

IRON ORE

*By William S. Kirk
United States Geological Survey*

The year 2000, was one of setting records and consolidation. Records were set in iron ore production, consumption, and trade. World iron ore production was 1,100 Mt, a 14% increase from that of 1999. In terms of gross weight of ore, China was the largest producer (288 Mt), followed by Brazil (193 Mt), and Australia (176 Mt). In terms of Fe content, China ranks fourth or fifth because of its low-grade ore. Production increased in all but two of 18 countries in which production exceeded 5 Mt. On a regional basis, the countries that constituted the former Soviet Union experienced the highest growth rate.

Australia and Brazil continued to increase their domination of the global export market, with 66% of the total in 2000. In decreasing order of market share, Australia held 33.6%, Brazil 32.6%, India 7.1%, and Canada 5.4%. No other exporting country had as much as 5%. Japan continued to be the largest importing nation, with 27% of total world imports. Japan was followed by China and Korea. These three countries accounted for 49.7% of world iron-ore imports in 2000.

World iron-ore consumption, as indicated by the production of pig iron, direct reduced iron (DRI), and crude steel, also reached record high levels. These are the chief indicators of iron-ore consumption, with pig-iron and DRI production being the more direct indicators. World pig-iron production increased by 6%, to 572 Mt. Asia's share of world pig-iron production has consistently increased, rising from 35% in 1990 to 47% in 2000. In the same period, Europe's share fell from 24% to 21% and the FSU's share fell from 21% to 13%. DRI production increased by 12%, reaching 43 Mt in 2000.

World crude-steel production grew by 7.4%, the largest such gain since 1973. The largest gains in production were in the countries of the former

Soviet Union (14.4%), followed in decreasing order by Asia (7.5%), Western Europe (5.8%), and North America (3.9%). Six countries accounted for 57% of world crude-steel production. From 1990 through 2000, Asia's share of world crude-steel production rose from 31% to 39%. North America's rose from 14% to 16%. Europe's share fell from 28% to 25%. For the rest of the world as a whole, production share fell from 27% to 20%.

Iron-ore prices increased slightly in 2000 after a large decrease in 1999. The price of fine ores from Broken Hill Pty. Co. Ltd. (BHP) and Hamersley Iron Ore Pty. Ltd. sold to Japan was US\$27.79 per long ton of contained iron, a 4.3% increase. On the same basis, the price for lump ore from BHP and Hamersley was settled at US\$36.84/t. The price of Carajás fines sold in Europe was US\$28.79/t of contained iron, an increase of 4.4%. The price of eastern Canadian pellets rose by 7.3% to US\$50.60/t.

Mergers and Acquisitions

There was major merging activity in 2000, and all of it, directly or indirectly, involved the two primary iron-ore exporting countries, Australia and Brazil. Behind the trend was a need for producers to become larger to achieve economies of scale and to put themselves in a better bargaining position with individual customers, who were themselves becoming larger through consolidation.

In August, Rio Tinto completed a hostile takeover bid for North Ltd. Cia. Vale do Rio Doce (CVRD) of Brazil was then, and remains, the world's largest iron-ore producer. The next largest, in Western Australia, were BHP, Hamersley Ltd., a wholly owned subsidiary of Rio Tinto, and in Western Australia and Canada, North Ltd. As a result of the takeover, Rio Tinto, sole owner of Hamersley, became the second largest iron-ore producer in the world, followed by

BHP. The North Ltd. takeover bid came about a year after the collapse of Rio Tinto's negotiations with BHP over the pooling of the two company's iron-ore operations.

Rio Tinto acquired a majority position in three iron-ore assets. Two are iron-ore mining operations: Robe River Iron Associates, which operates the Pannawonica mine, (Mesa J) in Western Australia, and the Iron Ore Co. of Canada (IOCC). The third is the large iron-ore deposit in Western Australia, West Angelas. The West Angelas deposit was the primary target of Rio Tinto's interest in North Ltd. It is 300 km southeast of Robe River's port at Cape Lambert. In March, 2000, the West Angelas Development was formally endorsed by the Western Australia Minister for Resources Development, enabling work to begin on the project. North Ltd. had planned for production to begin in 2002 at a rate of 7 Mt/y, rising to 20 Mt/y in several years. Resources were reported to be at least 1,000 Mt with 440 Mt of proven and probable reserves in two adjacent deposits. The development of West Angelas was underpinned by letters of intent from the Japanese steel industry to buy its production, one of the primary factors in Rio Tinto's decision to buy North Ltd. The two iron-ore operations that were part of the deal, Robe River and IOCC, have combined capacity of 45 Mt/y — 30 Mt/y from Pannawonica and 15 Mt/y from IOCC.

