Iron Ore

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INTERNATIONAL DEVELOPMENTS

After a strong start in 1998, world iron ore production declined during the second half of the year to reach a total of 1051 Mt for the year, or to about the same level as in 1997. Were it not for strong growth in the production of low-grade natural iron ore in China, which increased by close to 18 Mt, world production would have declined by over 2%. International trade in iron ore more accurately reflects the situation in 1998. According to the UNCTAD Trust Fund Project for Iron Ore Information, exports decreased 2.5% to 458.3 Mt in 1998 from the 470.2 Mt reached in 1997. Brazil is on the verge of catching up with Australia as the major iron ore exporting country with exports totalling 143 Mt in 1998, representing an increase of 3 Mt over the previous year. The Asian crisis seems to have hit Australia harder with that country's exports dropping by 11 Mt to 144 Mt. Japan remains the largest importer of iron ore (121 Mt), followed by China (52 Mt), Germany (45 Mt) and South Korea (34 Mt). As a result of the Asian crisis, imports declined significantly in Asia (a total of 14 Mt for the three countries noted above). In contrast, imports in Europe increased by more than 7 Mt, reflecting the favourable situation in the iron ore market at the beginning of the year.

CANADIAN DEVELOPMENTS

Developments in the Canadian iron ore industry mirrored the international situation. After a strong start, Canadian shipments of iron ore declined during the second half of 1998 to reach a total of 38.9 Mt, or to about the same level reached in 1997. Exports dropped by almost 2 Mt to 30.2 Mt, with the largest decreases occurring in the U.S. and German markets. Canadian production consists basically of pellets, sinter and concentrates. In 1998, shipments of agglomerated products and concentrates totalled 26.9 Mt and 12.1 Mt, respectively. Three mining operations in the Labrador Trough, a major geological belt extending through northern Quebec and Labrador, account for over 98.7% of Canadian production. These mines belong to the Iron Ore Company of Canada (IOC), Quebec Cartier Mining Company (QCM), and Wabush Mines. The remainder of Canada's production comes from the now closed Algoma Ore Division (AOD) of Algoma Steel Inc., located in Wawa, Ontario, and from by-product recovery of magnetite from two base-metal smelters in British Columbia, the latter being used in coal processing. QIT Fer et Titane Inc., whose operations are not included in statistics on iron ore, mines ilmenite, an iron-titanium ore, near Havre-Saint-Pierre. This ore is processed in the Sorel area, where pig iron is recovered as a by-product of titanium slag.

In October, IOC announced that it was considering a major investment project totalling $344 million. Part of the project would involve re-opening the Sept-Îles pelletizing plant at a cost of $255 million. The project should enable IOC to increase its annual pellet production by 4.5 Mt at a capital cost per tonne produced that is considered to be among the lowest in the world. This announcement follows another expansion project that was responsible for increasing the annual pellet production capacity of the Carol Lake plant from 10 Mt to 12.5 Mt. In April, a new five-year collective agreement was signed by the company and the United Steelworkers of America. Ratification of this collective agreement was one of the necessary conditions for the $344 million investment program announced by IOC. In February 1999, the company began mining the Luce satellite deposit near Labrador City, which contains more than one billion tonnes of crude ore grading 39% iron. During its first year of operation, Luce should produce close to 6 Mt of crude ore; production is expected to increase to 15 Mt/y within the next four years and to eventually reach 25 Mt/y of crude ore. Mitsubishi Corporation has elected to exercise its option to acquire a further 3.2% of IOC, as agreed when North Limited, of Australia, purchased a majority interest in IOC in April 1997. The option gave Mitsubishi the right to acquire a further 3.2% interest from North at the same price paid by North. Under the new share-

holding arrangement, IOC is owned 56.1% by North Limited, 25.0% by Mitsubishi, 6.9% by Dofasco, and 12% by the Labrador Iron Ore Royalty Fund.

