore prices in 2005 will increase but not as much as in 2004.

The material for this article is extracted from 'The Iron Ore Market 2003-2005' published for UNCTAD in early June 2004. This study is researched and compiled by the Raw Materials Group for UNCTAD, and can be ordered from: ironore@unctad.org or by fax from Mr Olle Östensson +41 (0)22 9170509.

Table 1: Iron ore: World production [1] (Mt)			
Country	**2001**	**2002**	**2003**
Sweden	19.5	20.3	21.5
Sub-total Europe excl. CIS	23.7	25.3	25.3
Kazakhstan	14.1	15.4	17.3
Russia	82.5	84.2	91.8
Ukraine	54.7	58.9	62.5
Sub-total CIS	151.3	158.6	171.6
Sub-total Europe	174.6	182.9	196.9
Canada	27.9	30.9	33.2
US	45.8	51.5	48.5
Brazil	208.7	225.1	245.6
Venezuela	19.0	20.9	21.7
Sub-total Americas	331.7	358.9	384.2
Mauritania	10.3	9.6	10.1
South Africa	34.8	36.5	38.1
Sub-total Africa	49.8	50.8	53.2
India	79.2	94.3	105.5
Sub-total Asia excl. China	96.4	111.7	127.9
China[2]	102.6	108.8	122.7
Sub-total Asia	199.0	220.4	250.6
Australia	181.1	187.2	212.0
Sub-total Oceania	182.8	188.9	213.9
Total world	**937.9**	**1001.9**	**1098.8**
*China ore production (unconverted):	218.3	231.4	261.1

Source: Iron Ore Market 2003-2005, UNCTAD 2004, ironore@unctad.org.

Notes:

[1)] Including minor volumes not for steel production.

[2)] Iron ore production is converted, so that its iron content is about equal to that on average in the rest of the world.

Sources:

The Iron Ore Market 2003-2005, UNCTAD Iron Ore Trust Fund, Geneva 2004, ironore@unctgad.org.

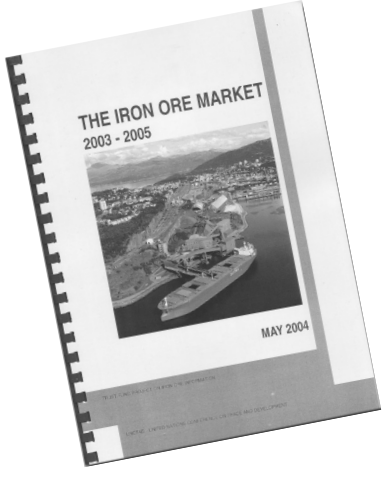
Indian Iron Ore 2003 – an in-depth review, Raw Materials Group & Techno Economic Services, Stockholm/New Delhi 2004.

Raw Materials Data, Raw Materials Group, Stockholm 2004, info@rmg.se.

Table 2: Corporate control in iron ore mining in 2003

Controlling entity Country	Controlled production (Mt)	Share of Total world production (%)
1 Cia Vale do Rio Doce; Brazil	197.0	18.2
2 Rio Tinto plc UK	105.1	9.7
3 BHP Billiton Ltd; UK/Australia	90.9	8.4
4 Ukrrudprom; Ukraine	43.2	4.0
5 SAIL; India	39.3e	3.6
6 Kumba Resources; South Africa	30.5	2.8
7 Cleveland-Cliffs Inc; US	30.3	2.8
8 Metalloinvest; Russia	26.9	2.5
9 CVG Ferromiera; Venezuela	21.7	2.0
10 LKAB; Sweden	21.5	2.0
11 Mitsui & Co; Japan	19.6e	1.8
12 Lebedinsky GOK; Russia	19.0	1.8
13 NMDC; India	18.0e	1.7
14 Anshan Iron & Steel Group; China	14.9	1.4
15 Sokolovsky-Sarbaisky GPO Kazakhstan	14.5	1.3
Total 15 largest	599	64.0
Total World	1080	100.0

Source: Raw Materials Data, Stockholm 2004, info@rmg.se.



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