If Rio Tinto follows North Ltd.'s expansion plans of producing 20 Mt/y from West Angelas and 45 Mt/y from Pannawonica by 2010, the company could be producing 130 Mt/y by the end of the decade. The near-term effect was that Rio Tinto's iron-ore production rose 40%, increasing from 51.8 Mt in 1999 to 72.5 Mt in 2000.

Mergers in the mining industry generally do not have as much potential for synergy as they do in other industries because mining companies usually cannot share infrastructure. Mines cannot be moved, and most savings would come from consolidation

of staffs. The Rio Tinto-North Ltd. merger is a notable exception because the two companies can easily share infrastructure. The West Angelas deposit is located about 50 km from Hamersley's rail line to Yandi. Thus, Rio Tinto could gain access to West Angelas by constructing a short spur rather than a 340-km rail line.

On May 11, CVRD purchased Mineração Socoimex S.A. (Socoimex), whose main iron ore mine, the Gongo Soco mine, Brazil, is located along the CVRD-owned Vitoria Minas railroad. The mine reportedly has proven reserves of 75 Mt of high grade haematite and 30 Mt of itabirite. Socoimex has been producing 7 Mt/y of sinter feed, pellet feed, and lump ore for the domestic market and Europe.

On May 30, CVRD purchased 63% of S.A. Mineração Trindade-Samitri (Samitri), Brazil, from the Luxembourg-based Arbed Group. In September, CVRD made an offer to the minority shareholders, which resulted in the acquisition of 33% of the remaining shares, raising CVRD's ownership of Samitri to 99%. Samitri owned four mines in Minas Gerais, Brazil, as well as 51% of Samarco Mineração SA (Samarco), Brazil, with BHP holding the remaining 49%. BHP and CVRD agreed to enter a joint venture to rationalise the Alegria Iron Ore Complex in Brazil. The companies agreed that BHP would acquire a further one percent holding in Samarco to equalise its ownership with Samitri at 50:50. Samitri and Samarco both have iron ore mining and processing facilities in the Alegria Complex. The agreement between BHP and CVRD was to facilitate the restructuring of Samitri and Samarco operations to increase efficiencies, reduce costs and improve Samarco's product quality.

On October 9, 2000 CVRD, through Itabira Rio Doce Co. Ltd, a wholly-owned subsidiary, purchased one half of the 4-Mt/y pellet plant in Bahrain. CVRD and a group of institutional investors acquired Ferrovias Centro-Atlântica (FCA), the largest railroad in Brazil. FCA has

7,080 km of track and its own fleet of 270 locomotives and 8,400 railcars. It connects the iron ore mines in Minas Gerais to the port of Tubarão.

In the space of five months, CVRD had acquired the whole of two iron-ore producers and one-half of a third. In doing so, it had increased its production capacity by 30 Mt/y. It had also increased its jointly held pellet production capacity by 14 Mt/y, a gain of 56%. Its reserves had increased considerably and the company had solidified its position as the world's largest iron-ore producer.

These acquisitions are likely to have two effects on the iron-ore industry. First, the bargaining positions of Rio Tinto and CVRD will be enhanced. Second, the growing dominance of Australia and Brazil on the iron-ore export market will be accelerated. The two countries' combined share of world exports has risen steadily from 47% in 1983 to 65% in 1999.

Australia

BHP announced that it had decided to raise production at its Yandi mine in the Pilbara region of Western Australia because of continued strong demand for its fines. The company intends to increase production from 25 Mt/y to 30 Mt/y. The increase is to be achieved with only minor modifications to existing operations. BHP also intends to introduce a new higher value product: Yandi lump, a pisolitic iron ore. Trials with the Yandi lump began during the year in co-operation with the Japanese steel mills. Four mining campaigns have produced 375,000 t of Yandi lump for shipment to Japan, and BHP has decided to extend the trial mining for another year.

In 1999, BHP offered its 1,000 employees at its Pilbara iron-ore operations in Western Australia individual staff contracts to replace the existing employee contracts between the company and labour unions. The object of these contracts was to broaden the range and type of work being done by employees to

increase productivity. Staff contracts have been the norm at competing iron ore producers — at Robe River since the 1980s, and at Hamersley since the mid-1990s. The old contracts negotiated with the unions could have put BHP at a competitive disadvantage with the other two major Western Australia iron-ore producers. Workers held a one-day strike in December 1999 to protest BHP's tactics, and the labour unrest continued into the new year. The Australian Council of Trade Unions began legal action against the company, alleging that BHP's strategy of offering staff contracts was unlawful. The Australian Federal Court issued an injunction on January 31 against BHP, preventing the company from offering and entering into individual contracts with members of its Pilbara workforce. At year-end, the situation remained unresolved.