QCM's iron ore shipments decreased slightly in 1998. One reason was the delayed re-opening of a blast furnace by one of its main U.S. clients. The loss of these shipments, combined with the weak market during the second half of the year, forced the company to take steps to adjust its production level accordingly. QCM suspended overtime and, in December, called a two-week shut-down of the Mount Wright mine and concentrator and a three-week shut-down of its pelletizing plant and port activities at Port-Cartier. QCM invested a total of $10 million to convert one of its pellet lines to produce low silica- and manganese-grade pellets for use in direct reduction furnaces. At the beginning of 1998, CAEMI of Brazil, one of two shareholders in QCM, indicated that it was considering the idea of conducting a feasibility study on the construction of a new pelletizing plant for its QCM subsidiary that would have an annual capacity of 4 Mt. The idea was put forward early in the year at a time when the market for iron pellets was relatively solid. CAEMI estimated the cost of such a plant at $400 million. If the project goes ahead, mining capacity will have to be increased in order to maintain the current sales level of concentrates, which is approximately 8 Mt/y. The new plant could be dedicated to producing low silica-grade pellets for use in direct reduction furnaces. No decision on this study will be made until QCM presents its 25-year mine plan to its shareholders around the middle of 1999. On a related matter, QCM has initiated studies to assess the potential for expanding reserves at Mount Wright and to rehabilitate the Fire Lake deposit. This deposit was previously mined by Sidbec-Normines, which ceased production in 1983. The studies were undertaken with the objective of identifying resources that could enable the company to replace existing reserves at Mount Wright that are expected to be depleted by the year 2008. It is estimated that the development of new reserves at Mount Wright will involve removing almost 30 million m^3 of waste rock, which could cost approximately $300 million over a 10-to-15-year period.

In late 1998, in an effort to recover some of the fines produced during handling of pellets before they are loaded on ships, Wabush Mines built an $8 million screening facility at its Pointe-Noire pelletizing plant. Wabush produces relatively coarse pellets, and abrasion causes fines to be produced and mixed with the ore to be shipped. The commissioning of this plant, combined with a number of modifications to the grinding circuit, will enable Wabush Mines to improve the quality of its products by reducing the fines to less than 1% of the tonnage of iron ore shipped. The company is also evaluating the opportunity to increase its pellet production capacity to 7.5 Mt/y, which would enable it to produce new value-added products such as low silica- and manganese-grade pellets for use in direct reduction furnaces. It also initiated a feasibility study to evaluate the potential for producing ferromanganese. Another feasibility study was conducted on the possibility of carrying out dredging operations at Point-Noire in order to accommodate larger-capacity vessels and thereby gain access to new markets in Europe and the Far East.

As announced previously, Algoma Steel Inc. ceased its mining activities at its Algoma Ore Division located near Wawa, Ontario, in June 1998. This closure comes after almost 59 years of mining that began in 1939. During this period, siderite ore production came from an underground mine and an open pit, although the latter was shut down in 1970. The deposit was first put into production in 1889, and mining operations lasted a few years. During its years in production, the Algoma Ore Division generated over 105 Mt of iron ore, primarily in the form of self-fluxing sinter. In the future, Algoma Steel Inc. will get its iron ore supply from the Tilden Mining Co., a company in which it holds 45% of the shares. The mine closure resulted in the loss of 220 jobs in the town of Wawa.

PRICES

The relative strength of the iron ore market at the beginning of 1998, during the period when prices are negotiated on the European and Japanese markets, enabled mining companies to obtain price increases ranging from 2.8% to 3.1%. At that time, these price increases, following three years of increases, were considered to be too small to allow producers to attain 1991 and 1992 price levels. In the second half of the year and at the beginning of 1999, the significant decline in the market for steel gave steel producers the negotiating tools they needed to demand significant price reductions for 1999. Iron ore producers were the only link in the steel production chain to achieve a positive balance sheet. Iron ore producers, including those in Canada, had to accept significant price decreases for 1999 ranging from 11% to 14% during negotiations with Japanese and European clients. In combination with reduced ore shipments, these price decreases are expected to contribute to a marked deterioration in the profitability of Canadian producers. If bad market conditions remain unchanged, iron ore producers might have to offer further discounts in prices already negotiated with some of their clients.

OUTLOOK

Any change in the economic situation in Asia is expected to have a marked impact on the steel market and, consequently, on that of iron ore. China is

expected to continue to look to foreign markets to satisfy a large part of its iron ore requirements. Chinese imports of iron ore rose from 14.3 Mt in 1990 to over 55 Mt in 1997, representing an annual growth rate of over 18%. The development of a more modern market economy in China and the demand for higher-quality products is expected to lead to the closure of the country's more marginal iron ore deposits and China is therefore expected to maintain or increase its present level of exports.