Strong demand for Marra Mamba type iron ore has heightened the prospects for BHP to develop its Mining Area C (MAC) deposit near the Yandi mine. Full capacity of 15 Mt/y at the US\$80 million project could be reached by 2010, although there is potential to increase production to 20 Mt/y. A US\$70 million rail line will link MAC to the Yandi mine. Another US\$11 million will be needed to upgrade the rail network that links BHP's mines to its port at Port Hedland. If production is boosted to 20 Mt/y, BHP would have to use larger locomotives capable of hauling more than 300 rail cars compared with 100 currently.

Hamersley received approval from the Western Australia Government to increase production capacity at the Yandi mine from 15 Mt/y to 20 Mt/y. No major changes to the existing facilities are planned. The capacity increase will be achieved by plant modifications that will allow annual planned operating hours and throughput rates to be increased. The Hamersley port expansion and upgrade of the existing Parker Point and East Intercourse Island facilities have been substantially completed. The combined

capacity has been increased from 55 Mt/y to 70 Mt/y.

Portman Mining Ltd, which changed its name to Portman Ltd, was mining on Cockatoo Island, off the coast of Western Australia. Cockatoo Island had been previously mined by BHP. Portman was treating waste stockpiles and producing a concentrate. That operation was closed, and Portman began mining a 1.6 Mt high-grade haematite deposit at the eastern end of the pit that had been covered by infrastructure facilities. The first shipment of ore from the new operation was made on September 10. The guaranteed specifications of the ore are a minimum 68% Fe, and maxima of 1.5% silica, 0.75% alumina, and 0.01% phosphorous. The company expects the mine to have a life of two years.

At the Koolyanobbing mine, Portman plans to increase production from the current level of 2 Mt/y to 3.5 Mt/y in 2001 and to 6 to 8 Mt/y over the next five years. The expansion includes the opening of an additional storage facility at the port at Esperance, which was completed in July 2000, and the delivery of 50 new rail cars. An additional 80 ore cars, of a new lightweight design, have been ordered to handle the 3.5 Mt expansion.

A three-stage dredging programme at Esperance will allow the full loading of capesize vessels (those too large to transit the Panama Canal) of as much as 180,000 deadweight tons (dwt) by the third quarter of 2001. The Western Australia Government has committed itself to the construction of a new ship loader and upgrading of the railway system, which will allow Portman to increase annual production to about 5 Mt/y. The ability to fully load capesize vessels is expected to lower Portman's seaborne freight rates. Portman's plans also include an A\$6 million exploration and development programme to evaluate its recently acquired Mt. Jackson, Bungalbin, and Windarling deposits north of the Koolyanobbing operation.

The Robe River participants approved the construction of a second mine process plant. The plant is to have a feed capacity of 7.9 Mt/y, which is higher than that of the existing plant. The process plant converts material previously regarded as waste to a saleable product by removing clay. The plant is expected to increase the mine's reserves, reduce the stripping ratio, and extend the life of the Mesa J operation by 18 months. The first process plant, which was commissioned last year, has performed at better than planned recovery rates and will receive minor upgrades to increase its feed capacity to 5.2 Mt/y.

ABM Mining Ltd., formerly Australian Bulk Minerals, was to have merged with Ivanhoe Mines Ltd. late in the year. ABM bought the Savage River iron ore operation from the Tasmanian Government in 1997. In 1999, ABM produced 2 Mt of pellets and 48,000 t of concentrate. In September, ABM started the fifth production line in the pellet plant, which is expected to raise pellet production to 2.5 Mt/y. An expansion project is under way that is expected to raise production to 2.95 Mt/y.