If market conditions remain unchanged from the second half of 1998, Canadian shipments of iron ore are expected to drop significantly in 1999 to possibly 34 Mt. QCM and Wabush mines have announced temporary closures during July and August, respectively. Rather than halting production for a specific period of time, IOC plans to reduce its production capacity. Over the longer term, the three Canadian producers are contemplating a number of expansion projects that could increase Canada's production capacity to 50 Mt/y.

Notes: (1) For definitions and valuation of mineral production, shipments and trade, please refer to Chapter 65. (2) Information in this review was current as of May 31, 1999.

TABLE 1. CANADA, IRON ORE PRODUCTION AND TRADE, 1997 AND 1998

Item No.		1997		1998p	
		(tonnes)[1]	($000)	(tonnes)[1]	($000)
PRODUCTION (mine shipments)					
	By province				
	Newfoundland	21 847 537	921 893r	23 265 706	942 794
	Quebec	16 549 790r	x	15 152 000	x
	Ontario	430 295r	x	388 728	x
	British Columbia	100 233r	2 201 025r	101 837	2 177
	Total[2]	38 927 855r	1 571 741r	38 908 271	1 584 146
	By product				
	Concentrates	12 037 061	295 817	12 126 192	314 192
	Pellets	26 460 499	1 258 019	26 393 351	1 253 799
	Sinter	430 295	17 905	388 728	16 175
	Total[2]	38 927 855	1 571 741	38 908 271	1 584 146
IMPORTS					
2601.11	Iron ore concentrates, non-agglomerated				
	Brazil	154 573	7 157	149 675	7 790
	Mexico	–	–	47 083	2 536
	South Africa	41	1	55 718	2 312
	United States	32 831r	968r	44 675	1 130
	Chile	3	...	20 000	849
	Russia	–	–	54	2
	Tanzania	4	...	35	1
	China	5	...	4	...
	Germany	180	6	7	...
	Peru	2	...	3	...
	Sweden	–	–	2	...
	Guinea	–	–	2	...
	Australia	–	–	21	...
	Guyana	–	–	2	...
	Venezuela	2 279	65	–	–
	Japan	190	4	–	–
	Mauritania	46	1	–	–
	Turkey	27	1	–	–
	Greenland	14	...	–	–
	Ireland	9	...	–	–
	France	8	...	–	–
	United Kingdom	7	...	–	–
	Ghana	2	...	–	–
	Total	190 221r	8 203r	317 281	14 620
2601.12	Iron ore, agglomerated				
	United States	6 306 963	315 846	6 606 367	354 510
	Brazil	509 495	24 988	257 136	13 599
	South Africa	2	...	20 117	1 760
	France	–	–	63	3
	Chile	–	–	2	...
	Mexico	50 560	3 118	–	–
	Venezuela	50 094	2 104	–	–
	Mali	23	1	–	–
	United Kingdom	4	...	–	–
	Norway	2	...	–	–
	Total	6 917 143r	346 057r	6 883 685	369 872

TABLE 1 (cont'd)