Brazil

CVRD announced a budget of US\$589 million for its iron-ore operations for 2000, 63% of the overall budget. Most of the funds (US\$410 million) were allocated for the construction of the 6 Mt/y pellet plant located at São Luís in northern Maranhão State. About US\$285 million was to be spent on the plant itself and US\$125 million on the mine, railway, and port infrastructure. Construction began in the first half of the year. Although this will be CVRD's eighth pellet plant, it will be the first to use ore from Carajás, which is in the northern system. It will be similar to the southern system in that the ore will be moved by rail from several hundred kilometers inland to a pellet plant at or near a port from which iron ore is shipped. The plant initially will produce direct reduced iron (DRI) pellets. The plant is to be wholly owned by CVRD, and when it reaches full capacity it will increase the capacity of CVRD's two other wholly-

owned plants and five joint-venture plants to 31 Mt/y. The plant, scheduled to begin production in mid-2002, will use Lurgi Metallurgie technology.

Other funds were to be used to begin increasing capacity at CVRD's Brucutu mine in Minas Gerais, which currently produces 2 Mt/y. The mine was expected to begin producing at a rate of 6 Mt/y by 2005, eventually reaching a capacity of 24 Mt/y. Another US\$30 million was to be spent on expanding the Carajás beneficiation plant and adding to the excavator fleet. The beneficiation plant at Carajás is used to wash, crush, and screen the ore. The ore does not need to be concentrated because of its high Fe content of 67%. Funds were to be directed toward the construction of two hydroelectric dams that are expected to lower operating costs. The southern system rail line was to receive funds to purchase new locomotives.

CVRD announced plans to automate the seven pellet plants at Tubarão in the southern system. Although this US\$23 million project will result in a marginal increase in capacity, its primary goal is to improve pellet quality, reduce production costs by US\$0.20/t, and cut the pellet rejection rate. The system will be introduced in three stages; first in field instrumentation, including sensors and measures; second in new software to control and supervise the pelletisation process; and third in optimising control of all processes, principally in energy-intensive areas such as ore crushing and pellet induration. The four year project will begin with CVRD I and II plants, which are wholly owned by CVRD and are more than 30 years old.

Minerações Brasileiras Reunidas S.A. (MBR) plans to spend US\$240 million over the next two years to increase the company's production capacity from its current 26.5 Mt/y to 32 Mt/y. Some of the funds will go into building a new beneficiation plant to handle the increased production from MBR's new mines, Tamandua and Capito do Mato. The

production is to offset the production lost when the Aguas Claras and Mutuca mines are depleted. In addition, the terminal at the port of Sepetiba will receive a new stacker-reclaimer.

Canada

The board of directors of Iron Ore Co. of Canada (IOCC) announced on June 30 that it had approved the refurbishment and reactivation of its pellet plant in Sept-Iles at a cost of US\$254 million, some of which had already been spent on engineering and evaluation studies. Closed since 1982, the refurbished plant is expected to be commissioned in June 2002. Initial production rate in the second half of 2002 is expected to be 1.3 Mt, with full production of 4.5 Mt/y of high-quality blast furnace pellets, mainly for North American and European steel mills, being achieved in 2003. This increased production rate is expected to lift pellet production at IOC to 17 Mt/y and take nearly all of IOC's production through to pellet form.

IOC selected Svedala Industri to supply engineering, equipment, and services for the reactivation of the plant. Svedala Pyro Systems USA, which will provide services throughout the construction and start-up phases of the project, has already begun work. IOC also announced that it was to buy 12 new haul trucks for the mine.

China

Officials at the State Administration for the Metallurgical Industry (Sami) expected to import about 65 Mt of iron ore in 2000, about 4 Mt more than in 1999. A study by Sami concluded that China should invest further in overseas iron-ore mines to raise the proportion of imports from Chinese joint-venture mines from the current 12% to 50%. China is the world's largest steel producer, with production exceeding 100 Mt/y in each of the last five years, but still must import about 10 Mt/y of steel to meet domestic needs. There are two overseas investments in iron ore: China Metallurgical Import & Export Corp.'s 40% ownership of the Channar mine

in Australia and Shougang Corp.'s 100% ownership of the Marcona mine in Peru.

India

Arrangements were being made to ship ore from the port of Haldia near Calcutta, and the Indian Government was planning to build a new port at Dhamra, 70 km south of Paradeep in Orissa. Iron-ore production costs in India are relatively low, but transportation costs are high. In Goa, the distance from mine to port is 50 km, but other major mines have to transport their ore long distances to the ports for export. The new port at Dhamra will reduce this distance. Once the ore arrives at a port, there are further problems due mainly to poor port-handling facilities, according to Indian Ministry of Mines officials. Nearly all leading ports around the world have loading rates approaching 100,000 t/d. Indian ports achieve a maximum of 40,000 t/d. It was estimated that shipping ore in 300,000 dwt vessels loaded at 100,000 t/d could achieve a total freight savings of US\$5/t.

The State Government of Karnataka decided to extend by a year the work permit given to Kudremukh Iron Ore Co. (KICOL). KIOCL's 30-year mining lease was due to expire on July 24. The company was granted a one-year work permit so that mining operations could continue. The issue preventing the long-term lease being granted was the State government's designation of a 500 km² park, which includes the mining leases and all of KIOCL's operations. The company was asked to confine its operations to an area of about 1,400 ha and not the 4,600 ha KIOCL had sought. KIOCL's request for a long-term lease of 20 years will await studies of the environmental impact of the mine.

Mineral Sales Pvt. Ltd. (MSPL) plans to sell 2.5 Mt of ore in 2000-01. The company plans to increase production at all its mines to reach 4.5 Mt/y to 5 Mt/y by 2003-04. MSPL has been acquiring new mines to aid in this increase.

Jindal Vijayangar Steel plans to open its new iron-ore mine. The mine is expected to produce about 1.8 Mt/y, rising to 3 Mt/y when full production is reached. The ore will feed the company's new 3 Mt/y pelletising plant.

Construction was started on the second phase of development for Hy-Grade Pellets Ltd., which will add an 8 Mt/y beneficiation plant and a 267-km slurry pipeline to the existing 3.3 Mt/y pelletising plant. Hy-Grade Pellets is a joint venture between UK-based steel-trading group, Stemcor, and Essar Steel of India, on a 51:49 basis. Essar Steel entered into a 20-year purchase agreement with the new company. Completion of the plant, which is expected to take 14 to 18 months, will enable Hy-Grade to produce pellets with an Fe content of 68.5%, up from the current level of 67%.

World Iron Ore Production ¹ (Mt)			
Country	1998	1999	2000^P
Australia	154.0	155.0	176.3
Brazil	207.0	190.3	193.3
Canada	37.8	34.5	35.9
Chile	9.1	8.3	8.0
China	246.9	209.0	288.3
India	72.5	67.8	75.0
Iran	12.3	12.3	12.3
Kazakhstan	8.7	9.1	15.0
Korea, North	10.0	8.0	8.0
Mauritania	11.4	11.5	11.5
Mexico	10.6	11.2	12.7
Russia	72.3	81.3	87.0
South Africa	32.9	29.5	33.7
Sweden	20.9	18.6	20.6
Turkey	5.9	4.3	4.5
Ukraine	50.8	47.5	55.0
US	62.9	57.7	63.0
Venezuela	16.6	17.0	17.4
Other	19.6	20.7	17.6
Total	1,062.0	994.0	1,135.0

¹ Does not include countries that produced less than 5.0 Mt; those quantities are included under 'Other'.

^P Preliminary.

The company is also considering increasing pellet capacity to 7 Mt/y. The pellet plant is located near the Visakhapatnam Port Trust and has access to mechanised ship-loading facilities capable of handling capesize vessels. More than 30 Mt of iron ore fines lying at the mine head in Bailadila will be beneficiated and transported by slurry pipeline to the pellet plant.

Some of the smaller iron-ore mines in the Indian State of Goa may be forced to close because of rising costs and an increasing tax burden, according to industry officials. Miners are challenging a proposal by the Marmugoa Port Trust to raise cargo-related charges by 25% and are criticising the State's plan to impose a levy on mining to raise funds for environmental restoration of mine sites. Iron-ore companies were also facing a demand to pay tax on their exports for the first time. Mining companies in Goa, particularly iron ore producers, which have enjoyed total tax exemptions on their exports since 1991, will have tax on their earnings introduced in a phased manner. In the first year, 20% of their income will be taxed; the rest will be taxed in 20% increments per year for four years until all export income is taxed.

Ten companies, seven of them international firms, responded to an expression of interest for joint-venture participation in Indian Iron and Steel Co. (IISCO), a wholly owned subsidiary of state-owned Steel Authority of India Ltd. (SAIL). The Indian Government announced that it had written off US\$391 million in loans and advances to IISCO from SAIL. Part of the attraction to IISCO is its rich iron-ore resources, reportedly measured in billions of tonnes. The company's Chiria iron-ore deposits are the largest in India.