Item No.		1997		1998p	
		(tonnes)[1]	($000)	(tonnes)[1]	($000)
EXPORTS					
2601.11	Iron ore concentrates, non-agglomerated				
	United Kingdom	2 524 558	65 032	2 227 048	62 234
	Netherlands	1 607 459	39 871	1 885 726	54 763
	France	1 768 933	42 240	2 057 034	52 865
	Germany	2 523 619	71 029	1 837 818	52 532
	South Korea	944 662	23 109	828 221	23 738
	Japan	998 359	22 637	788 283	22 710
	United States	621 651r	14 790r	688 535	18 009
	Philippines	379 672	8 492	333 312	8 590
	China	298 476	7 235	144 993	3 505
	Spain	116 845	2 760	–	–
	Belgium	92 502	2 465	–	–
	Total	11 876 736r	299 660r	10 790 970	298 946
2601.12	Iron ore, agglomerated				
	United States	9 279 852r	424 629r	7 831 667	408 198
	United Kingdom	2 362 004	115 345r	2 076 886	108 792
	Netherlands	2 228 277	106 249	2 107 823	107 336
	Germany	1 702 742	80 579	1 676 258	84 973
	Belgium	751 478	35 949	1 404 711	69 618
	Italy	1 491 564	72 559	1 094 427	54 915
	Australia	628 991	31 364	642 718	33 094
	France	559 495	26 117	622 005	27 658
	China	531 336	25 421	604 456	26 592
	South Korea	546 923	26 369	519 274	24 481
	Taiwan	101 540	4 653	370 026	19 178
	Turkey	42 312	1 970	149 384	7 754
	Portugal	191 804	9 361	126 698	6 436
	Spain	–	–	78 068	4 142
	Switzerland	–	–	61 939	2 957
	Norway	44 769	2 166	22 048	1 171
	Total	20 463 087r	962 741r	19 388 388	987 295
	Total exports, all classes				
	United States	9 901 503	439 429	8 520 202	426 207
	United Kingdom	4 886 562	176 662	4 303 934	171 026
	Germany	4 226 361	151 608	3 993 549	162 099
	Netherlands	3 835 736	146 120	3 514 076	137 505
	Italy	1 491 564	72 558	2 679 039	80 523
	France	2 323 428	68 357	1 404 711	69 618
	South Korea	1 491 585	49 477	1 094 427	54 915
	Belgium	843 980	38 413	1 347 495	48 219
	China	829 812	32 655	642 718	33 094
	Australia	628 991	31 363	749 449	30 097
	Japan	998 359	22 636	788 283	22 710
	Portugal	191 804	9 361	370 026	19 178
	Philippines	379 672	8 491	333 312	8 590
	Taiwan	101 540	4 653	149 384	7 754
	Spain	116 845	2 760	126 698	6 436
	Norway	44 769	2 166	78 068	4 142
	Turkey	42 312	1 969	61 939	2 957
	Mexico	–	–	22 048	1 171
	Total	32 334 823	1 258 678	30 179 358	1 286 241
Consumption of iron ore at Canadian iron and steel plants		14 359 000	. .	14 236 000	. .

Sources: Natural Resources Canada; Statistics Canada; American Iron Ore Institute.
– Nil; . . Not available; . . . Amount too small to be expressed; p Preliminary; r Revised; x Confidential.
1 Dry tonnes for production (shipments) by province; natural weight for imports and exports. 2 Total iron ore shipments include shipments of by-product iron ore.

TABLE 2. CANADA, IRON ORE SHIPMENTS, 1994-98

Company and Location	Ore Mined	Product Shipped	1994	1995	1996	1997	1998p
			(000 tonnes, natural or wet)				
Algoma Ore Division Algoma Steel Inc. Wawa, Ontario	Siderite	Sinter[1]	788	997	733	795	651
Iron Ore Company of Canada Carol Lake, Labrador	Specular hematite and magnetite	Concentrate	5 475	4 634	4 038	4 811	5 173
		Acid pellets	6 547	3 121	2 430	2 725	2 436
		Fluxed pellets	3 484	7 084	8 075	8 820	8 713
		Chips	–	188	169	–	–
Loadstone Limited	Magnetite	Concentrate	–	–	300	100	–
Quebec Cartier Mining Company Mount Wright, Quebec	Specular hematite	Concentrate	8 206	7 759	7 264	7 159	6 852
		Acid pellets	3 763	4 884	2 521	7 795	3 559
		Fluxed pellets	3 379	3 449	5 481	4 324	4 418
		Low Si pellets	1 025	–	51	225	280
Wabush Mines Wabush, Labrador and Pointe-Noire, Quebec	Specular hematite and magnetite	Acid pellets	3 035	3 322	3 155	5 697	5 845[a]
		Fluxed pellets	1 670	1 866	2 158	..	..
		Concentrate	369	135	–	..	..
		Chips	2	105	24	–	–
British Columbia producers	Magnetite	Concentrate	74	83	88	100	102
Total			37 817	37 627	36 486	38 551	38 029

Source: Natural Resources Canada.
– Nil; .. Not available; p Preliminary.
[a] Includes acid pellets, fluxed pellets and low Si pellets.
[1] Includes about 400 000 t of iron-bearing material not from the mine.

TABLE 3. RECEIPTS, CONSUMPTION AND INVENTORIES OF IRON ORE AT CANADIAN IRON AND STEEL PLANTS, 1997 AND 1998

	1997	1998
	(000 tonnes)	
Receipts imported	7 745	6 655
Receipts from domestic sources	6 748	7 360
Total receipts at iron and steel plants	14 493	14 015
Consumption of iron ore	14 359	14 236
Inventory at docks, plants, mines and furnace yards, December 31	9 010	9 968
Inventory change	-404	958

Source: American Iron Ore Association.

TABLE 4. WORLD IRON ORE PRODUCTION, 1996-98

	1996	1997	1998
	(000 tonnes, natural)		
China	250 510	255 000	273 000
Brazil	179 870	187 950	191 000
Australia	154 560	165 660	155 000
Russia	72 140	70 860	72 300
India	67 260	69 400	69 000
United States	62 130	62 800	61 000
Ukraine	47 750	52 993	50 760
Canada	35 690	38 928	38 908
South Africa	30 830	33 230	33 000
Sweden	21 290	21 900	20 900
Venezuela	18 720	17 559	16 370
Mauritania	11 200	11 700	11 400
Kazakstan	12 800	12 626	7 430
Other countries	57 791	55 144	51 250
Total	1 022 541	1 055 750	1 051 318

Sources: Natural Resources Canada; Interfax; UNCTAD Trust Fund Project on Iron Ore Information.

TABLE 5. SELECTED PRICES OF IRON ORE DESTINED FOR JAPAN AND EUROPE, SELECTED YEARS, 1986-99

Ore	Market	Source	1986	1988	1990	1992	1994	1996	1998	1999
			(US¢/Fe Unit Dmt, f.o.b.)							
Fines (including concentrate)	Europe	CVRD	26.26	23.50	30.80	33.10	26.47	30.00	31.00	27.59
		Iscor	22.70	20.55	24.75	. .	20.60	23.10	24.01	. .
		Kiruna	27.90	26.00	35.70	36.50	28.10	32.70	34.10	29.55
		Carol Lake	26.50	23.69	31.78	33.15	26.15	30.00	30.90	27.20
		Mt. Wright	26.50	23.69	31.78	33.15	26.15	30.00	30.90	27.20
	Japan	CVRD	23.29	20.90	27.38	28.11	22.65	25.89	26.89	23.99
		Iscor	20.23	17.75	23.62	23.86	19.21	21.55	20.65	19.93
		Hamersley[2]	25.56	23.31	30.54	31.35	25.26	28.33	29.45	26.21
		Carol Lake	22.09	19.93	26.11	27.26	21.96	24.63	25.60	22.79
Lump	Europe	Iscor	26.70	22.34	33.00	32.29	28.00	32.13	32.13	. .
		Hamersley[1]	36.20	36.00	49.97	48.28	40.28	46.82	47.94	40.75
	Japan	CVRD	23.29	21.89	29.22	29.00	24.38	27.63	28.44	22.37
		Iscor	23.53	21.86	30.21	29.79	25.74	30.02	30.91	30.50
		Hamersley[2]	29.81	27.88	38.53	38.23	32.74	37.09	38.18	34.28
Pellets	Europe	CVRD	35.60	40.35	51.60	48.47	43.64	52.40	53.56	46.46
		Kiruna	38.15	46.35	59.00	53.48	45.60	55.80	57.20	48.70
		Carol Lake	36.50	39.95	52.58	49.35	44.00	53.80	54.88	47.15
		Mt. Wright	36.50	39.95	52.58	49.35	44.00	53.80	54.88	47.15
	Japan	CVRD (Nibrasco)	34.73	37.93	48.50	45.57	41.03	49.26	50.34	43.68
		Savage River	35.45	35.89	45.90	43.12	38.83	46.62	47.65	41.33

Sources: *The Tex Report; Skillings Mining Review*; UNCTAD.
. . Not available; Dmt Dry metric tonne; f.o.b. Free on board.
1 c.i.f. Rotterdam; **2** f.o.b. Dampier.
Note: Price is reported in cents, U.S. currency, for each percentage point of iron in a tonne of ore, e.g., at 30¢/Fe unit, ore grading 65% iron would bear a price of 65 x 30¢ = US$19.50/t.