Iran

National Iranian Steel Co. (NISCO), the primary steel producer, set as a goal the production of 7 Mt of steel for

2000, with plans for a further increase to 10 Mt/y by 2005. NISCO's principal iron-ore mine is at Tchogart. It provides at least 5 Mt/y of lump ore (56%-60% Fe) to the steelworks at Isfahan. The construction of a new US\$115 million ore-processing plant was proceeding. At NISCO's Gol-e-Gohar mine, Voest-Alpine Industrieanlagenbau, the Austrian construction firm, is expanding the beneficiation plant to increase capacity from the existing capacity of 3.5 Mt/y to 5.2 Mt/y. The project was expected to be completed in 18 months. Elsewhere in the iron ore sector, development is proceeding at the Sangam deposit in eastern Iran, which was expected to produce at an annual rate of 3.4 Mt of concentrates within a few years.

South Africa

The iron-ore division of ISCOR was studying the development of a new mine at a location 60 km south of its existing Sishen mine. A recent drilling programme has shown that the

World Iron Ore Imports¹ (Mt)			
Country	1998	1999	2000^P
Argentina	5.4	4.5	5.4
Austria	5.2	4.3	5.5
Belgium/Luxembourg	13.5	12.1	11.6
Canada	7.2	7.3	6.5
China	51.8	55.3	70.0
Czech Republic	7.4	5.4	7.3
France	19.8	20.1	19.7
Germany	46.8	38.9	47.5
Italy	15.7	15.6	17.6
Japan	120.8	120.1	131.7
Korea, Rep. of	33.6	35.5	39.7
Netherlands	8.6	8.0	7.9
Poland	8.8	7.3	9.3
Spain	6.6	6.3	6.3
Taiwan	14.2	13.3	15.0
UK	21.0	17.0	16.7
US	17.0	14.3	15.7
Other	48.0	47.5	52.4
Total	451.4	432.8	485.8

¹ Does not include countries that imported less than 5.0 Mt; those quantities are included under 'Other'.

^P Preliminary.

Welgevonden deposit is more promising than had been previously thought and is a potential replacement for the Thabazimbi mine. Iron-ore reserves at Thabazimbi are forecast to be depleted in 2006 or 2007.

US

LTV Steel Co. Inc., a subsidiary of The LTV Corp., on May 24, announced its intention to close permanently the operations of LTV Steel Mining Co. (LTVSMC). LTVSMC was located at Hoyt Lakes, Minnesota, employed approximately 1,400 people, and produced about 7 Mt of pellets in 1999. LTV Steel stated that its blast furnaces were experiencing lower levels of productivity and higher costs as a result of operating problems related to poor taconite pellet quality. The poor quality pellet was the result of deteriorating ore quality and the obsolete shaft furnaces used in the pelletising plant. LTVSMC operated the only remaining shaft furnaces in the North American taconite pellet industry. These maintenance-intensive furnaces were not competitive with modern straight grate or grate kiln furnace operations, which produce better quality pellets at lower cost. Replacement of the shaft furnaces and other related changes would require investments of about US\$500 million within three years, and a total investment of about US\$700 million in the next 10 years. The company said that such an investment could not be justified and would not resolve the problems of poor-quality ore reserves.

Another major problem at the mine was the high stripping ratio and associated costs. The iron formation on the Mesabi Range dips at an angle of about 8°. Mining must follow the iron formation down dip, and as it proceeds, the overburden becomes thicker. Because LTVSMC is the oldest continuously operating

taconite mining operation on the Minnesota Iron Range, and had some of the deepest pits, it had considerably more stripping to do than the other producers.

Venezuela

CVG Ferrominera Orinoco was expecting iron ore sales to rise to 27 Mt/y by 2004 with most of the increase coming from the domestic market. This will require Ferrominera to invest in its mines, processing and transport facilities. The company intends to install 12 Mt of new annual concentration capacity. This is expected to take place in two stages. Ferrominera was close to selecting a contractor to build the first two of three modules, which are expected to be in place by the second half of 2003. The company also intends to raise its pellet plant capacity to 4 Mt/y.

World Iron Ore Exports ¹ (Mt)			
Country	1998	1999	2000^P
Australia	144.7	147.8	165.2
Brazil	143.2	140.2	160.1
Canada	30.6	26.5	26.5
Chile	6.7	6.3	6.4
ex-USSR	29.0	29.0	27.8
India	32.8	28.9	35.0
Mauritania	11.4	11.0	11.1
South Africa	22.1	21.1	21.4
Sweden	16.0	13.9	16.0
US	6.0	6.1	6.1
Venezuela	8.6	6.6	6.9
Other	8.0	6.1	8.6
Total	459.1	443.5	491.1

¹ Does not include countries that exported less than 5.0 Mt; those quantities are included under 'Other'.

^P Preliminary.